



1984-85

REACH FOR THE STARS

**GRADUATE
CATALOG**

UNIVERSITY OF CENTRAL FLORIDA

DEGREES OFFERED

COLLEGE OF ARTS AND SCIENCES

Master of Arts

Communication
English
History
Political Science
Sociology, Applied

Master of Science

Biological Sciences
Chemistry, Industrial
Computer Science
Mathematical Science
Microbiology
Psychology
Clinical
Industrial
Statistical Computing Program

Doctor of Philosophy

Computer Science

Master of Public

Administration (M.P.A.)

COLLEGE OF BUSINESS ADMINISTRATION

Master of Arts

Economics, Applied

Master of Science

Accounting

Master of Business

Administration (M.B.A.)

COLLEGE OF EDUCATION

Master of Arts and Master of Education

Administration & Supervision
Business Education
Counselor Education
Educational Media Specialist
Instructional Technology Specialization
Elementary Education
Early Childhood Education
English Language Arts Education
Exceptional Child
Foreign Language Education

Mathematics Education
Music Education
Physical Education
Reading Specialist
Science Education
Social Science Education
Speech Education
Visual Arts Education
Vocational Education

Master of Science

School Psychology

Specialist in Education and Doctor of Education

Cooperative degrees with Florida Atlantic University:
Administration and Supervision
Community/Junior College Instruction

Cooperative degrees with University of Florida:

Counselor Education (Doctorate only)
Curriculum and Instruction
Elementary Education
Instructional Leadership

Special Education: Exceptional Child

COLLEGE OF ENGINEERING

Master of Science

Computer Systems
Electrical Systems
& Sciences
Energy Systems
Engineering Administration
Engineering Systems Analysis
Environmental Sciences
Mechanical Systems
Operations Research
Structures & Foundations
Transportation Systems

Master of Science in Engineering (M.S.E.)

Civil Engineering
Electrical Engineering
Engineering Mathematics
& Computer Systems
Environmental Engineering
Industrial Engineering
Mechanical Engineering

Master of Science in Environmental Systems Management (M.S.E.S.M.)

Doctor of Philosophy

Electrical Engineering
Environmental Sciences
Industrial Engineering
Mechanical Engineering

COLLEGE OF HEALTH

Master of Arts

Communicative Disorders

Master of Public Health

Public Health (M.P.H.) - Cooperative degree

Master of Science

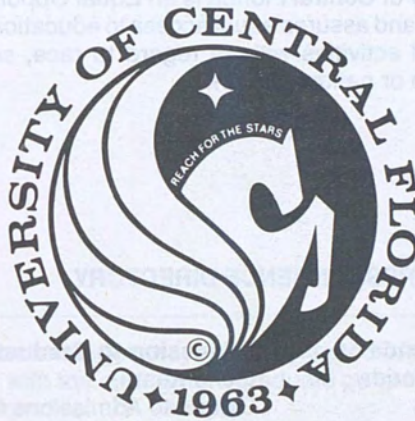
Health Sciences

NEW DEGREES

College of Engineering

Ph.D.	Computer Engineering
M.S.	Computer Integrated Manufacturing
	Construction
	Simulation Systems
M.S.E.	Computer Engineering
	Manufacturing Engineering
M.C.E.	Civil Engineering

GRADUATE CATALOG
UNIVERSITY
OF
CENTRAL FLORIDA
1984-85



Orlando, Florida
Volume III

UNIVERSITY OF CENTRAL FLORIDA

A Member Institution
of the
State University System of Florida
Orlando, Florida

The University of Central Florida, under applicable rules of the Administrative Procedures Act, may change any of the announcements, information, policies, rules, regulations, or procedures set forth in this catalog. The catalog is edited periodically and cannot always reflect new and modified regulations. Statements in this catalog may not be regarded as binding obligations on the institution or the State of Florida.

The University of Central Florida is an Equal Opportunity Employer and assures equal access to educational programs and activities without regard to race, sex, age, handicap or national origin.

CORRESPONDENCE DIRECTORY

Address Correspondence
University of Central Florida
Orlando, Florida 32816

Admission to Graduate Studies
Gene Kearns
Graduate Admissions Office
Phone: (305) 275-2766

Housing
Manager, Student Housing
Phone: (305) 275-2171

Financial Aid/Out-of-State Tuition Assistance
Contact College Dean's Office

TABLE OF CONTENTS

	Page
ADMINISTRATION AND STAFF.....	4
THE UNIVERSITY	6
ACADEMIC CALENDAR.....	12
CAMPUS AND VICINITY MAPS.....	14
ADMISSION	17
FEE INFORMATION.....	23
OFFICE OF GRADUATE STUDIES.....	25
UNIVERSITY GRADUATE REGULATIONS.....	27
STUDENT SERVICES	33
PROGRAM AND COURSE DESCRIPTIONS	37
COLLEGE OF ARTS AND SCIENCES	39
COLLEGE OF BUSINESS ADMINISTRATION	81
COLLEGE OF EDUCATION.....	95
COLLEGE OF ENGINEERING	145
COLLEGE OF HEALTH	175
INDEX.....	188

Recent program changes may not be reflected in this catalog. Students should check with the appropriate graduate program coordinator for current information.

To acquaint the student with the programs of study and the cost of attending the university, this public document was promulgated at an annual cost of 64 cents per copy.

ADMINISTRATION AND STAFF

STATE OF FLORIDA BOARD OF EDUCATION

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UNIVERSITY OF CENTRAL FLORIDA OFFICERS OF THE UNIVERSITY

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Dean	Louis M. Trefonas
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DIVISION OF SPONSORED RESEARCH

Vice-President for Research	Louis M. Trefonas
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CENTRAL FLORIDA RESEARCH PARK

Director	Ralph D. Gunter
Associate Director	Alan G. Fickett

COLLEGES, GRADUATE PROGRAMS, AND DEPARTMENT CHAIRMEN

College of Arts and Sciences	
Dean	Ralph A. Llewellyn

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Biological Sciences	Franklin F. Snelson
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College of Business Administration

Dean	Clifford L. Eubanks
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Accountancy	Henry R. Anderson
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College of Education

Dean	C. C. Miller
Associate Dean	Robert G. Cowgill
Assistant Dean	Patricia E. Higginbotham
Instructional Programs	Robert D. Martin
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Educational Foundations	W. K. Esler

College of Engineering

Dean	Robert D. Kersten
Associate Dean	George F. Schrader
Assistant Dean	Bruce E. Mathews
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Civil Engineering and Environmental Sciences	Martin P. Waniellista
Computer Engineering	Christian S. Bauer
Electrical Engineering and Communication Sciences	Robert L. Walker
Industrial Engineering and Management Systems	Christian S. Bauer
Mechanical Engineering and Aerospace Sciences (Acting)	Stephen L. Rice
Engineering Technology	Richard G. Denning

College of Health

Dean	Owen C. Elder, Jr.
Assistant Dean	Thomas S. Mendenhall
Communicative Disorders	Dona A. Hedrick
Health Sciences	Thomas S. Mendenhall
Public Health	Owen C. Elder, Jr.

THE UNIVERSITY

UNIVERSITY OF CENTRAL FLORIDA

The University of Central Florida opened in the fall of 1968. Its original name, Florida Technological University, was changed by the Florida Legislature on December 6, 1978. This name change reflects the changing role of the University in the Central Florida area. Initially, the University was developed in response to the Cape Kennedy space complex, but with its enthusiastic acceptance by the Central Florida community and its rapid growth, the University began to acquire a broader educational mission.

The University's presently assigned role within the nine-campus State University System of Florida is that of a general purpose institution offering degree programs at all levels of instruction. In addition, the University has the responsibility of assisting in the economic development of the Central Florida region, especially in the areas of high technology, electronics, and tourism.

STATEMENT OF PURPOSE

The University of Central Florida serves the people of Florida by providing graduate education in most general areas of study and in specifically selected technological and professional disciplines.

Master's degree programs are offered in over forty areas of the University. Ph.D. programs are available in computer science and engineering.

A cooperative Master of Public Health degree is offered by the College of Health with the University of South Florida.

Additionally, cooperative doctoral programs in education are available through agreements with the University of Florida and Florida Atlantic University.

INSTITUTIONAL PHILOSOPHY

The University of Central Florida's philosophy is based upon two tenets: ACCENT ON THE INDIVIDUAL and ACCENT ON EXCELLENCE. The University believes in the individual worth of each person and especially encourages the responsible individual who strives for excellence in every activity.

Research is considered an important part of advanced study, and UCF provides students with opportunities for research projects and independent study. Many projects involve community service and opportunities for student experience while receiving individual guidance from faculty.

In order to better serve the community, the University of Central Florida makes higher education easily available to the citizens of East Central Florida by operating off-campus centers.

ACCREDITATION

The graduate programs of the University are accredited by the Southern Association of Colleges and Schools, the official regional accrediting agency for educational institutions in the South.

In addition to the regional accreditation agencies, there are a number of scientific, professional, and academic bodies conferring accreditation in specific disciplines. The College of Business Administration is accredited by the American Assembly of Collegiate Schools of Business (AACSB). All teacher education programs are fully accredited by the Florida State Department of Education. UCF is listed with an "A" rating in the Report of Credit Given by Educational Institutions.

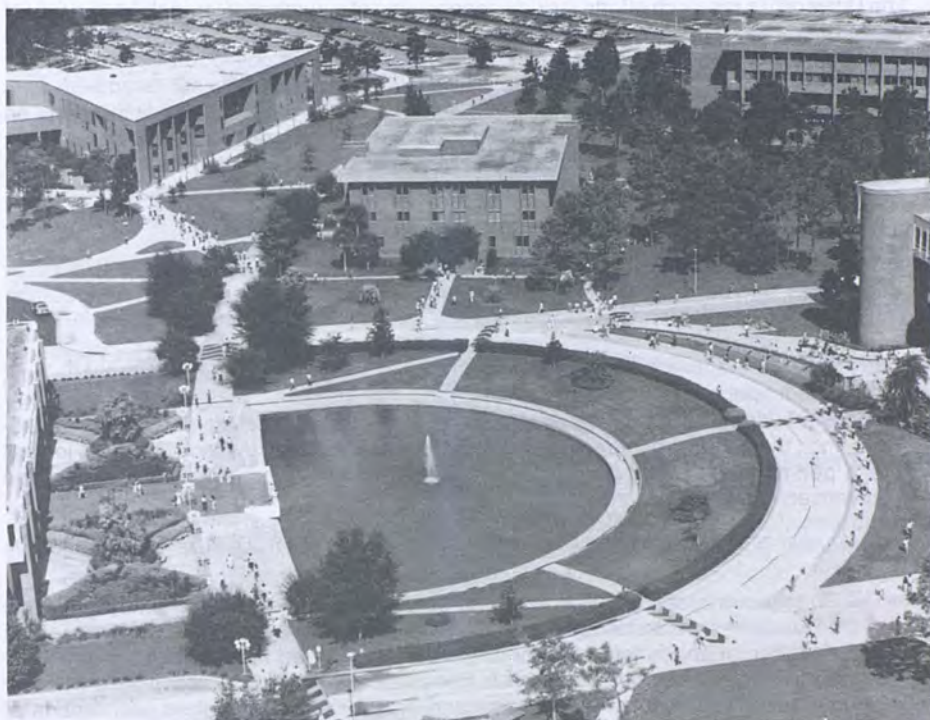
EAST CENTRAL FLORIDA AREA

UCF is located in the east central Florida region with a population estimated at 1.3 million. The area is endowed with a rich heritage of cultural, educational, industrial, and recreational activities. Cultural activities include a symphony orchestra, civic theater, dinner theaters, art galleries, and museums. The beauty of the Orlando area is evidenced by its numerous parks and flower gardens. In addition to UCF, educational needs of the area are served through quality public school systems, public community colleges, and several privately supported colleges and schools. Recreational opportunities abound in the Orlando area.

THE CAMPUS

The campus of UCF, located 13 miles east of downtown Orlando, consists of 1227 acres of land in a scenic setting of pine, palm, cypress, cedar, and oak trees. Lake Claire, covering 40 acres, and Lake Lee, covering 14 acres, contribute to the natural beauty of the campus. Since campus construction began in 1966, more than 20 buildings have been built including the library, classroom buildings, laboratories, residence halls, and student facilities. The Creative School for Children was built with funds contributed by the Edyth Bush Charitable Foundation of Winter Park and the UCF Student Government. Recreational facilities include lighted tennis and handball courts, a flag football/soccer field, a swimming pool, a golf driving range with putting greens, volleyball courts, and a baseball field. The campus currently serves approximately 14,000 students.

Living quarters in UCF's residence halls consist of double bedroom suites with a common living room and bath, functional furnishings, and maid service. Common laundry facilities and lounges for study and social activities are available. For more detailed information on campus housing, please contact the Director of Housing.



UNIVERSITY LIBRARY

The University Library provides materials and services to support the instructional and research needs of the University. Construction already underway on an expansion of the Library will effectively double the space available to faculty and students. The collection now numbers approximately 410,000 volumes, 315,000 microforms, 5,000 serial titles, 250,000 government documents, and 2,000 volumes in special collections. On-line access to OCLC and commercial databases is available. Special library services are provided for physically handicapped students. The Library is a depository for U.S. and Florida state documents.

The Audiovisual Services Section provides a wide variety of AV equipment. Films and facilities to preview them are also located there. Other audiovisual materials, recordings, tapes, filmstrips, and mixed media kits are housed in the library proper.

RESEARCH FACILITIES

Research facilities include the Northeast Data Center Amdahl 470 computer, with remote batch access and interactive processing available through departmental and computer center equipment; a Harris 800 and a Harris 550; a VAX-11/780 with a variety of peripheral devices; several microcomputers; and Tektronix graphics equipment. In addition to the normal complement of laboratory instrumentation, scale-up and industrial control equipment is available for chemistry. Well-equipped laboratories are available for research in all areas of the biological sciences, as are a greenhouse, an extensive herbarium, a vertebrate collection, complete animal facilities, and outstanding inland and coastal natural resources for fieldwork.

The engineering departments maintain modern, well-equipped laboratories and shop facilities. Close liaison is maintained with the Florida Solar Energy Center. In addition to the fully equipped instrumental biofeedback research laboratory and psychological testing laboratory, there are physiological research laboratories and communicative disorders facilities.

SPONSORED JOURNALS AND PUBLICATIONS

The University's research efforts include sponsorship of a number of journals in a variety of disciplines.

The Business Barometer of Central Florida. Department of Economics

The Business Barometer of Central Florida is a quarterly publication which reports on various economics data pertinent to the local business community. A generous grant from Sun Bank, N.A., aids the College of Business Administration in publishing *The Business Barometer*.

Co-Ed Transactions. Co-editors Dr. R. C. Harden and Dr. F. O. Simons, Jr.

A journal of the Computers in Education Division of ASEE. It publishes papers, application notes, and news items which are relevant to analog, hybrid and digital computation in education.

Florida Association of Science Teachers Journal. Co-editors Dr. R. C. Bird and Dr. J. H. Armstrong

The *FAST Journal* is the official publication of the Florida Association of Science Teachers, Inc., the Florida chapter of the National Science Teachers Association. This journal is a pen-reviewed publication, published three times a year, and is devoted to the advancement of science education.

Florida Journal of Supervision and Curriculum Development, (FASCD) Newsletter. Editor, Dr. M. L. Kysilka

The *Florida Journal of Supervision and Curriculum Development* is the official publication of the Florida Association for Supervision and Curriculum Development. The journal is a refereed journal and is intended for all persons interested in curriculum, instruction, supervision and leadership in education. Issues are theme based and contain articles by leading educators, reports of programs and practices, interpretations and reports of research and book reviews. The *Florida Journal* is published three times a year.

Florida Media Quarterly. Editor, Dr. D. J. Toler

Florida Media Quarterly, the official publication of the Florida Association for Media in Education, disseminates current information about all aspects of instructional media, school library/media programs, and instructional technology to media professionals throughout Florida and the U.S. Current circulation is approximately 1500.

The Florida Reading Quarterly. Editor, Dr. B. B. Anderson

The *Florida Reading Quarterly* is a refereed journal published four times a year by the Florida Reading Association. It is for the members of the association and all others concerned with reading, especially as it is practiced and encouraged through instruction and supervision in schools. Articles regarding theories of reading, instructional practices, research studies, materials, interviews and critiques are typical content of the journal.

The Florida Review. Edited by Professor Patrick Rushin

The Florida Review is a biannual literary magazine produced at UCF with editorial offices in the Department of English. The *Review* showcases outstanding poetry, fiction, and criticism by both Florida writers and out-of-state writers. Ongoing features include our annual printing of the winning poems from UCF's Florida Poetry Contest, and, in each issue's *Floridianna* section, a bibliography of works by Florida writers. Our only editorial standard is literary excellence.

Florida Scientist. Editor, Dr. Walter K. Taylor

The Florida Academy of Sciences is a nonprofit scientific and educational association. Sections of the Academy include Biological Sciences, Conservation, Earth and Planetary Sciences, Medical Sciences, Physical Sciences, Science Teaching and Social Science. The quarterly journal of the Academy is the *Florida Scientist*, first published in 1936. All articles submitted for publication are peer-reviewed. The *Florida Scientist* is received by over 300 national and international libraries and the current membership of the Academy is 630.

Hospitality Education and Research Journal. Edited by Dr. Abraham Pizam

Hospitality Education and Research Journal is an interdisciplinary journal dedicated to advancing the understanding of Hospitality education and Hospitality research through empirical investigation and theoretical developments and innovative methodologies. *Hospitality Education and Research* is directed to those concerned with the functioning of hospitality enterprises; practitioners and academics alike. It is intended to be a medium for the transmission of ideas, information and views of educators, researchers and practitioners in the hospitality industry.

Journal of the Institute of Industrial Engineers. Dr. Gary E. Whitehouse, Editor, Mini/Micro Column

The editorial thrust of the *Journal of the Institute of Industrial Engineers* is directed to new developments and approaches, and new products and services for the purpose of greater productivity and efficiency and more cost effective management. *Industrial Engineering* is published monthly with applications for executives, general managers, engineers, educators, and students.

International Journal of Mathematics and Mathematical Sciences. Dr. Lokenath Debnath, Chairman and Professor of Mathematics, Managing Editor of the Journal

The Mathematics Department sponsors publication of the *International Journal of Mathematics and Mathematical Sciences*. This is a quarterly journal primarily devoted to publication of research in all fields of mathematical and physical sciences, as well as related fields in which mathematical treatment is significantly involved. Through editorial activities, this office provides scholarly services to the international scientific community, promotes higher study and research, and disseminates knowledge in mathematical and physical sciences while cooperating with educational and research institution and organizations for the advancement of sciences and resources. In cooperation with a distinguished international editorial board, original research papers, research notes, research-expository and survey articles are processed, edited and then published.

Social Studies Teacher. Co-editor, W. Clarke, Co-editor, F. E. Green

The *Social Studies Teacher* is a refereed professional journal published nationally and internationally by a consortium of state social studies councils affiliated with the National Council for the Social Studies. It features the activities and research of social studies professionals from throughout the United States, Canada, Great Britain, Western Europe, Japan and Australia, acting as a clearinghouse for ideas related to improving social studies substance and instruction.

Tourism Barometer. Dick Pope, Sr. Institute for Tourism Studies

The *Tourism Barometer* is a quarterly publication which contains updated tourism forecasts based on the latest state-of-the-art tourism forecasting models. Its purpose is to assist Florida's tourism industry to more effectively gauge seasonal and long-term

employment needs, program advertising and promotional expenditures, establish policies for the purchasing of supplies, plan capital outlays for new facilities and expansion, manage inventories, and project tax revenues from tourism activities.

UNIVERSITY OF CENTRAL FLORIDA FOUNDATION, INC.

Chartered in 1968, the UCF Foundation, Inc., is a non-profit, tax-exempt corporation receiving and disbursing private gifts for the betterment of the University as a whole. Its primary function is to assist the University financially in the student aid program, scholarships, and in institutional development.

Through the leadership of a 50-member Board of Directors, the Foundation encourages, solicits, receives, and administers gifts and bequests of property and funds for scientific, educational and charitable purposes aimed at the advancement of the University and its objectives.

The Foundation promotes and supports education by providing funds which are received from private sources. Contributions are deductible by donors as provided in Section 170 of the Internal Revenue Code.

TRAVELING SCHOLAR PROGRAM

The University participates in the Traveling Scholar Program, which enables a graduate student to take advantage of special resources available on a campus other than on his own. Examples include special course offerings, research opportunities, unique laboratories, and library collections. If approved, course work will apply to graduate credit at the student's home campus.

A traveling scholar must receive the approval of his own graduate advisor and of the appropriate faculty member at the host university, and then be formally approved by the graduate deans at both institutions.

FLORIDA SOLAR ENERGY CENTER

UCF provides administrative support to the Florida Solar Energy Center, one of the largest renewable energy research centers in the United States. Located on 10 acres at Cape Canaveral, FSEC was created by the Florida Legislature in 1974 to advance research, development and analysis of solar technology. The Center has a highly qualified, multidisciplinary professional staff and comprehensive facilities for research and testing of photovoltaic cells, low energy building designs, solar collectors, and domestic hot water systems. The facility also has extensive technology transfer facilities, including an energy library and an auditorium for energy workshops.

FSEC major programs include research into photovoltaics (solar-generated electricity), alternative water heating systems, ocean thermal energy conversion, energy-efficient building design, natural lighting and ventilation and other energy conservation techniques.

CENTRAL FLORIDA RESEARCH PARK

Currently under development, adjacent to and directly south of the UCF campus, is the Central Florida Research Park, where private industry and governmental agencies will locate facilities to carry on research-orientated activities. While the first phase of the Research Park consists of 550 acres, there are additional land holdings that make it possible to expand future development to a total of almost 1400 acres.

It is anticipated that in the near future the Research Park, which is being developed by the Orange County Research and Development Authority in cooperation with UCF, will provide greatly expanded research opportunities for faculty and graduate students, as well as additional part-time and full-time employment for students and graduates.

FINANCIAL AID OFFICE

Programs administered by the Financial Aid Office include long-term loans and institutional emergency short-term loans. On-campus employment is also available. Information and application forms for out-of-state tuition waivers and teaching or research assistantships are available through the various colleges.



CAMPUS AND GRADUATE SCHOOL CALENDAR

SUMMER TERMS 1984

Term "C" 1984	Term "A" 1984	Term "B" 1984
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APPLICATION DEADLINES

For International Students	Jan. 30	Jan. 30	Jan. 30
For U.S. Postbaccalaureate Students	Mar. 26	Mar. 26	May 1
Readmission Applications	April 9	April 9	May 21

REGISTRATION by appointment*

Classes begin	May 3	May 3	June 14
Last day for refund of fees	May 7	May 7	June 18
Last day of late registration	May 10	May 10	June 20
Last day to change from credit to audit	May 10	May 10	June 20
Last day to apply for graduation	May 11	May 11	June 21
Deadline for withdrawal	May 18	May 18	May 18
Last day to remove an "I"	June 15	May 25	July 6
Classes end	July 13		July 13
Final exams	July 27	June 15	July 27
End of Term and/or Commencement	July 27	June 15	July 27

GRADUATE STUDIES DEADLINES

Announcement of Comprehensive Exam	July 13
Comprehensive Exam—one week prior to end of term	July 20
Final thesis/dissertation due in Library is the last day of the term.	July 27

GRE—General Test Dates

Feb. 4, April 28 & June 9, 1984

GMAT Test Dates

Jan. 28, March 17 & June 16, 1984

Registration deadline for tests is approximately five weeks before test; results are generally mailed about five weeks after the test date.

Deadline for obtaining graduate status for Summer 1984

May 28

HOLIDAYS: Memorial Day — May 28, 1984

Independence Day — July 4, 1984

*Area campus students must contact the director of Brevard, Daytona Beach or South Orlando campus. Deadlines for registration and Add/Drop may precede main campus dates and may vary with individual campuses.

1984

JANUARY							FEBRUARY							MARCH							APRIL							MAY							JUNE						
S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S	S	M	T	W	T	F	S							
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JULY							AUGUST							SEPTEMBER							OCTOBER							NOVEMBER							DECEMBER								
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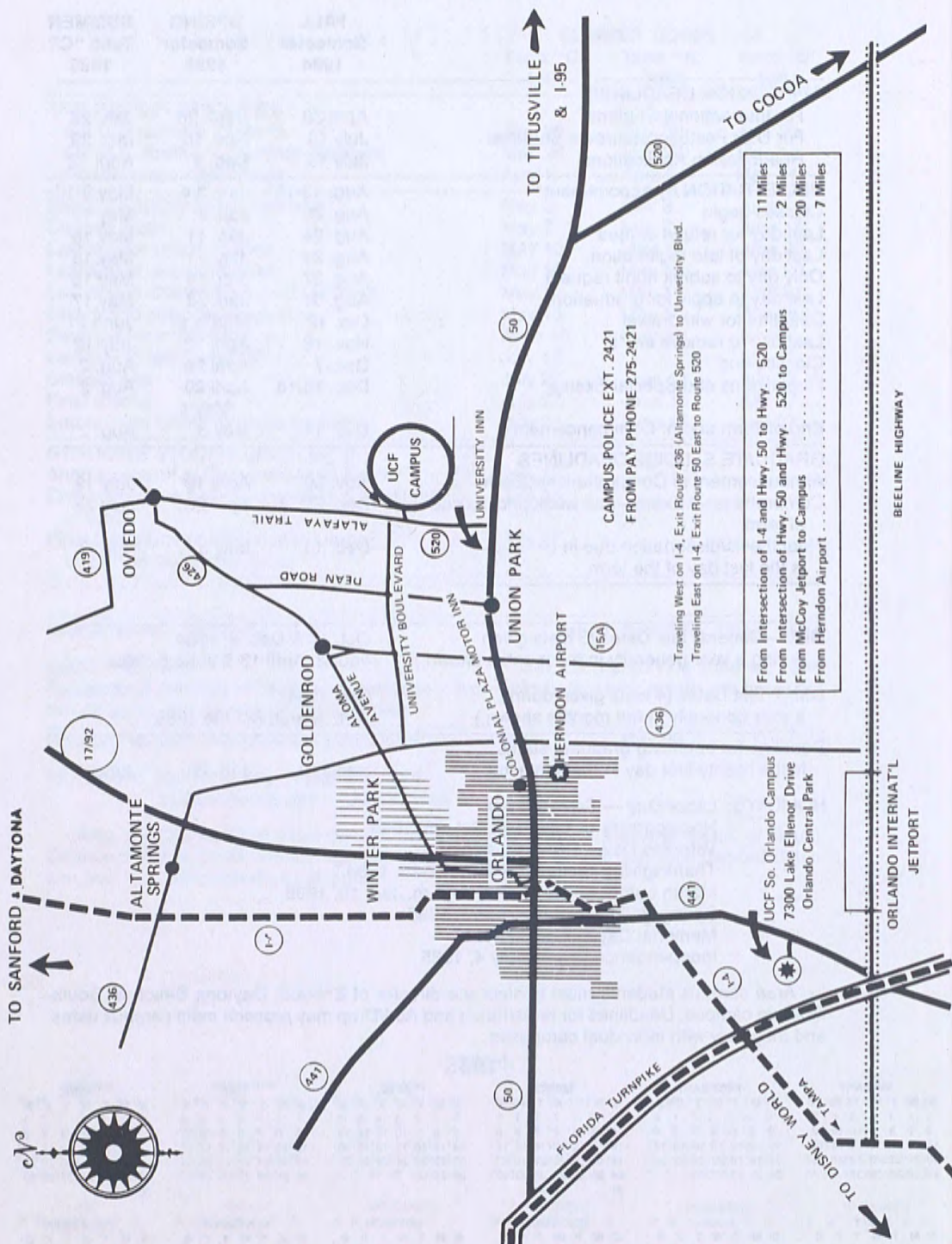
CAMPUS AND GRADUATE SCHOOL CALENDAR

	FALL Semester 1984	SPRING Semester 1985	SUMMER Term "C" 1985
APPLICATION DEADLINES			
For International Students	April 30	Sept. 28	Jan. 28
For U.S. Postbaccalaureate Students	July 13	Nov. 16	Mar. 29
Readmission Applications	July 13	Dec. 3	April 12
REGISTRATION by appointment*			
Classes begin	Aug. 13-16	Jan. 3-4	May 9-10
Last day for refund of fees	Aug. 20	Jan. 7	May 13
Last day of late registration	Aug. 24	Jan. 11	May 15
Only day to submit audit request	Aug. 24	Jan. 11	May 15
Last day to apply for graduation	Aug. 27	Jan. 14	May 16
Deadline for withdrawal	Aug. 31	Jan. 18	May 17
Last day to remove an "I"	Oct. 12	March 1	June 21
Classes end	Nov. 16	April 12	July 12
Final exams and Special Exams	Dec. 7	April 26	Aug. 2
	Dec. 10-15	April 29- May 4	Aug. 2
End of Term and/or Commencement	Dec. 14	May 3	Aug. 2
GRADUATE STUDIES DEADLINES			
Announcement of Comprehensive Exam	Nov. 30	April 19	July 19
Comprehensive Exam—one week prior to end of term	Dec. 7	April 26	July 26
Final thesis/dissertation due in Library is the last day of the term.	Dec. 14	May 3	Aug. 2
GRE—General Test Dates (5 tests given during a year generally in the months shown.)			
	Oct. 13 & Dec. 8, 1984	Feb. 2, April 13 & June 8, 1985	
GMAT Test Dates (4 tests given during a year generally in the months shown.)			
	Oct. 1984	Jan., March & June 1985	
Deadline for obtaining graduate status is the twenty-first day of the semester.			
	Sept. 10	Jan. 28	June 3
HOLIDAYS: Labor Day — Sept. 3, 1984			
Homecoming — 12-3 p.m. Oct. 26, 1984			
Veterans Day — Nov. 12, 1984			
Thanksgiving Holidays — Nov. 22-23, 1984			
Martin Luther King Day — 11-1 p.m. Jan. 15, 1985			
Spring Holidays — Mar. 11-15, 1985			
Memorial Day — May 27, 1985			
Independence Day — July 4, 1985			

*Area campus students must contact the director of Brevard, Daytona Beach or South Orlando campus. Deadlines for registration and Add/Drop may precede main campus dates and may vary with individual campuses.

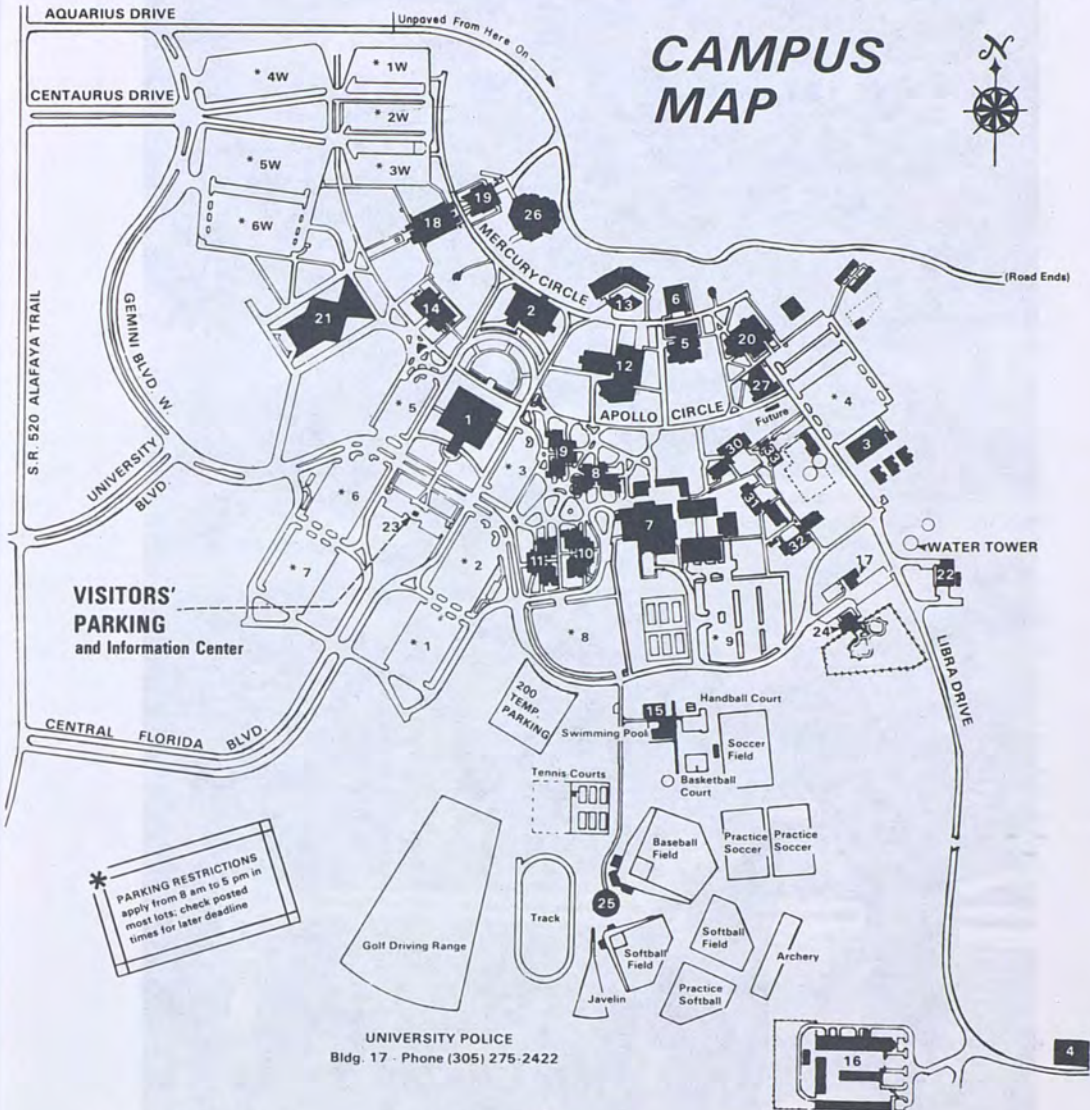
1985

JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE
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University of Central Florida

CAMPUS MAP



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|------------------------|----------------------------------|-------------------------------------|
| 1 ADMINISTRATION BLDG. | 12 ENGINEERING BLDG. | 23 VISITORS INFORMATION CENTER |
| 2 LIBRARY BLDG. | 13 COMPUTER CENTER | 24 CREATIVE SCHOOL FOR CHILDREN |
| 3 UTILITY PLANT/HVAC | 14 HOWARD PHILLIPS HALL | 25 PHYSICAL EDUCATION SUPPORT BLDG. |
| 4 SEWAGE PLANT | 15 RECREATIONAL SERVICES BLDG. | 26 STUDENT SERVICES BLDG. |
| 5 CHEMISTRY BLDG. | 16 PHYSICAL PLANT COMPLEX | 27 STUDENT HEALTH CENTER |
| 6 SCIENCE AUDITORIUM | 17 CAMPUS POLICE BLDG. | 28 FUTURE NEWSPAPER |
| 7 STUDENT CENTER | 18 HUMANITIES & FINE ARTS BLDG. | 30 RESIDENCE E |
| 8 RESIDENCE A | 19 REHEARSAL HALL | 31 RESIDENCE F |
| 9 RESIDENCE B | 20 BIOLOGICAL SCIENCES BLDG. | 32 RESIDENCE G |
| 10 RESIDENCE C | 21 EDUCATION COMPLEX & GYMNASIUM | 33 COMMONS BUILDING |
| 11 RESIDENCE D | 22 CENTRAL RECEIVING/PRINT SHOP | |

PAO
Rev. 1/82



On-campus students watching the launch of the space shuttle *Challenger* seconds after lift-off from Cape Kennedy.

ADMISSION TO THE UNIVERSITY AND GRADUATE STUDIES

Working with the Registrar, whose function is to process and insure completeness of records, the program coordinator and the dean of the college, in concert with the Dean of Graduate Studies, admit the prospective student to graduate study in the area for which he is applying. It should be noted that postbaccalaureate admission to UCF does not guarantee admission to graduate status in a degree program.

ADMISSION PROCEDURE AND DOCUMENTS

APPLICATIONS

Applications for admission to the University for degree-seeking or non-degree seeking (postbaccalaureate) study may be obtained from the Graduate Admissions Office. Completed applications must be submitted to the same office.

UCF students who graduate with a baccalaureate degree and wish to continue their studies here must file an application for admission to either the graduate degree program or for non-degree (postbaccalaureate) admission. No fee is required of returning UCF students who have previously paid an application fee.

OFFICIAL TRANSCRIPTS

To be granted admission to UCF in either graduate or postbaccalaureate status, all applicants must have on file in the Registrar's Office official transcripts showing a baccalaureate degree and the grades for the last 60 semester hours of undergraduate work. Final acceptance into degree seeking graduate status is not granted unless an applicant's official transcripts and necessary test scores are on file so that they can be evaluated for admission.

GRADUATE RECORD EXAMINATION (OR GMAT)

The Board of Regents of the State of Florida requires every student to take either the Graduate Record Exam (GRE) or the Graduate Management Admission Test (GMAT) before the student can be transferred from postbaccalaureate status to graduate student status. Some programs may also require the GRE subject test before admission into graduate student status. Official copies must be mailed from the Educational Testing Service to the Graduate Admissions office and be on file before graduate student status can be granted. UCF recommends that any individual contemplating class work beyond their bachelor's degree take the GRE or GMAT at the earliest possible date to avoid problems associated with a delay of acceptance into a graduate program. The GRE is given five times a year and the GMAT is given three times a year on the UCF main campus. An individual should contact the UCF Counseling and Testing Center for registration dates and procedures. The time limit of test scores varies with programs shown below.

Arts and Sciences

Biological Sciences	7-year limit
Chemistry, Industrial	No limit
Communication	No limit
Computer Science	No limit on General (Aptitude) test, but a 2-year limit on the GRE Computer Science Subject (Advanced) Test.
English	No limit
History	No limit
Mathematical Sciences	5-year limit
Microbiology	7-year limit
Political Science	No limit
Psychology	7-year limit
Public Administration	5-year limit
Sociology, Applied	7-year limit
Statistical Computing	5-year limit

Business Administration programs have no limit unless the GMAT score is below 550 on a score over 5 years old.

Education programs have no limit.

Engineering programs have no limit.

Health

Communicative Disorders	7-year limit
Health Sciences	7-year limit
Public Health	5-year limit

INTERNATIONAL STUDENTS

UCF adheres to the principle that the University is primarily a community of scholars, both national and international, in pursuit of knowledge, and active in teaching, studying, and doing research. The presence of international students on the campus contributes substantially to the quality of the educational experience for everyone. It can bring to the classroom learning environment unique viewpoints and perceptions which would otherwise be lost to the U.S. students. Effective personal contact across cultures can reduce errors in understanding one another's problems and foster a climate of international peace and cooperation among people of the world today.

The international student must submit the Test of English as a Foreign Language (TOEFL) score, as well as transcripts, if the student is not a graduate from an accredited college or university in the United States. When the official test score is received in the Admissions Office, copies will be sent to the graduate program coordinator who evaluates the student's record, the undergraduate institution, and the student's test score.

Each program has determined what minimum TOEFL score will be required, as shown below:

PROGRAM	TOEFL
College of Arts and Sciences	
Biological Sciences	550
Chemistry, Industrial	500
Communication	550
Computer Science	550
English	550
History	575
Mathematical Science	500
Microbiology	550
Political Science	500
Psychology	500
Public Administration	550
Sociology, Applied	500
Statistical Computing	500
College of Business Administration	575
College of Education	500
College of Engineering	550
College of Health	500

The Graduate Admissions Office of the University of Central Florida requires evaluations of international student documents. The evaluations must be done by the World Education Services, Inc. The following programs require only document evaluation: Computer Science, English, Health, Mathematical Science, Political Science and Statistical Computing. All other departments require course-by-course evaluations.

The address of the World Education Services is:

World Education Services, Inc.
P.O. Box 745
Old Chelsea Station
New York, New York 10011

RECORDS DEADLINE - Supporting Documents

All supporting admissions documents (e.g., transcripts and test scores not recorded on official transcripts) should be received by the Admissions Office no later than 15 days preceding the first day of classes. In some cases, applicants may be allowed to register on a temporary basis (without all records) assuming it can be determined from available records or consultation with the students that they appear admissible.

RECORDS - Validity of Documents

All supporting admissions documents must be received directly from the issuing institution or testing agency, and if the University finds that an applicant has made a false or fraudulent statement or a deliberate omission on his application, residency affidavit, health report, or any accompanying document or statement, that applicant may be denied admission. Should the student be enrolled when such fraud is discovered, he may be immediately withdrawn (with no refund), further enrollment denied, and credit earned and any degree based upon such credit invalidated. Actions for this type of offense will be handled administratively by the University Registrar's Office after notification to the alleged violator and hearing by that office.

MEDICAL HISTORY REPORT

All new students must furnish medical history reports on the approved University health form before registration will be allowed. The Medical History Report form will be mailed to the applicant upon receipt of the Application for Admission.

REACTIVATION OF A STUDENT'S FILE

A student who has submitted an application for admission to the University of Central Florida, but never attended, may reactivate the original application within a period of one year. (No additional fee is required.) Please check current catalog for deadline date.

ADMISSION TO THE UNIVERSITY

ADMISSION PROCESS

Admission to the University does not imply admission to graduate status.

The admission process begins with the receipt of the application with fee at the Admissions Office.

The Admissions Office acknowledges receipt of the application and fee and notifies the applicant of any deficiencies in his application (e.g., transcripts, GRE or GMAT test scores, etc.).

The application information is then forwarded to the degree program. Upon receipt, copies of transcripts and test scores are also forwarded to the degree program.

Applicants will receive their initial notice of acceptance to the University as nondegree-seeking students and information for registration for classes from the Admissions Office. All inquiries for Degree Program information should be directed to the program coordinator or the department chairman.

READMISSION TO THE UNIVERSITY

A regularly admitted student who has not been registered during an academic term (other than summer), must make application for readmission through the Admissions Office approximately one month before classes begin for the new semester. (See "Continuous Attendance" below.)

CONTINUOUS ATTENDANCE

Graduate students should be aware of two policies regarding continuous attendance at the University. The first may affect continuing status as a graduate student. The second affects the student's option to fulfill degree requirements under any UCF catalog in force during the student's most recent period of continuous attendance.

1. A student may not be guaranteed continuing graduate status if he does not enroll in the University for a period of three consecutive semesters *including summer*. When a student applies for readmission, after having been out three or more semesters, the program will review the student's record to determine if he will be continued in graduate status or be reverted to postbaccalaureate status.

2. Graduation policy allows a student to fulfill degree requirements as listed in the UCF catalog in force during the student's most recent period of continuous attendance.

Continuous attendance is interrupted when a student drops out of school for any term other than the summer term. Because students must occasionally interrupt their attendance for a brief period, a student will be considered to have interrupted his continuous attendance only if the interruption is for three or more consecutive terms including summer. Under these circumstances, a student will lose the option of fulfilling degree requirements under earlier catalogs.

WITHDRAWAL POLICY

A student may withdraw from a class up to the end of the eighth week of any regular academic semester or until the midpoint of any summer term. No withdrawal after the deadline is permitted except in extraordinary circumstances. Students who need to petition for withdrawal after the deadline should contact the Office of Graduate Studies.

A student is never automatically withdrawn from a class by not attending. Failure to officially withdraw from a class will result in a grade of "F". Course Withdrawal forms are available in the Records Office (normally open until 7:30 p.m. Monday through Thursday, and until 5:00 p.m. on Friday).

Upon request, the instructor will provide the student with an assessment of his performance in the course prior to the last day for withdrawal.

ADMISSION TO A GRADUATE PROGRAM

Upon receiving copies of all transcripts and standardized test information from the Admissions Office, the degree program coordinator will recommend denial or admittance on REGULAR or PROVISIONAL degree-seeking graduate status.

APPEALS PROCEDURE FOR REJECTED STUDENTS

Students who are rejected by a program but who meet the SUS minimum standards for admission to graduate status are allowed under Rule 6C-6.03 to appeal that decision. Those applicants may request reconsideration by written petition to the University within thirty days of the date of denial. The route of appeal will be first to the college dean and then to the Graduate Council for recommendation to the Dean of Graduate Studies.

ADMISSION CLASSIFICATIONS

Admission to graduate status can be in either of two categories: regular status or provisional status. (Postbaccalaureate status is considered nondegree-seeking.)

GRADUATE STATUS - REGULAR

The minimum system-wide requirements of the Board of Regents for admission to REGULAR graduate status are listed below. Additional requirements are specified by individual degree programs. All students who wish degree-seeking status must submit the GRE General Test score (or the GMAT score as required). Some programs also require the GRE Subject Test.

- (1) A baccalaureate degree or equivalent from an accredited university *and* an earned GPA of 3.0 or more (on a 4.0 maximum) while registered as an upper-division undergraduate student (normally based on the last sixty semester hours); OR a total score of 1,000 or higher on the General Test (quantitative-verbal sections) of the Graduate Record Examination (or a GMAT score of 450 or higher as needed) or an equivalent score on an equivalent measure approved by the Board of Regents; OR a previous graduate degree from an accredited institution.

Even though an applicant may qualify for minimum admission on the basis of his undergraduate grade point average or having a previous graduate degree, an official GRE or GMAT score must be on file before consideration for admission to Graduate Status.

- (2) A student must be accepted by the program coordinator and the dean of the college offering the particular degree program he seeks. Requirements in addition to the minimums stated above may be specified by the individual degree programs.

- (3) Foreign students must demonstrate their proficiency in the English language as one of the conditions of admission. All foreign applicants whose primary language is not English and who have not earned a degree from an accredited American college or university, must take the TOEFL (Test of English as a Foreign Language). Evaluations of the TOEFL score will reside with the program coordinator.

GRADUATE STATUS—PROVISIONAL

A student who does not fulfill the academic conditions for REGULAR admission may be admitted provisionally upon recommendation of the dean of the college to which he seeks admission.

PROVISIONAL admissions may at no time exceed 10 percent of the graduate students admitted for any academic year in any single degree program.

PROVISIONAL students may be admitted to REGULAR status following satisfactory completion of 9 semester hours and upon recommendation by the program coordinator and college dean, subject to approval by the Dean of Graduate Studies. If a student does not maintain a 3.0 GPA in his graduate program of study, he will be placed on ACADEMIC PROVISIONAL status for 9 semester hours; then reverted to postbaccalaureate status if his GPA is still unsatisfactory.

POSTBACCALAUREATE STATUS

Postbaccalaureate status is considered to be non-degree seeking. A student is placed in this category for computer records when his application is received. If a student wishes to be degree-seeking, he must have official GRE or GMAT test scores sent to the Graduate Admissions Office, along with official transcripts. The graduate program evaluates these documents and makes a decision on admissibility to graduate status.

A student may elect to remain in postbaccalaureate status for various reasons (e.g., requirements in a graduate program at another institution, personal improvement, meeting job requirements, and removing academic deficiencies). While in this category, a student is allowed to take graduate courses on a space-available basis only. Also while graduate status students register the first days of registration, postbaccalaureate students register the last day. Furthermore, not all departments accept postbaccalaureate students. For those departments which *do* accept postbaccalaureate students, the procedures for enrollment into graduate level classes vary with each department. In some cases, a department will control enrollment by closing graduate courses after the scheduled registration time for graduate status students, and then admit non-degree seeking students only by special permission.

All students who take course work while in postbaccalaureate status should be aware of the limit of 9 semester hours of course work which can be transferred into a graduate degree program when a student is given graduate status.





CHANGE OF MAJOR OR COLLEGE

When a student requests a change of major or college after having been admitted to a graduate program, the old program shall send the student to the new program. The new program coordinator will then admit him to the new program as a graduate student or change him to postbaccalaureate status, whichever is appropriate. Changes of majors for postbaccalaureate students are submitted by the college on a University change of major form.

DISMISSAL FROM THE GRADUATE PROGRAM

Students who fail to maintain satisfactory academic performance shall be reverted to postbaccalaureate status by the program. In addition to unsatisfactory grades, other reasons for reverting a student to postbaccalaureate status include weak academic performance in the major field of endeavor, or poor performance in required examinations (e.g., end-of-the-program examination or thesis defense).

The student may appeal such a dismissal through the college to the Graduate Council. Only in exceptional cases shall the student be readmitted to the program by the Graduate Council. In such cases, the student's entire program shall be re-evaluated and a new program will be submitted for consideration by the Graduate Council. It is entirely possible that additional courses will be required in the program of study before the student is allowed to continue in the graduate program.

SECOND MASTER'S DEGREE

Completion of one master's program at UCF may qualify a student for a second master's degree. Individuals seeking a second master's degree must complete the normal UCF master's degree requirements for the second degree.

Up to 6 semester hours from a completed master's program from UCF or any other institution may be transferred into a second master's program if the courses are not more than seven years old when the second degree is completed.

It should be noted that UCF awards a particular type of degree only once (e.g., a Master of Arts in Communication precludes an M.A. in any other college or department). However, a transfer student with a graduate degree may pursue the same type of degree at UCF.

FEE INFORMATION

A student's basic expenses at the University will be for tuition, fees, room and board (if used), textbooks and other instructional supplies, and miscellaneous items.

Required fees are established by the Board of Regents and the Florida State Legislature and are subject to change without notice.

GENERAL FEES AND COSTS

Application Fee \$15.00
A nonrefundable fee is required with all applications for admission to the University.

Registration Fees

Registration fees are listed below for courses on the main campus, area campuses, and for continuing education courses. Minimum registration of one credit hour (at the level at which the student is classified) must be charged for students registering for zero hours (co-op students on work assignment, applicants for graduation during a semester that a student is not registered, etc.).

Fall and Spring Semesters	Resident	Non-Resident
Upper-Division Undergraduate Level Credits	\$28.10/hour	\$ 91.10/hour
Graduate Level Credits	38.10/hour	110.10/hour
Thesis and Dissertation Credits	41.10/hour	113.10/hour
Upper-Division Undergraduate Summer courses are:	77.10/hour	80.10/hour

Upper division undergraduate courses are numbered 3000-4999.

Graduate courses are those numbered 5000-6999, 7000 and above.

Thesis courses are numbered 6970-6973; Doctoral dissertation courses are numbered 7917 and 7980.

Student Health Fee, per semester (not refundable) \$18.00

The student health fee is assessed of all students except those enrolled exclusively in continuing education courses. The fee must also be waived for employees under the fringe benefit plan and for Intern Participation Certification holders. Students on training session under the Cooperative Education Program will be required to pay this fee. (University employees who use the Tuition Fee Waiver for class attendance may NOT elect to pay the fee, regardless of the number of hours taken.)

Late Registration Fee \$25.00

This nonrefundable fee is required of students who register during the late registration periods or fail to pay full fees by the established deadline.

Vehicle Registration, per calendar year \$13.00

This fee is required of everyone (including full-time, part-time, and courtesy students) operating a motor-powered vehicle on campus.

Room/Board Plans, per semester \$747.00-\$1,339.00

Charge for late payment of room and board \$15.00

Intern Participation Holder \$3.76/hr.

I.D. Card Replacement \$5.00

INSTALLMENT FEE PAYMENT PLAN

This plan will not be available to Financial Aid recipients unless the total tuition fee liability to the student exceeds, by at least \$100.00, the total aid to be awarded excluding payment for wages (paid by the University) for personal services. Student must sign a promissory note which will indicate that the student must pay at least 50% of the fee liability by the end of the add/drop period, and remaining fees no later than the beginning of the ninth week of classes. Loan forms are available in the Office of Student Financial Services, Room 112, Administration Building. There will be a service charge of \$5.00.

REFUND OF FEES

A refund of fees will be made under certain conditions upon presentation of a Certification of Withdrawal issued by the Registrar to the Student Accounts Office.

- A. A full refund will be issued under the following circumstances:
 - 1. Withdrawal is made before the end of the add/drop period.
 - 2. The course is cancelled by the University.
 - 3. A student is withdrawn from a course by the University for whatever reason.
- B. A partial refund (25% of the total fees paid, less building and capital improvement fees) will be made when complete withdrawal from the University is made prior to the end of the fourth week of classes during a 16/17 week semester, or at the end of the first quarter of the term during a mini-semester or summer semester (rounded out to the end of the week in which the first quarter occurs).
- C. Refunds may be made for exceptional circumstances at any time upon withdrawal from one or more courses. Up to 100% of tuition and registration fees may be refunded under circumstances determined by the University to be exceptional, including, but not limited to, sickness, death, involuntary call to military service, or administrative errors created by the University.
- D. Liability Reduction: Students who have authorized deferments and therefore have not paid their total fees will be eligible to have their liability reduced (in lieu of refund) in the amounts and under the authorized circumstances outlined in the foregoing paragraphs.

APPEALS

- Students who wish to appeal denial of deferment, refund or waiver should initiate a student petition form 41-561 and submit it to the Committee for Resolving Fee Payment Questions. Form 41-561 may be obtained from the Undergraduate Studies Office, Student Affairs, University Cashier or Student Accounts and should be returned to Student Accounts, ADM 112.

PAST DUE ACCOUNTS

Any, and all, financial obligations to the University must be met by the student if "good standing" is to be maintained. Failure to meet such obligations can result in the withholding of grades and transcripts, and denial of registration and readmission to the University. The services of a professional collection agency and recourse to the courts may also be invoked if deemed necessary by the University Controller. All costs of collection, including attorney's fees, shall be borne by the debtor.

FLORIDA RESIDENCY REQUIREMENT

For the purpose of assessing registration and tuition fees, a student shall be classified as a "Florida" or "non-Florida" student.

A "Florida student" is a person who has domicile and who shall have resided in the state of Florida for at least twelve (12) consecutive months immediately preceding the first day of classes of the academic term in which the student enrolls. In determining residency, the University may require evidence such as voter registration, driver's license, automobile registration, location of bank account, rent receipts or any other relevant materials that the applicant has maintained continuous residency. Physical presence for the entire twelve-month period need not be required so long as the conduct of the student, taken in total, manifests an intention to make Florida his or her permanent dwelling place. If such student is a minor, it shall mean that the parent or parents, or legal guardian of the student shall have domicile in and have resided in the state of Florida for the period stated above. "Florida student" classification shall also be construed to include students who hold an Immigration and Naturalization Form 1-151, Resident Alien Registration Receipt Card, or Cuban Nationals or Vietnamese Refugees who are considered as Resident Aliens, provided such students meet the residency requirement stated above and comply with the appropriate state regulations. The burden of establishing facts which justify classification of a student as a resident and domiciliary entitled to "Florida student" registration rates is on the applicant for such classification. Additional information on Florida residency may be obtained from the Admissions Office.

OFFICE OF GRADUATE STUDIES

The Office of Graduate Studies is responsible for the establishment and subsequent monitoring of minimum University-wide standards concerning graduate admission and matriculation. It also coordinates the graduate programs of the various colleges of the University, although responsibility for the detailed operation of the various graduate programs is vested in the individual colleges.

ORGANIZATION OF GRADUATE STUDIES

Louis M. Trefonas Dean
 Roger Handberg Associate Dean
 Leila Miller Staff Assistant
 Gene Kearns Graduate Admissions Representative

THE GRADUATE COUNCIL

The Graduate Council is an advisory body to the Dean of Graduate Studies. Its functions are to:

Recommend minimum university standards for admission to graduate programs and for granting graduate degrees.

Review and make recommendations concerning all proposed new graduate programs.

Act as the graduate curriculum committee to review and make recommendations to the Vice-President for Academic Affairs concerning proposed new graduate courses; review and make final decisions on graduate course revisions and course deletions.

Review and make recommendations concerning existing graduate programs at least every five years; review and make recommendations on the current operating procedures of all graduate programs.

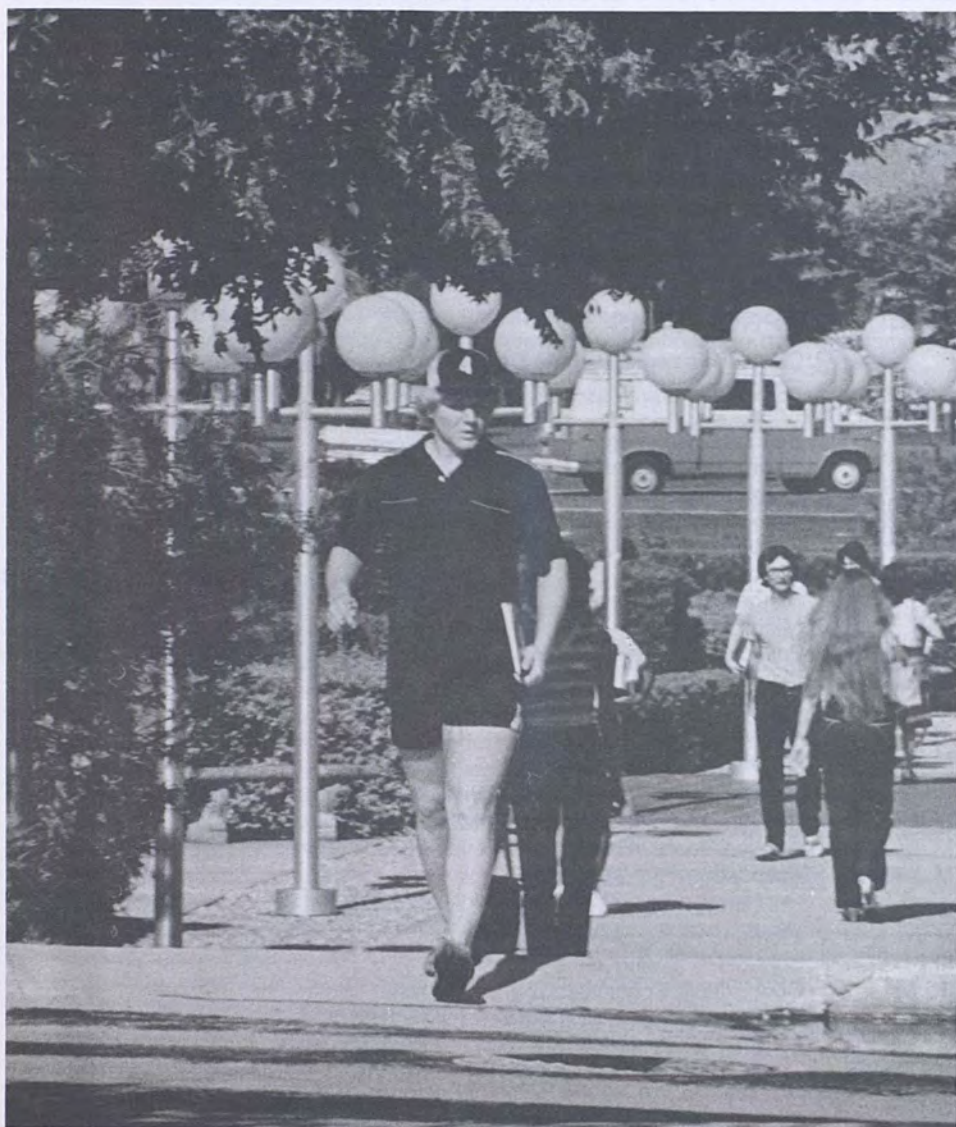
Review and make recommendations concerning appeals (by petition) from students for exceptions to University policies or admission decisions.

GRADUATE PROGRAMS

UCF Authorized Graduate Degree Programs and Coordinators

Degree	Program	Coordinator	Phone	Room
Arts and Sciences				
M.S.	Biological Sciences	Dr. Stout	275-2919	BIO 436
M.S.	Chemistry, Industrial	Dr. Gupton	275-2246	CHM 331
M.A.	Communication	Dr. Fedler	275-2681	HFA 537
M.S. & Ph.D.	Computer Science	Dr. Cottrell	275-2341	CCII 255
M.A.	English	Dr. Adicks	275-2212	HFA 426
M.A.	History	Dr. Pauley	275-2224	HFA 505B
M.S.	Mathematical Science	Dr. Andrews	275-2585	CCII 259
M.S.	Microbiology	Dr. Stout	275-2143	BIO 436
M.A.	Political Science	Dr. Vittes	275-2608	HFA 426
M.S.	Psychology	Dr. Blau	275-2216	PH 314
M.P.A.	Public Administration	Mr. Duffey	275-2603	PH 336
M.A.	Applied Sociology	Dr. Brown	275-2227	HFA 402
M.S.	Statistical Computing	Dr. Somerville	275-2695	CCII 135
Business Administration		Dr. Moses	275-2181	PH 205
M.B.A.	Business Administration	Ms. Klock	275-2187	PH 202
M.A.	Applied Economics			
M.S.	Accounting			
Education		Dr. Higginbotham	275-2436	ED 115
M.Ed. & M.A.	Elementary, Secondary and K-12			
M.S.	School Psychology			
Ed.S.	Cooperative Specialist Programs (FAU)			
Ed.D.	Cooperative Doctoral Programs (UF and FAU)			

Engineering		Dr. Mathews	275-2156	EN 211
M.S.E. and M.S. degrees in Computer Engineering, Electrical Engineering, Industrial Engineering, and Mechanical Engineering				
M.S.E., M.S. and M.C.E. degrees in Civil Engineering				
M.S.E., M.S. and M.S.E.S.M. degrees in Environmental Engineering				
M.S.E. and M.S. degrees in Manufacturing				
Ph.D.	Computer Engineering			
Ph.D.	Electrical Engineering			
Ph.D.	Environmental Sciences			
Ph.D.	Industrial Engineering			
Ph.D.	Mechanical Engineering			
Health				
M.A.	Communicative Disorders	Dr. Hedrick	275-2121	PH 103-E
M.P.H.	Cooperative program in Public Health with USF	Dr. Elder	275-2352	BIO 330
M.S.	Health Sciences	Dr. Mendenhall	275-2972	BIO 306



UNIVERSITY GRADUATE REGULATIONS

The following are minimum University-wide standards for the operation of graduate programs. Additional requirements for each graduate program are described in the individual program description (e.g., see English, Psychology, etc.).

MASTER'S PROGRAMS

STUDENT'S RESPONSIBILITY

It is the student's responsibility to keep informed of all rules, regulations, and procedures required by the Office of Graduate Studies. Graduate program regulations will not be waived or exceptions granted because a student pleads ignorance of the regulations or claims failure of his advisor to keep him informed.

EXCEPTION TO GRADUATE REGULATIONS

When unusual situations arise, petitions for exceptions to graduate regulations must be approved by the appropriate dean(s) prior to submission to the Dean of Graduate Studies. The Graduate Council will make recommendations to the Dean of Graduate Studies on all petitions, which will be reviewed on an individual basis.

MASTER'S COMMITTEE OR ADVISOR

Appointment of Committee or Advisor

It is the responsibility of the appropriate academic dean of the college or the coordinator of the program granting the degree to (1) determine whether an advisory committee or an advisor will be used; (2) make the necessary appointments; and (3) inform the Dean of Graduate Studies accordingly. The Office of Graduate Studies reserves the right to place a representative on any advisory committee or to appoint a co-advisor.

Advisory Committee

A student seeking a degree requiring a thesis or one permitting considerable flexibility in course work, or a combination of the two, shall have an advisory committee of at least three members with designation of a chairman and/or thesis director being optional. This committee shall recommend to the Dean of Graduate Studies the design of the student's program; provide continual guidance for the student; and be the principal mechanism for the evaluation of the student's thesis and performance in any general examinations.

PROGRAM OF STUDY

A total program of study is in essence a contract between the student and the degree program specifying all degree requirements. It must be established prior to enrollment in the second term of the full-time graduate student. For a graduate student carrying a reduced load, the establishment of a program of study may be delayed up to the registration for the ninth graduate semester hour. A copy of the Program of Study must be completed for a student and sent to the Office of Graduate Studies within the first 10 hours of graduate work.

UCF EMPLOYMENT

Normally the employment of full-time graduate students will be limited to a half-time work load (20 hours/week).

COURSE REQUIREMENTS

COURSE LOADS

Normally, a full-time graduate student takes 6-9 hours per semester, with 12 semester hours being the maximum load.

Students applying for assistance under Public Law 89-358 (Veterans Readjustment Benefits Act of 1966) must check with the Veterans Certification Office. A graduate student must

register for 6 semester hours to qualify for full-time status veterans benefits. A postbaccalaureate student who anticipates graduate status must check with the Veterans Certification Office for up-to-date information.

TOTAL HOURS REQUIRED

A minimum of 30 semester hours (combined course work and thesis) is required.

THESIS DEGREES

At least 24 semester credits of course work must be earned exclusive of thesis.

NON-THESIS DEGREES

At least 50 per cent of the credits offered for the degree must be in a single field of concentration. *A research report is required for this degree.*

LANGUAGE REQUIREMENTS

Foreign language requirements shall be at the option of the individual departments or appropriate units consistent with their college regulations.

DIRECTED INDEPENDENT STUDIES COURSES

A maximum of three courses may be taken as independent study, for a total of no more than 6 semester hours.

APPLICABLE CREDITS AND COURSES

RESIDENCE CREDIT

At least 21 semester credits must be UCF credits. Residence credits may be earned through enrollment in courses physically offered on the main campus; or at the UCF area campuses (Cocoa, Daytona Beach, South Orlando); or at geographical locations where UCF courses are being taught by regular UCF faculty members.

CREDIT BY EXAMINATION

Examination credit may be utilized to satisfy program course requirements, but not credit hour requirements.

TRANSFER OF CREDIT

Work taken before a student is given graduate status at UCF may be transferred into the student's program of study. Transfer course work may come from the following areas:

- a. Work taken as a postbaccalaureate student at UCF.
- b. Work taken at institutions within the State University System (SUS).
- c. Work taken at other institutions not in the SUS.
- d. Work taken while in graduate status in another major while at UCF.

There is no maximum of hours on transfer work taken while in graduate status in another major at UCF except for what the program will allow. No more than 9 semester hours of graduate credit may be transferred into the graduate program from UCF postbac work or SUS work. Work taken at other institutions has a maximum limit of 6 semester hours. However, any combination of the above transfer hours (except UCF graduate work) cannot exceed 9 hours.

Institutions not in the State University System must be fully accredited by a regional accrediting association of the Commission on Accreditation (e.g., the Southern Association of Colleges and Schools).

In all instances, only grades of B or better can be transferred.

Correspondence courses are not acceptable toward a graduate program of study; however, extension or continuing education courses may be accepted.

RECENCY OF CREDIT

Credit for courses completed more than seven years prior to the term in which a degree is earned may not be used toward degree requirements in all colleges except Engineering which requires a college waiver for work over five years old.

EXAMINATIONS

EVALUATION

All examination procedures and other evaluation of a student's progress shall be the province of the individual department or appropriate unit operating within the framework of the college (or colleges for interdisciplinary programs).

COMPREHENSIVE EXAMINATION

An end-of-program comprehensive (final) examination, oral or written, is required of all students. This examination may consist of a thesis defense or an examination of course work material, or both, at the option of the department.

COURSE LEVELS OF GRADUATE WORK

6000 LEVEL COURSES. A minimum of one-half of the credit hours—including thesis hours—of an individual's program of study must be in 6000-level courses, which are designed exclusively for graduate students. Exceptions to this requirement must be approved by the Graduate Council. Exception to this rule has been granted to Computer Science, and Mathematics and Statistics Programs.

5000 LEVEL COURSES. Courses at the 5000 level may be utilized toward satisfying the graduate degree requirements.

OTHER. Under special circumstances 4000-level courses may be applied toward a master's degree, but not in excess of 6 semester hours. Courses at the 3000 level or below shall not be utilized in a graduate program of study unless permission is obtained from the Graduate Council *prior* to enrollment in the course.

ACADEMIC STANDARDS

GPA IN PROGRAM OF STUDY

A graduate student's GPA shall be calculated on only those courses specified on the individual's Program of Study filed with the Office of Graduate Studies (not including required prerequisites).

A minimum of a 3.0 GPA in the specified graduate program of study is required to maintain graduate student status and for graduation.

In any term where the GPA drops below 3.0 in a program of study, a student will be changed to ACADEMIC PROVISIONAL status for a maximum of 9 semester hours. If he has not attained an overall graduate GPA of 3.0 in the program of study at the end of the 9 semester hours, he will be reverted to POSTBACCALAUREATE status. (Students admitted on PROVISIONAL status are similarly given 9 semester hours to attain a 3.0 GPA).

No graduate level courses with a grade of "D" are acceptable in a program of study. In addition, no 4000 level courses with a grade of "C" or lower are acceptable in the program of study.

Graduate students whose *overall* GPA falls below 2.0 will be reverted to postbaccalaureate status by the Office of Graduate Studies.

THESIS AND RESEARCH REPORT GRADES

For thesis and research report courses, satisfactory (S) or unsatisfactory (U) grade designations are used as temporary grades while the work is in progress.

Upon completion of thesis or research reports, a standard grade (A,B,C,etc.) will be awarded.

MAXIMUM HOURS OF UNSATISFACTORY GRADES

Unsatisfactory grades for graduate students consist of grades below "B" and unresolved "I" grades. A student may earn a maximum total of 6 semester hours of unsatisfactory grades in his program of study. This does not imply that a course in which a student has received these grades cannot be repeated to provide a better grade. Both grades will be used in computing the GPA in the program of study. There is no forgiveness policy on graduate grades. Exceeding 6 semester hours of unsatisfactory grades in a specified graduate program of study is reason for immediate removal from graduate status.

INCOMPLETE GRADE

A grade "I" (incomplete) is assigned by the instructor when a student is unable to complete a course due to extenuating circumstances, and when all requirements can clearly be completed in a short time following the close of regular classes. The Registrar's Office must be notified of the appropriate grade to be assigned no later than the date shown in the academic calendar of the term immediately following that in which the "I" was assigned. Failure to complete course requirements by that day may, at the discretion of the instructor, result in the assignment of an "F" grade. It is the student's responsibility to arrange with the instructor for the changing of the "I" grade to receive credit. Both the new grade and the letter "I" will appear on the student's permanent record. If the "I" grade is *not* changed by the established deadline, it becomes a part of the student's permanent record and no credit is given for the class. A student may register for a course in which an "I" was received, but no repeat "R" action will be made on his permanent record.

REVIEW OF PERFORMANCE

The primary responsibility for monitoring performance standards rests with the degree program. However, the Office of Graduate Studies may monitor a student's progress and may revert any student to postbaccalaureate status if performance standards as specified above are not maintained.

A degree program may revert any graduate student to postbaccalaureate status at any time when, in its judgment, the individual is deemed incapable of successfully performing at required standards of excellence.

If a student is reverted to postbaccalaureate status, reinstatement to graduate student status can occur only through a successful petition to the Graduate Council by the student.

DEGREE APPLICATION PROCESS

APPLICATION FOR DEGREE

An Intent to Graduate form must be filed in the University Records Office by the end of the second week of the term of graduation. If the student does not graduate in that term, a new form must be filed at the beginning of the term of anticipated graduation. An extension can be obtained by telephoning the Records Office to have the old form updated if graduation is to be the following term.

CERTIFICATION FOR DEGREE

The college of the degree program must certify through the Office of Graduate Studies that all University and program of study requirements have been met.

REGISTRATION IN TERM OF GRADUATION

A student must be registered in any term in which UCF *faculty or administrative and professional time will be required (e.g., review of thesis or research report by faculty or library staff, or for examinations, etc.)*. Therefore, unless the graduate program certifies to the Office of the Registrar that no UCF resources will be utilized, a student *must* be registered in the term of graduation.

DOCTORAL PROGRAMS

UNIVERSITY ADMISSIONS STANDARDS

Admission to graduate status generally requires a minimum of a 3.0 GPA in the last 60 semester hours of undergraduate studies, or a score of at least 1000 on the combined verbal-quantitative portion of the appropriate admissions examination (GRE or GMAT), or a master's degree from an accredited institution and GRE scores. Admission to graduate status does not constitute admission to a doctoral program.

DOCTORAL STATUS

Eligibility for admission to a doctoral program should be limited to superior students who have demonstrated intellectual ability, high achievement, and adequate preparation for advanced study and research in a chosen field. The decision to accept the student in a doctoral program is made by the graduate committee of the program area concerned and the Dean of Graduate Studies on the basis of qualifying examinations and/or other criteria as specified by the individual program area.

PROGRAM OF STUDY

A program of study (i.e., required course work) will be specified by the student's program area and approved by the Dean of Graduate Studies.

COURSE REQUIREMENTS

The course requirements for a doctoral degree will consist of lectures, seminars, discussions and independent study. Each program of study will include a minimum of 72 semester hours of graduate credit beyond the baccalaureate degree, 57 semester hours of which must be exclusive of the dissertation, with at least 6 semester hours of course work outside the student's program area and no more than 12 semester hours of independent study (including independent study hours counted towards a master's degree). The particular plan of study, which may vary from student to student, should be formulated jointly by the student and the appropriate committee or advisor in the program area.

SPECIAL DEGREE REQUIREMENTS

Each student may be expected to demonstrate an appropriate competency in a related area. The appropriate competency must be carefully defined by the program area and approved by the student's committee and the Dean of Graduate Studies. Any course credit earned in attaining such a skill does not count toward minimum hours requirements.

RESIDENCY REQUIREMENTS

Each student is expected to complete two contiguous semesters in full-time graduate student status. Full-time is defined as a minimum of 9 hours per semester.

TRANSFER CREDIT

The number of transfer credit hours to be applied to the minimum course requirement for a doctoral degree at UCF will be up to 30 semester hours of credit and will be determined on a case-by-case basis by the graduate committee of the program area at the time the student is admitted to the program.

TIME LIMITATION

The student has seven years from the date of admission to the doctoral program to complete the dissertation. If a student passes the seven-year deadline, the general examinations must be repeated.

CANDIDACY

ADMISSION TO CANDIDACY

Admission to candidacy will occur after all general degree requirements are satisfied and the student has successfully defended his dissertation proposal.

Candidacy Examinations. Candidacy examinations are mandatory for admission to candidacy and are to be held at the completion of the student's course work and prior to the dissertation stage. The student is expected to demonstrate substantial mastery of the subject matter, theory, bibliography, research and methodology of a significant part of the field. The examinations, which are to be written, will be set up by the program area in coordination with the Office of Graduate Studies. All written examination materials will be kept in the student's permanent file.

Dissertation Proposal. After passing the general candidacy examinations, the student must develop a written dissertation proposal which will be defended by the student in an oral examination conducted by his dissertation committee.

STATUS AS CANDIDATE

Enrollment. The student must continue to enroll for at least one semester hour of research or dissertation credit each semester after attaining candidacy status until the oral defense of the dissertation has been made. Post-candidacy enrollment is allowable for a maximum of four (4) years subject to the seven (7) year time limitation.

NOTE: The post-candidacy enrollment requirement of at least one semester hour, while generally satisfactory to encourage reasonable progress towards the degree for students not in residence, shall be interpreted as requiring enrollment in at least three semester hours of research or dissertation credit each semester by those students who are in residence at UCF and placing substantial time demands on their major professors.

Dissertation Committee Composition. A committee, which will consist of a minimum of four faculty members (three from the college in which the program is located and one from outside that college), must be approved by the Dean of Graduate Studies. Program areas may specify in greater detail the distribution of the three in-college members. All members should be in fields related to the dissertation topic. All members vote on acceptance or rejection of the dissertation. The dissertation must be approved by a majority of the committee.

Dissertation. Dissertations are required in all doctoral programs. An oral defense of the dissertation is required with copies of the approved dissertation being prepared in accordance with program requirements and sent to University Microfilms. Upon approval, the final unbound dissertation approved by the Library will be submitted in triplicate to the Office of Graduate Studies before the specified deadline. The designated original of the dissertation and one copy will be sent to the Library for hardbinding. The third copy (also unbound) of the dissertation will be forwarded to University Microfilms International by the Office of Graduate Studies. After this copy is returned and bound by the Library, the copy will be forwarded to the appropriate dean. The student must pay a nominal fee for binding and microfilming the dissertation and must sign an agreement authorizing the publication by microfilm. The student may choose to copyright the dissertation by paying a nominal fee.

Dissertation Defense. The Dean of Graduate Studies or his designee will attend all dissertation defenses.

CERTIFICATION FOR DEGREE

Doctoral candidates who have completed all the requirements for the degree and have successfully completed the dissertation may request certification to that effect prior to the receipt of the degree. Such certification will be issued by the Dean of Graduate Studies.

STUDENT SERVICES

HOUSING OFFICE

Enrolled single students paying registration fees for a minimum of nine semester hours may apply for assignment to University residential units. Priority of assignment is given first to current residents and second to new students admitted in good standing. Any single student applicant who has been admitted to the University may submit an application requesting housing and food service for a specific term. Priority of room assignments is based on the date of receipt of the completed application in the Housing Office. Applicants should carefully read the application before submitting it with the \$25 pre-payment to the Housing Office.

INTERNATIONAL STUDENT SERVICES

The International Student Office serves as a clearing-house for international student affairs, and as a focal point for international student concerns. The office aids international students by offering assistance in locating off-campus apartments and banking. Counseling on personal, financial, academic and cross-cultural communication matters is available. Liaison is maintained with the Immigration and Naturalization Service. Further information may be obtained from the International Student Office, Administration Building, Room 225.

STUDENT HEALTH SERVICE

The Student Health Service is maintained on an outpatient basis for routine and emergency health needs and to promote health education. The service is staffed by doctors and registered nurses when classes are in session. Medical care in the students' living quarters is not provided. Every student who pays the health fee is entitled to the benefits outlined in the Health Service brochure.

Blood is available when needed for students, staff, faculty and their immediate families through the Student Health Service.

Medical records are confidential communications and will be treated as such insofar as the law permits.

MINORITY STUDENT SERVICES

The Office of Minority Student Services is responsible for coordinating special programs, projects, and special services for minority students. The Office cooperates with Student Services in the recruitment, admission, and retention of minority students, and is responsible for monitoring and facilitating the academic progress of minority students. Minority Student Services also assists in arranging cultural and social programs to enhance the development of the individual.

UNIVERSITY COUNSELING AND TESTING CENTER

The University Counseling and Testing Center offers a professional staff of counselors to aid students in selecting vocational-educational objectives, overcoming learning difficulties, solving problems of personal-social adjustment, and dealing with marital or other problems. A full range of tests is available along with the use of an occupational library. All aspects of counseling and testing are confidential.

STUDENT ACTIVITIES

Personal development may, in part, be enhanced through informed, experienced, dedicated participation in the University and community. The University sponsors a variety of cultural and entertainment programs which will contribute to the student's social, cultural, recreational, and academic development. Additionally, opportunity is provided to become a member of occupational, professional, social, and honorary organizations.

STUDENT GOVERNMENT

The purpose of the Student Government at the University is to represent student opinion; advance the cause of students both socially and academically; promote communication, cooperation and understanding among students; and to insure that Student Government shall continue to be used as a democratic instrument of change. Additionally, Student Government is authorized to determine the allocation of the activity and service fee.

There are many services available to students through their Student Government, including discount movie and dinner theater tickets, babysitting referral, consumer affairs, carpool, legal aid, and dental aid.

STUDENT CENTER/STUDENT UNION

The Student Center and Student Union give students opportunities for social and cultural activities. These facilities, with their many programs, services, and gathering places, serve students, faculty, staff, University patrons, alumni, and guests. These facilities are funded by activity and service fees.

The Student Center contains food service facilities, an auditorium, conference and meeting rooms, art gallery, game room, arts and crafts center, and lounge areas.

The new Student Union contains the University bookstore, food service facilities, and lounge/meeting rooms.

OFFICE OF AREA CAMPUS SERVICES

The Office of Area Campus Services, as the official liaison for Student Affairs and student services, maintains contact and communication with the directors of the campuses in Brevard, Daytona Beach, and South Orlando. The office insures that student services are provided and that communication between the main campus and the area campuses is maintained.

OFFICE OF EVENING STUDENT SERVICES

The Evening Student Services Office, which is located in Room 282 in the Administration Building is open from 5 p.m.-9 p.m., Monday through Thursday evenings. If problems cannot be resolved there, they are referred to the appropriate office.

HANDICAPPED STUDENT SERVICES

The Office of Handicapped Student Services provides information and orientation to campus facilities and services, assistance with handicapped parking permits, counseling, referral to campus services, and assistance with registration for students who are handicapped.

Services are available to students whose disabilities include, but are not limited to, mobility, visual or hearing impairment; manual dexterity or speech impairment; specific learning disability (such as dyslexia); epilepsy; diabetes; or mental or psychological disorder.

Students who have a disability or handicap are requested to contact the office. All information is confidential and will be used only to assist the student.

CREATIVE SCHOOL FOR CHILDREN

The Creative School for Children provides an educational program, including kindergarten, for children 2 through 5 years old. The daily program is planned and executed by Florida certified teachers. The children receive a wide variety of experiences in art, music, language, motor skills, science, math, social studies, perceptual development, socialization and self-discovery. Planned and spontaneous field trips and special family programs are a part of the yearly schedule. The school conducts a Summer Day Camp for elementary school children during the summer term.

STUDENT CONDUCT

Students are subject to federal and state laws and local ordinances as well as regulations prescribed by the University and the Florida Board of Regents. The breach or violation of any of these laws or regulations may result in disciplinary action.

When a student is involved in an offense resulting in criminal charges prior to admission, the circumstances of the case may be reviewed by the appropriate Student Affairs committee to consider the student's eligibility for admission to the University as well as participation in extracurricular activities.

ACADEMIC ETHICS POLICY

The faculty of the University of Central Florida are committed to a policy of honesty in academic affairs. Conduct for which students may be subject to administrative and/or disciplinary penalties up to and including suspension or expulsion include:

Dishonesty consisting of cheating of any kind with respect to examination, course requirements, or illegal possession of examination papers. Any student helping another to cheat is as guilty as the student assisted.

Plagiarism consisting of the deliberate use and appropriation of another's work without any indication of the source and the passing off of such work as the student's own. Any student who fails to give credit for ideas or materials taken from another is guilty of plagiarism.

In cases of cheating or plagiarism, the instructor shall take whatever academic action he deems appropriate. This may range from loss of credit for a specific assignment, examination, or project, to removal from the course with a grade of "F." The instructor should seek to resolve the problem with the student to their mutual satisfaction. In addition, the instructor may also request disciplinary action through the Dean of Students if necessary, who shall proceed in accordance with provisions outlined in the APA Chapter 6C7-5.041.

CLASSROOM RESPONSIBILITY

Students are responsible for maintaining classroom decorum appropriate to the educational environment. When the conduct of a student or group of students varies from acceptable standards to such an extent that normal classroom procedures are interfered with, the instructor has the authority to remove the offending party from the room.

CONFIDENTIALITY OF STUDENT RECORDS

The University policy which governs confidentiality and access to student records is provided in the student handbook, *The Golden Rule*. The policy explains in detail the procedures to be used by the institution for compliance with the Family Educational Rights and Privacy Act of 1974 as amended. Copies of the policy may be obtained from the Office of Student Affairs. This office also maintains a directory of records which lists all educational records maintained on students by the University.

OFFICE OF VETERANS AFFAIRS

The Office of Veterans Affairs is for students who are utilizing veterans benefits to further their education. The office has a professional staff augmented by student veterans to assist in providing information concerning entitlements, filing claims to the Veterans Administration, and certifying enrollment at the University. Counseling for personal and academic problems is provided as well as referral to various agencies in the community. Veterans must be certified through this office to receive VA educational benefits. Veterans' academic progress is monitored on a continuous basis.

All veterans and dependents are urged to contact the office at an early stage in the process of applying for admission.

VETERANS BENEFITS

Veteran-students eligible to receive VA educational benefits must make initial contact with the Veterans Certification Office.

Those students with an undergraduate degree who are classified as postbaccalaureate must carry at least twelve (12) semester hours for full VA benefits, nine (9) semester hours for three-fourths, and six (6) semester hours for one-half. Five (5) semester hours or less will be reimbursed to the veteran at cost of instruction only. Those accepted in a graduate degree-seeking program are required to carry six (6) semester hours for full benefits, four (4) to five (5) for three-fourths, and three (3) semester hours for one-half.

Veterans intending to enroll in a dual program with the option of receiving VA benefits, must contact the Veterans Affairs Office.

Those on co-op status may choose to draw VA benefits for their period of eligibility either under the institutional or the cooperative program.

RECREATIONAL SERVICES

Recreational Services offers a variety of sports and recreational opportunities to students, faculty, and staff at the University. Included in the program are intramural sports leagues and tournaments, coed sports, organized recreation/fitness opportunities, unstructured open recreation and competitive sports clubs. For the fitness minded, there are physical fitness classes, a Rec-Milers Club and ample equipment which may be checked out and used on the University recreational facilities. A handbook which provides full information, rules, and regulations on all activities is available from the Office of Recreational Services.

INSTRUCTIONAL RESOURCES

The primary purpose of the Instructional Resources office is to improve instruction. In meeting both academic and administrative needs of the University, the department provides graphic, photographic, radio, and television production in addition to a wide range of consultative services in an effort to bridge the gap between technology and instruction.

UNIVERSITY BOOKSTORE

The University Bookstore carries required textbooks, supplemental books, and associated supplies for all UCF courses. In addition, a complete line of school and art supplies, sundries, paperbacks, gifts, and other items of interest is available. A customer service desk provides for special orders such as class rings. During the last three days of each semester, the bookstore has a "buy-back" period for used text books. Student I.D. cards must be presented as identification when selling books.

UCF AREA CAMPUSES

The University of Central Florida offers a number of upper division and graduate level courses at three area locations in Central Florida. Contact the area campus for information as to the current courses and program offerings.

UCF BREVARD CAMPUS

1519 Clearlake Road
Cocoa, Florida 32922
(305) 632-4127

UCF DAYTONA BEACH CAMPUS

215 South Clyde Morris Boulevard
Daytona Beach, Florida 32014
(904) 255-7423

UCF SOUTH ORLANDO CAMPUS

7300 Lake Ellenor Drive
Orlando, Florida 32809
(305) 855-0881

PROGRAM AND COURSE DESCRIPTIONS

The remainder of the catalog lists the graduate programs now available at the University of Central Florida. These are arranged first by College, and then by the individual program. Within each program there is a listing of the faculty, a description of the program, the requirements necessary for graduation, and a list of the courses available.

A number of general statements about the course numbering system should make the descriptions more understandable.

CLASSIFICATION OF COURSES

3000-4999 are junior and senior level courses and are designed primarily for advanced undergraduate students. Selected 4000-4999 courses may serve the needs of the individual graduate students if approved for inclusion in an individual program of graduate study by a supervisory committee approved by the Dean of Graduate Studies.

5000-5999 are beginning graduate level courses.

6000-6999 are courses open only to graduate students.

7000 are doctoral level courses.

FLORIDA STATEWIDE COURSE NUMBERING SYSTEM

The course numbers appearing in the catalog are part of a statewide system of prefixes and numbers developed for use by all public postsecondary and participating private institutions in Florida. One of the major purposes of this system is to make transferring to another institution easier by identifying courses which are equivalent, no matter where they are taught in the state. All courses designated as equivalent will carry the same prefix and last three digits.

The classifying and numbering of courses was done by community college and university faculty members in each academic discipline. Their work was reviewed by faculty members in all of Florida's postsecondary institutions who made suggestions and criticisms to be incorporated into the system.

The course numbering system is, by law, descriptive and not prescriptive. It in no way limits or controls what courses may be offered or how they are taught. It does not affect course titles or descriptions at individual schools. It seeks only to describe what is being offered in postsecondary education in Florida in a manner that is intelligible and useful to students, faculty and other interested users of the system.

It should be noted that a receiving institution is not precluded from using nonequivalent courses for satisfying certain requirements.

GENERAL RULE FOR COURSE EQUIVALENCIES

All undergraduate courses bearing the same alpha prefix and last three numbers (and alpha suffix, if present) have been agreed upon to be equivalent. For example, an introductory course in sociology is offered in over 40 postsecondary institutions in Florida. Since these courses are considered to be equivalent, each one will carry the designator SOC-000.

FIRST DIGIT

The first digit of the course number is assigned by the institution, generally to indicate the year it is offered—i.e., 1 indicates freshman year, 2 indicates sophomore year. In the sociology example mentioned above, one school which offers the course in the freshman year will number it SOC 1000; a school offering the same course in the sophomore year will number it SOC 2000. The variance in the first number does not affect the equivalency. If the prefix and last three digits are the same, the courses are substantially equivalent.

TITLES

Each institution will retain its own title for each of its courses. The sociology courses mentioned above are titled at different schools "Introductory Sociology," "General Sociology," and "Principles of Sociology." The title does not affect the equivalency. The courses all carry the same prefix and last three digits; that is what identifies them as equivalent.

LAB INDICATORS

Some courses will carry an alpha suffix indicating a lab. The alpha suffixes "L" and "C" are used as follows to indicate laboratories:

"L" means either (a) a course, the content of which is entirely laboratory or (b) the laboratory component of a lecture-lab sequence at a different time/place from the lecture course.

"C" means a combined lecture-lab course in which the lab is offered in conjunction with the lecture at the same time and place.

Examples: PSY 6318 (lecture only)

ENV 6017L (lab only)

PCB 6235C (lecture & lab combined)

SPECIAL COURSES

In addition to the regular courses listed in this catalog, special courses may be available. Consult an academic advisor for details.

In order to register for any of the special numbers below, a student must present an authorization form (GS-10) obtained from the Department.

	SPECIAL GRAD	GRAD & PROF
Directed Independent Studies	5907	6908
Directed Research	5917	6918
Special Topics/Seminars	5937	6938
*Internships, Practicums, Clinical Practice	5944	6946
Study Abroad	5957	6958
*Research Report		6909
*Thesis		6971
*Thesis—Specialist		6973
*Doctoral Research		7919
*Doctoral Dissertation		7980
*For Graduate Status students only.		

These courses may be assigned variable credit. Some may be repeated upon approval.

ABBREVIATIONS IN COURSE DESCRIPTIONS

PR denotes a PREREQUISITE course which must be earned prior to enrollment in the listed course.

CR denotes a COREQUISITE course which must be taken concurrently with or prior to the listed course.

C.I. denotes that registration is contingent upon the consent of the instructor.

HOURS CODE

Each course listed is followed by a code which shows hours of credit and contact hours.

Example: ECI 5215C Hydraulic Engineering 3 cr (2,3)

ECI 5215C carries 3 hours of credit, but requires 5 contact hours which consist of 2 hours in class and 3 hours laboratory or field work.

COLLEGE OF ARTS AND SCIENCES

The College of Arts and Sciences consists of nineteen academic departments, twelve of which offer graduate degrees: Biological Sciences, Chemistry, Communication, Computer Science, English, History, Mathematics, Political Science, Psychology, Public Service Administration, Sociology and Anthropology, and Statistics. The specific programs for the various degrees are listed below.

COLLEGE ADMINISTRATION

R. A. Llewellyn Dean
J. B. Rollins Associate Dean

DOCTOR OF PHILOSOPHY

Computer Science

MASTER OF ARTS

Communication
English
History
Political Science
Sociology, Applied

MASTER OF PUBLIC ADMINISTRATION (M.P.A.)

MASTER OF SCIENCE

Biological Sciences
Chemistry, Industrial
Computer Science
Mathematical Science
Microbiology
Psychology (Clinical and Industrial/Organizational
Programs are offered)
Statistical Computing

GENERAL REQUIREMENTS

The course work and research requirements of the programs are designed with the intent of offering students the opportunity for educational advancement and professional training. A research report, thesis, or dissertation is required in most of the programs and is offered as an option in others.

The General Graduate Record Examination is required for graduate status in all programs even if a student is acceptable on the basis of a grade point average.

Each department is headed by a chairperson who reports to the dean of the college. A graduate program coordinator is designated for each program and is the key contact on questions of admission and degree requirements. Consult the individual degree program listings for descriptions of requirements and courses offered by each program.

BIOLOGICAL SCIENCES

I. Jack Stout Graduate Program Coordinator
Office: BIO 436, Phone 275-2919

BIOLOGICAL SCIENCES FACULTY

O. M. Berringer, Jr., Ph.D. Professor
L. L. Ellis, Ph.D. Provost and Professor
J. L. Koevenig, Ph.D. Professor
D. T. Kuhn, Ph.D. Professor
H. A. Miller, Ph.D. Professor
J. A. Osborne, Ph.D. Professor
F. F. Snelson, Jr., Ph.D. Chairman and Professor
I. J. Stout, Ph.D. Professor
W. K. Taylor, Ph.D. Professor
H. O. Whittier, Ph.D. Professor
L. M. Ehrhart, Ph.D. Associate Professor
R. J. Laird, Ph.D. Associate Professor
H. C. Sweet, Ph.D. Associate Professor
D. H. Vickers, Ph.D. Associate Professor
D. W. Washington, Ph.D. Assistant Professor

MICROBIOLOGY FACULTY

R. J. Wodzinski, Ph.D. Professor
J. F. Charba, Ph.D. Associate Professor
R. N. Gennaro, Ph.D. Associate Professor
R. S. White, Ph.D. Associate Professor

ADMISSION

The Graduate Record Examination (GRE) is required of all graduate students. Minimal requirements for admission are a grade point average (GPA) of at least 3.0 for the last 60 semester hours of undergraduate study or a score of at least 1000 on the combined quantitative-verbal sections of the GRE. In addition, the department requires 3 letters of recommendation and a written statement of past experience and research, area of interest, and immediate and long-range goals. Personal interviews are helpful but not required. Foreign students are required to submit a TOEFL score of at least 550.

Applicants who fail to meet either the minimum program GPA or GRE requirement may occasionally be accepted if there is other convincing evidence of potential for high achievement and success. Applicants failing to satisfy minimum program criteria should submit a GRE Subject (Advanced) Biology Test score at or above the 50th percentile. In no case will GRE scores (verbal, quantitative, or advanced) older than seven years be accepted.

Applicants need not have an undergraduate degree in a biological science but are expected to have the equivalent of 16 semester hours credit in the biological sciences, including at least 3 credit hours each in botany, microbiology, and zoology; plus 6 hours in organic chemistry; and basic college mathematics and statistics. After acceptance, minor deficiencies can be remedied by enrollment at the first opportunity in an appropriate course.

PROGRAMS IN BIOLOGICAL SCIENCES

The Master of Science degree in Biological Sciences is offered with the following areas of specialization: biology, botany, limnology, and zoology. There are two options available: (1) a thesis option which includes a minimum of 30 semester hours of courses; and (2) a nonthesis option which includes a minimum of 40 semester hours of courses.

The Master of Science degree in Microbiology requires a thesis option and a minimum of 30 semester hours of courses. It is listed separately, immediately following this section.

MASTER OF SCIENCE DEGREE REQUIREMENTS— BIOLOGICAL SCIENCES

THESIS OPTION

A student selecting the biology thesis option will take the following courses:

Group A (three of the six courses)			12-14 Semester Hours
PCB 5046C	Advanced Ecology		5 hours
PCB 5675C	Evolutionary Biology		4 hours
	or		
BOT 5705C	Plant Biosystematics		4 hours
PCB 6585C	Advanced Genetics		5 hours
PCB 6746C	Organismal Physiology		4 hours
	or		
PCB 6365	Environmental Physiology		3 hours
Group B (both courses)			8 Semester Hours
BSC 6938	Biology Seminar		2 hours
BSC 6971	Thesis		6 hours

Group C 8-10 Semester Hours

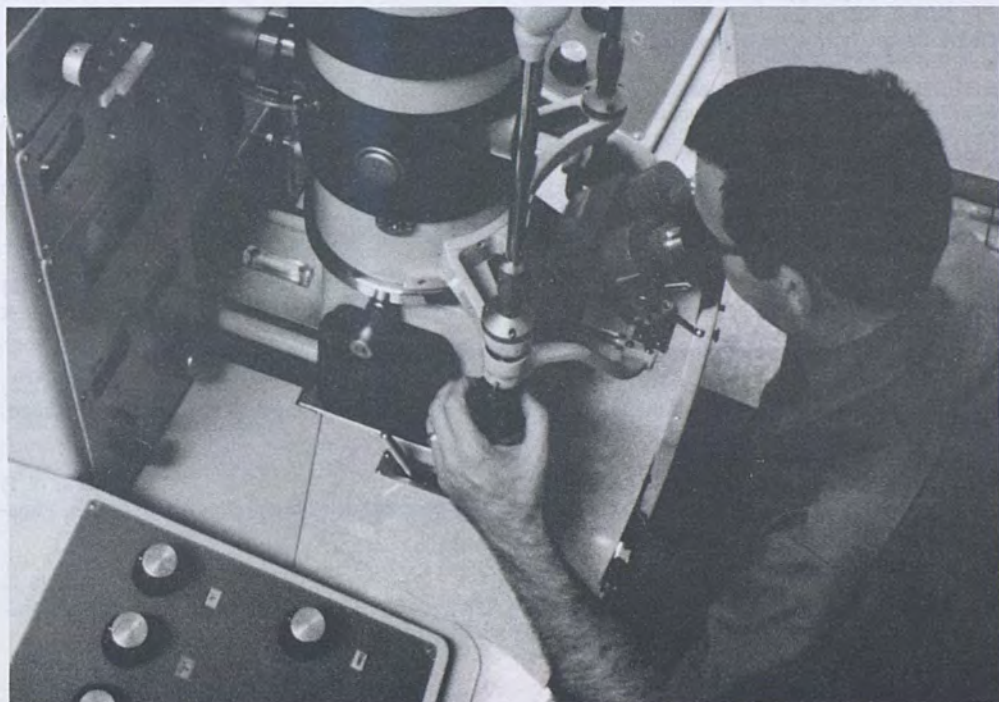
Restricted electives acceptable to the student's graduate committee.

Total Minimum Semester Hours Required: 30

NONTHESIS OPTION

A student selecting the biology nonthesis option will take the following courses:

Group A (three of the six courses)			12-14 Semester Hours
PCB 5046C	Advanced Ecology		5 hours
PCB 5675C	Evolutionary Biology		4 hours
	or		
BOT 5705C	Plant Biosystematics		4 hours
PCB 6585C	Advanced Genetics		5 hours
PCB 6746C	Organismal Physiology		4 hours
	or		
PCB 6365	Environmental Physiology		3 hours



Group B (both courses)	4 Semester Hours
BSC 6918 Research Report	2 hours
BSC 6938 Biology Seminar	2 hours
Group C	22-24 Semester Hours
Restricted electives acceptable to the student's graduate advisor.	
Total Minimum Semester Hours Required:	40

MASTER OF SCIENCE DEGREE REQUIREMENTS— MICROBIOLOGY

MICROBIOLOGY THESIS PROGRAM

Group A (21 hours—all courses)	21 Semester Hours
APB 5581 Applied Microbiology	3 hours
MCB 5205 Infectious Processes	3 hours
MCB 5505C Virology	3 hours
MCB 6417C Microbial Metabolism	3 hours
MCB 6971 Thesis	6 hours
PCB 6235C Immunochemistry	3 hours
Group B	7 Semester Hours
Restricted electives acceptable to student's graduate committee.	
Group C	2 Semester Hours
MCB 6938 Microbiology Seminar or BSC 6938 Biology Seminar	
Total Minimum Semester Hours Required:	30

BIOLOGICAL SCIENCES AND MICROBIOLOGY COURSES

APB 5581 Applied Microbiology	3 cr (3,0)
PR: MCB 3013C or C.I. Biochemistry of industrial processes including: economics, screening, scale up, quality control and applied genetics.	
BOT 5495C Bryology	3 cr (2,3)
PR: BOT 3303C or C.I. A lecture-laboratory survey course on the diversity and classification of mosses, liverworts and hornworts with special emphasis on those found in Florida.	
BOT 5705C Plant Biosystematics	4 cr (3,2)
PR: Graduate standing or C.I. Evolutionary processes among plant taxa and populations utilizing cytology, morphology, biochemistry, breeding systems, and co-evolution.	
BOT 6146C Terrestrial Vegetation	4 cr (2,6)
PR: 8 hours in biological sciences or science teaching experience or C.I. Classification and identification among terrestrial plant groups and their natural association in the field. Major reference sources reviewed.	
MCB 5205 Infectious Process	3 cr (3,0)
PR: MCB 3013C or C.I. Discussion of current theories of the infectious process and the response of host cells and tissue to infection.	
MCB 5505C Virology	3 cr (2,3)
PR: MCB 3013C and BCH 4054. Nature of viruses and Rickettsiae, including their structure, propagation, isolation and identification.	
MCB 6417C Microbial Metabolism	3 cr (3,1)
PR: C.I. Relationship between microbial metabolism and principal cellular activities, emphasizing transport, respiration, differentiation, and synthesis.	
PCB 5045C Conservation Biology	4 cr (3,2)
PR: PCB 3043 and PCB 3063. Scientific basis of conservation; conservation of ecosystems, populations, exploited species, and endangered species. Weekend field trips are required.	

PCB 5046C Advanced Ecology	5 cr (3,4)
PR: Ecology, statistics and 2 years of biological science. Population and community ecology with emphasis on growth, regulation, species interactions, succession, and community classification.	
PCB 5675C Evolutionary Biology	4 cr (3,2)
PR: PCB 3043 and PCB 3063 or C.I. Review of concepts in evolutionary biology. Emphasis on evolution at and below the species level; consideration of genetics and ecological factors in divergence and speciation.	
PCB 5806 Endocrinology	3 cr (3,0)
PR: PCB 4723 and BCH 4053 or C.I. Mechanisms of action of hormones; interrelationships between the nervous and endocrine systems.	
PCB 6049 Contemporary Studies in Biology	2 cr (2,0)
PR: Graduate standing. Analysis of current publications and developments in theory and concepts of biological sciences. May be repeated for credit as content is variable.	
PCB 6235C Immunochemistry	3 cr (2,3)
Concepts of antibody diversity, affinity for an antigen, kinetics of the antibody and antigen response and thermodynamic consideration.	
PCB 6365 Environmental Physiology	3 cr (3,0)
PR: Physiology and ecology or C.I. The effects of major environmental factors on the physiology of plants and animals.	
PCB 6585C Advanced Genetics	5 cr (3,6)
PR: PCB 3063 or C.I. Current advances in molecular, developmental, cytological, and human genetics will be stressed.	
PCB 6746C Organismal Physiology	4 cr (3,3)
PR: PCB 3023 or C.I. Modern experimental methods of detailed study of specific phases of the physiology of higher vertebrates.	
ZOO 5456C Ichthyology	4 cr (2,6)
PR: ZOO 3303C or C.I. Introduction to the biology of the fishes, their classification, evolution and life histories.	
ZOO 5463C Herpetology	4 cr (2,6)
PR: 6 hours of zoology or C.I. Introduction to the biology of the amphibians and reptiles, their classification, evolution and life histories.	
ZOO 5475C Ornithology	4 cr (2,6)
PR: 6 hours of zoology or C.I. Introduction to the biology of birds, their classification, evolution, and life histories.	
ZOO 5483C Mammalogy	4 cr (2,6)
PR: 6 hours of zoology or C.I. Introduction to the biology of mammals, their classification, evolution and life histories.	
ZOO 5745C Essentials of Neuroanatomy	4 cr (3,2)
PR: Human/Comparative Anatomy, or Human/Animal Physiology or C.I. Fundamental concepts of both morphological and functional organization of the nervous system. Primary emphasis on human structure.	
ZOO 5815 Zoogeography	3 cr (3,0)
PR: 8 hours of zoology or C.I. Principles and concepts concerning regional patterns of animal distributions of the world, both past and present.	
BSC 6918 Research Report	2 cr
BSC 6971 Thesis	1-6 cr
MCB 6971 Thesis	1-6 cr

CHEMISTRY, INDUSTRIAL

John T. Gup-ton Graduate Program Coordinator
Office: CH 331, Phone 275-2246

G. L. Baker, Ph.D. Professor
C. A. Clausen, Ph.D. Professor
G. N. Cunningham, Ph.D. Professor
G. R. Hertel, Ph.D. Professor
F. E. Juge, Ph.D. Associate Vice President and Professor
B. C. Madsen, Ph.D. Professor
G. Mattson, Ph.D. Chairman and Professor
W. W. McGee, Ph.D. Professor
L. M. Trefonas, Ph.D. Vice President of Sponsored Research,
Graduate Studies Dean and Professor
J. T. Gup-ton, Ph.D. Associate Professor
F. B. Kujawa, Ph.D. Associate Professor
M. D. Hampton, Ph.D. Assistant Professor

ADMISSION

The Graduate Record Examination (GRE) is required of all graduate students. Minimal requirements for admission include a grade point average (GPA) of 3.0 for the last 60 semester hours of undergraduate study or a score of at least 1000 on the combined quantitative-verbal sections of the General (Aptitude) test of the GRE. In addition, the departmental evaluation relies on letters of recommendation. Proficiency examinations may be required. Results may be used to aid in planning the student's program of study. Deficiencies may require remedial course work.

PROGRAM IN INDUSTRIAL CHEMISTRY

The Master of Science degree at the University of Central Florida is aimed particularly at preparing students for careers in the chemical industry, or in related fields which utilize chemical processing techniques. The curriculum is designed to provide a broad overall perspective of the industry and an awareness of economic and engineering considerations while placing the primary emphasis upon chemistry and the application of chemical principles to the development of products and processes.

MASTER OF SCIENCE REQUIREMENTS— INDUSTRIAL CHEMISTRY

REQUIRED COURSES

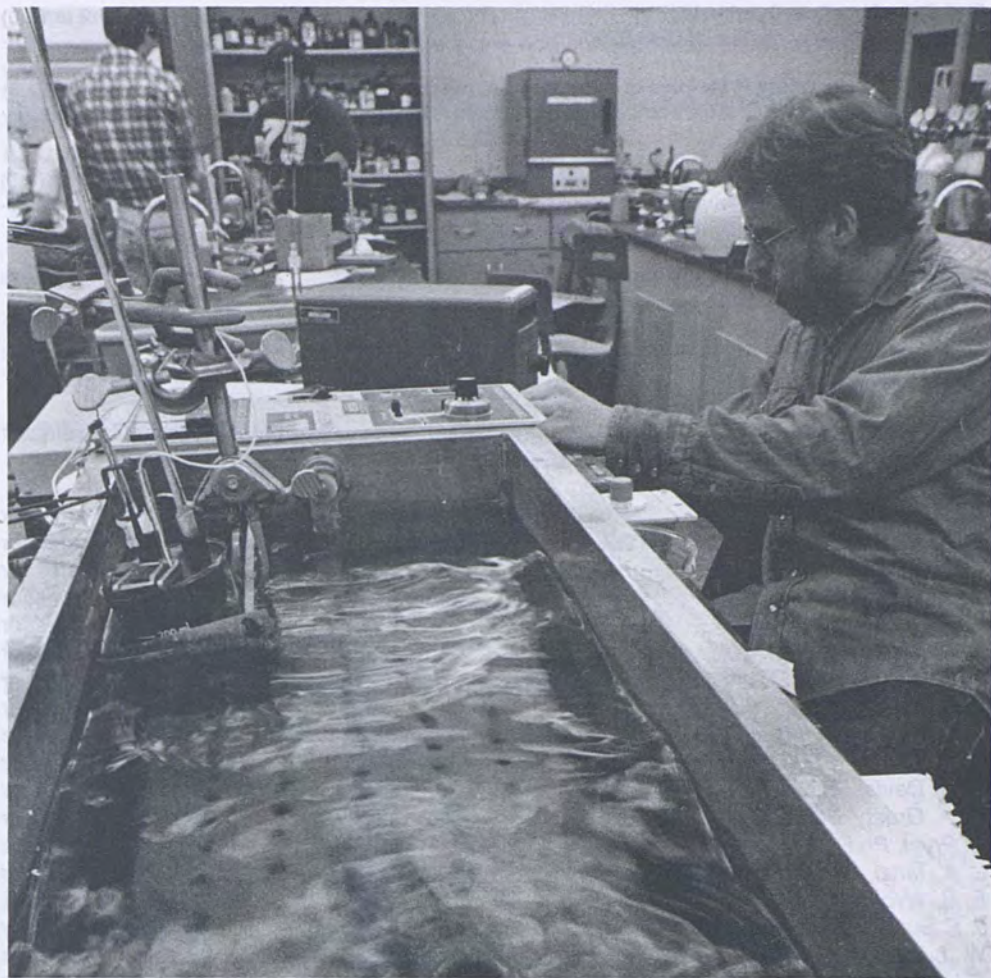
			19 Semester Hours
CHM 5710	Chemical Structure I		2 hours
CHM 5711	Chemical Structure II		2 hours
CHS 5240	Chemical Dynamics I		2 hours
CHS 5241	Chemical Dynamics II		2 hours
CHS 5250	Chemical Synthesis I		2 hours
CHS 5251	Chemical Synthesis II		2 hours
CHS 6260C	Laboratory Principles of Industrial Chemistry		4 hours
CHS 6261	Chemical Processes		3 hours

RESTRICTED ELECTIVE

Three hours of an approved elective may be substituted for three hours of research. Restricted electives include courses in business, computer science, engineering and statistics in keeping with the student's particular needs, interests and background and as approved by the advisory committee.

RESEARCH — a research report is required.

CHM 6918	Research	11 hours
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EXAMINATION REQUIREMENTS

Satisfactory completion of a final examination is required.

Total Minimum Semester Hours Required:

30

CHEMISTRY COURSES

CHM 5710 Chemical Structure I

2 cr (2,0)

PR: CHM 3211, 3121C, and 3411; or equivalent. Concepts in molecular structure and the relationships between structure and the chemical and physical properties of a substance.

CHM 5711 Chemical Structure II

2 cr (2,0)

PR: CHM 5710. Continuation of CHM 5710.

CHS 5240 Chemical Dynamics I

2 cr (2,0)

PR: CHM 3411 or equivalent. Dynamics of chemical reactions and physical processes including equilibrium systems catalysis, transport processes and physical phenomena at interfaces.

CHS 5241 Chemical Dynamics II

2 cr (2,0)

PR: CHS 5240. Continuation of CHS 5240.

CHS 5250 Chemical Synthesis I

2 cr (2,0)

PR: CHM 3211, and 3411; or equivalent. Survey of chemical synthesis from the standpoint of planning a synthesis, intermediates, special techniques, protection of functional groups, experimental design and optimization of reaction conditions.

CHS 5251 Chemical Synthesis II**2 cr (2,0)**

PR: CHS 5250. Continuation of CHS 5250.

CHS 6260C Laboratory Principles of Industrial Chemistry**4 cr (2,6)**

PR: C.I. A laboratory study of the basic operations utilized in the chemical industry to synthesize and purify chemical products.

CHS 6261 Chemical Process Development**3 cr (3,0)**

PR: C.I. Consideration of various factors involved in development of a chemical process including determination of technical and economic feasibility, optimizing conditions and planning the development program.

CHM 6918 Research**11 hours**

COMMUNICATION

Fred Fedler Graduate Program Coordinator
Office: HFA 537, Phone 275-2681 or 275-2839

<i>R. L. Arnold, Ph.D.</i>	Professor
<i>R. W. Buchanan, Ph.D.</i>	Chairman and Professor
<i>F. E. Fedler, Ph.D.</i>	Professor
<i>J. G. Hoglin, Ph.D.</i>	Professor
<i>R. Hosokawa</i>	Professor
<i>B. C. Kissel, Ph.D.</i>	Professor
<i>M. D. Meeske, Ph.D.</i>	Professor
<i>T. O. Morgan, Ph.D.</i>	Professor
<i>M. T. O'Keefe, Ph.D.</i>	Professor
<i>K. P. Taylor, Ph.D.</i>	Professor
<i>R. H. Davis, Ph.D.</i>	Associate Professor
<i>W. K. Grasty, Ph.D.</i>	Associate Professor
<i>A. Pryor, Ph.D.</i>	Associate Professor
<i>L. A. Tanzi, Ph.D.</i>	Associate Professor
<i>E. B. Wycoff, Ph.D.</i>	Associate Professor
<i>J. F. Butler</i>	Assistant Professor
<i>W. J. Hall</i>	Assistant Professor
<i>F. L. Johnson</i>	Assistant Professor
<i>R. Smith</i>	Assistant Professor

ADMISSION

The Graduate Record Examination is required of all graduate students. Minimal requirements for admission are a grade point average (GPA) of 3.0 for the last 60 semester hours of undergraduate study and a minimum score of at least 800 on the verbal-quantitative sections of the General (Aptitude) test of the GRE. Alternatively, a GPA of 2.50-2.99 combined with a GRE of 1000 would also be acceptable.

PROGRAMS IN COMMUNICATION

The traditional Master of Arts in Communication program is designed to offer strong preparation in communication theory and in research methodology. As an alternative, students who have undergraduate degrees in other fields may take additional courses to prepare for careers in the fields of journalism, advertising/public relations, radio/television, or speech.

MASTER OF ARTS DEGREE REQUIREMENTS— COMMUNICATION

Students are required to complete 35 semester hours of work, including a thesis. Students must complete a basic core of courses in theory, methodology, media, and organizational communication, and successfully pass the program's comprehensive examination.

As a prerequisite to enter the program, students who do not have an undergraduate degree in communication are also required to take one additional course: COM 3311 (Communication as a Behavioral Science).

The curriculum for the master's degree includes the following courses:

REQUIRED COURSES		13 Semester Hours
COM 6312	Research Methods	3 hours
MMC 6603	Communication and Society	4 hours
SPC 6219	Modern Communication Theory	3 hours
SPC 6545	Studies in Persuasion	3 hours

ELECTIVES	15 Semester Hours
Electives must be chosen mainly from 5000- and 6000-level courses with no more than 6 hours of 4000-level courses:	

RESTRICTED ELECTIVES		3 Semester Hours
At least one of the following courses:		
COM 6121	Communication Management	3 hours
SPC 6442	Small Group Communication	3 hours
MMC 6611	Effects of Advertising on Society	3 hours

THESIS	4 Semester Hours
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POSSIBLE OPTIONS FOR 4000-LEVEL ELECTIVES:

Communication

MMC 4700	Mass Media and Popular Culture	3 hours
SPC 4440	Group Dynamics	3 hours
SPC 4330	Nonverbal Communication	3 hours

Journalism

ADV 4000	Principles of Advertising	3 hours
ADV 4003	Advertising Layout and Preparation	4 hours
ADV 4101	Advertising Copy and Campaigns	4 hours
ADV 4103	Radio-Television Advertising	3 hours
JOU 4104	Public Affairs Reporting	4 hours
JOU 4300	Feature Writing	4 hours
JOU 4306	Critical Writing	3 hours
JOU 4310	Freelance Writing	4 hours
JOU 4602	Color Photography	4 hours
PUR 4000	Public Relations	3 hours
PUR 4800	Public Relations Campaigns	3 hours

Radio-Television

RTV 4402	Broadcast Criticism	3 hours
RTV 4403	Radio, Television and Society	3 hours
RTV 4404	International Broadcasting	3 hours
RTV 4600	Non-Commercial Broadcasting	4 hours
RTV 4700	Broadcast Regulations	3 hours
RTV 4800	Broadcast Management	3 hours

Speech

SPC 4633	Rhetoric of Social and Political Action	3 hours
SED 4371	Directing Extracurricular Activities	3 hours

Total Minimum Semester Hours Required:	35
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OPTIONAL PREREQUISITE COURSE WORK FOR NON-MAJORS

Students who have an undergraduate degree in another area and who want to prepare for a professional career may take one of the following groups of courses. Two of the 4000-level courses will count as electives toward the M.A. The remaining courses will have to be taken in addition to the normal graduate curriculum (not for graduate credit). Students interested in these areas also may write their theses about topics related to the areas.

Journalism

JOU	3100	News Reporting
JOU	3200	News Editing
JOU	4300	Feature Writing
JOU	4104	Public Affairs Reporting
MMC	4200	Mass Communication Law

Radio/Television

RTV	3200	Broadcast Techniques
RTV	3000	Foundations of Broadcasting
RTV	4403	Radio/Television and Society
RTV	4700	Broadcast Regulations
RTV	4800	Broadcast Management
RTV	3300	Broadcast Journalism

Also, select one of the following:

RTV	3210	Radio Production
RTV	3200	Television Production
FIL	3200	Film Production

Speech

SPC	4330	Non-Verbal Communication
SPC	4350	Listening
SPC	4440	Group Dynamics
SPC	4540	Attitudes and Communication
SPC	4651	Rhetoric of Social, Political Action

Advertising/Public Relations

PUR	4000	Public Relations
ADV	4000	Principles of Advertising
ADV	4003	Advertising Layout and Preparation
ADV	4101	Advertising Copy and Campaigns

or

PUR	4800	Public Relations Campaigns
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Also an internship in advertising or public relations

COMMUNICATION COURSES

COM 6121 Communication Management

3 cr (3,0)

Analysis and development with reference to particular media. Organizational theory, structure and behavior. Management principles and operations.

COM 6312 Research Methods

3 cr (3,0)

Planning, implementation, and design of research studies.

COM 6426 Informational and Educational Systems

3 cr (3,0)

PR: C.I. A study of the sources, processing, and transmittal of educational and informational materials (software) which are used in educational broadcast systems, information retrieval systems, learning machines, etc.

COM 6908 Independent Study

1-3 cr

COM 6918 Research

1-3 cr

COM 6971 Thesis

3 cr (3,0)

MMC 6603 Communication and Society	4 cr (4,0)
The importance of the mass media, their structure and role. Also, current issues, criticisms and interaction with government.	
MMC 6611 Effects of Advertising on Society	3 cr (3,0)
An in-depth study of advertising's effects on consumer behavior, societal mores and media economics.	
SPC 5200 Evolution of Communication Theory	3 cr (3,0)
General Survey — major communication trends from classical era to the present. Comparison of Aristotelian and non-Aristotelian rhetorics. Contributions of principal figures will be discussed.	
SPC 6219 Modern Communication Theory	3 cr (3,0)
Comparative analysis of theories and models of human communication, behavior systems, encoding and decoding processes, interaction variables, and social context.	
SPC 6442 Small Group Communication	3 cr (3,0)
A study of communication and its effect on small group behavior.	
SPC 6545 Studies in Persuasion	3 cr (3,0)
Survey and evaluation of experimental research in persuasion.	

COMPUTER SCIENCE

Larry K. Cottrell Graduate Program Coordinator
Office: CC-II 255, Phone 275-2341

T. J. Frederick, Ph.D.	Chairman and Professor
C. E. Hughes, Ph.D.	Professor
A. Mukherjee, Ph.D.	Professor
R. C. Brigham, Ph.D.	Associate Professor
L. K. Cottrell, Ph.D.	Assistant Chairman and Associate Professor
J. R. Driscoll, Ph.D.	Associate Professor
R. D. Dutton, Ph.D.	Associate Professor
H. Gerber, Ph.D.	Associate Professor
R. Guha, Ph.D.	Associate Professor
D. A. Workman, Ph.D.	Associate Professor
M. A. Bassiouni, Ph.D.	Assistant Professor
F. Gomez, Ph.D.	Assistant Professor
S. D. Lang, Ph.D.	Assistant Professor
J. Leeson, Ph.D.	Assistant Professor
H. N. Srinidhi, Ph.D.	Assistant Professor

ADMISSION

Admission is based on satisfying the regular University requirements and department requirements. The minimum University requirements consist of the following:

- A baccalaureate degree from an accredited institution *and* an earned grade point average (GPA) of at least 3.0 in the last two years of undergraduate work *or* a combined score of 1000 or more on the quantitative-verbal sections of the General (Aptitude) test of the Graduate Record Examination (GRE)
- OR
- A previous graduate degree from an accredited institution.

NOTE: All students seeking Graduate status must take the General (Aptitude) Test of the GRE and submit the score to the Graduate Admissions Office.

Departmental Requirements

Each student is required to submit a score on the GRE Subject (Advanced) Test in Computer Science that is not more than two years old at the time of admission to regular graduate status. International students must obtain a minimum score of 550 on the TOEFL exam.

An undergraduate degree in computer science is desirable, but not required. Applicants without a strong undergraduate background in computer science will be required to demonstrate an understanding of the material covered in the following courses:

CDA 4102	Introduction to Computer Architecture
CIS 4112	Databases
CNM 4110	Numerical Calculus
COP 4550	Programming Languages I
COP 4620	Programming Systems
COT 4001	Discrete Computational Structures

A student without this background is required to successfully complete at least three of the courses listed above before admission as a graduate student. The remaining courses must then be taken after admission to regular graduate status, but may not be used in the graduate program of study. Alternately, the student may choose to demonstrate the knowledge of these courses by scoring well on the Subject (Advanced) GRE in Computer Science. It is estimated that more than 85% of this Subject Test deals directly with the material covered in these courses.

Admission to the Ph.D. program in Computer Science is formalized by the University upon the recommendation of the Computer Science Graduate Committee. In addition to satisfying the regular University requirements, the department requires that the applicant pass the Ph.D. Qualifying Examination and find a qualified faculty member in Computer Science willing to chair the student's advisory committee. Any transfer credits toward requirements for the Ph.D. program must be approved by the University and the department. Normally, these credits must correspond to equivalent requirements and performance levels expected for the program.

PROGRAMS IN COMPUTER SCIENCE

The Master of Science degree is available with the student choosing one of the following three options: a general option; a software engineering option; or a management information systems option.

The Department of Computer Science offers a Ph.D. degree in Computer Science. Students receive a broad background in the areas of programming systems and languages, information systems, computer architecture, and computational methods before specializing in a research area.

Research interests of the faculty include computer architecture, VLSI systems, microprocessors, programming languages, operating systems, artificial intelligence, computer-assisted instruction, data base management systems, storage/retrieval systems, computer graphics, interactive graphic system of instruction, distributed processing/networking and computational complexity.

MASTER OF SCIENCE DEGREE REQUIREMENTS— COMPUTER SCIENCE

The requirements for the plan of study of the three available options are listed below:

GENERAL OPTION:

Required Courses

			12 Semester Hours
(Students must receive an A or B grade in these four courses.)			
a.	CDA 5106	Advanced Computer Architecture I	3 hours
b.	CIS 5012	Information & File Systems Analysis	3 hours
c.	CNM 5142	Computational Methods/Linear Systems	3 hours
		or	
	COT 5314	Computational Complexity	3 hours
d.	COP 5554	Programming Languages II	3 hours
		or	
	COP 5613	Operating System Design Principles	3 hours

Research Project

3 Semester Hours

Restricted Electives	15 Semester Hours
Restricted electives must include two 6000-level Computer Science courses taught by the Department of Computer Science. (May include approved 4000-level Computer Science courses and graduate courses outside Computer Science up to 6 hours.)	
Total Minimum Semester Hours Required:	30

SOFTWARE ENGINEERING OPTION:

Required Courses	15 Semester Hours
(Students must receive an A or B grade on these five courses).	
CDA 5106	Advanced Computer Architecture I 3 hours
COP 5554	Programming Languages II 3 hours
COP 5613	Operating System Design Principles 3 hours
COP 5632	Software Engineering 3 hours
COP 5682	Software Tools 3 hours

Research Project	3 Semester Hours
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Restricted Electives	6-12 Semester Hours
Must include at least two of the following courses:	
COP 6555	Software Science 3 hours
COP 6582	Theories of Programming Language Semantics 3 hours
COP 6614	Operating Systems 3 hours
COP 6672	Program Correctness and Verification 3 hours
COP 6642	Introduction to the Theories of Translation 3 hours

Approved Electives	0-6 Semester Hours
May include graduate courses outside Computer Science.	
Total Minimum Semester Hours Required:	30

MANAGEMENT INFORMATION SYSTEMS (MIS) OPTION:

Required Courses	15 Semester Hours
(Students must receive an A or B grade in these five courses.)	
CIS 5012	Information & File Systems Analysis 3 hours
CIS 5041	Information Organization & Retrieval 3 hours
CIS 5234	Computational Techniques in MIS 3 hours
CIS 6122	Data Base Management Systems 3 hours
COP 5632	Software Engineering 3 hours

Research Project	3 Semester Hours
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Restricted Electives	12 Semester Hours
Group A (two courses, at least one at 6000-level)	
CIS 6124	Data Base Management Systems Theory 3 hours
COP 5554	Programming Languages II 3 hours
COP 5613	Operating System Design Principles 3 hours
COP 6555	Software Science 3 hours
CRM 5115	Economics of Computers 3 hours
CRM 5131	Managing the Computer Professional 3 hours

Group B (two courses from those listed below, either Engineering or Business Administration courses)

EIN 5117	Management Information Systems I 3 hours
MAN 5051	Management Concepts 3 hours
MAN 5830	Introduction to MIS 3 hours
MAN 6814	Quantitative Analysis for Business Decisions 3 hours

Total Minimum Semester Hours Required:	30
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Regardless of the option chosen, the plan of the student must satisfy the following:

- The plan of study must contain at least 30 semester hours.
- Grades received in these hours must be letter grades of A, B, or C with no more than 6 hours of C work and a grade point average of 3.0 or better.
- The plan of study can contain no more than 6 hours of 4000-level courses (chosen from CIS 4324 and CDA 4144), no courses below the 4000-level, and exactly 3 hours of research (6918).
- The plan of study can contain no more than 6 hours (or two courses) of independent study (5907 or 6908).
- No course may be applied toward the degree which was completed more than 7 years prior to the date of graduation.
- Each student must also complete a research project, normally done over at least two semesters. The total credit earned by the student for the research project is exactly 3 hours which could be distributed over several semesters under the course number 6918 (with appropriate acronym designating the area, e.g., COP 6918), but the student must enroll for at least one hour of 6918 in the semester graduation is to occur.

DOCTOR OF PHILOSOPHY DEGREE REQUIREMENTS— COMPUTER SCIENCE

REQUIRED COURSES

18 Semester Hours

All students planning to apply for the doctoral program must take all five of the following required courses:

CDA 5106	Advanced Computer Architecture I	3 hours
CIS 5012	Information and File System Analysis	3 hours
COP 5613	Operating System Design Principles	3 hours
COT 5314	Computational Complexity	3 hours
COT 5127	Formal Languages and Automata Theory	3 hours
and 1 of the following four courses:		
CAP 5623	Heuristic Programming	3 hours
CDA 5182	Architecture and Design of VLSI	3 hours
COP 5554	Programming Languages II	3 hours
CNM 5142	Computational Methods/Linear Systems	3 hours
COT 5305	Design and Analysis of Algorithms	3 hours

PH.D. QUALIFYING EXAMINATION

The Qualifying Examination is taken only when the student has obtained regular graduate status in Computer Science and has completed no more than 27 semester hours of course work including the courses required for the examination as listed below. The purpose of this examination is to determine the student's knowledge in four important areas of computer science — hardware, software, theory, and applications — as well as to determine the potential of the student to pursue an area of specialization and to do research.

The Qualifying Examination will consist of five written exams in the general areas described below, plus a single written examination designed to test the student's research potential in each of these five areas.

- Hardware: CDA 5106, Advanced Computer Architecture
- Languages: COT 5127, Formal Languages and Automata Theory
- Operating Systems: COP 5613, Operating System Design Principles
- Theory: COT 5314, Computational Complexity
- Applications: CIS 5012, Informational and File Systems Analysis

To be admitted to the Ph.D. program, the student must pass the general portion in all five areas and the research portion in at least one area. It is then the student's obligation to find a qualified faculty member in Computer Science willing to chair the advisory committee. The student and the committee will then formulate a plan of study to determine the advanced graduate level courses and other degree requirements which must be completed.

Each examination area requires the student to answer two sets of questions. The general set of questions relates directly to the content of the 5000-level courses shown above. The research potential questions, which require no further preparation beyond the 5000-level courses, may cast concepts into new molds and require more creative thought. Some questions may relate to more than one of the above content areas.

Each faculty member contributing to a given examination will grade that part of the examination. All faculty involved in a given examination will reach a pass/fail decision. The Computer Science Graduate Committee will then evaluate the results for each student, with the following options:

If the student passes the general portion in all five areas and also passes the extended portion in at least one area, he may be admitted to the Ph.D. program upon obtaining the consent of a qualified faculty member in Computer Science to chair the advisory committee.

If the student does not pass the examinations as stated above, he must retake the entire set of examinations at the next scheduled offering. If the student does not pass on the second attempt, admission to the Ph.D. program is denied.

The Qualifying Examination will be offered twice each year — during September and January.

Upon successful completion of the Qualifying Examination, the student must select the members of his advisory committee which is chaired by a Computer Science graduate faculty member. The term "graduate faculty" refers to those faculty eligible to serve as major advisors for doctoral dissertations and/or on a research committee. The student and the committee will then formulate a plan of study to determine the advanced graduate level courses and other degree requirements which must be completed.

PLAN OF STUDY

The plan of study will consist of a minimum of seventy-two semester hours of graduate credit, including eighteen semester hours for the required six courses used for the Ph.D. Qualifying Examination. The remainder of the credits must include a minimum of twenty-four semester hours of advanced (6000-level) graduate courses with a special emphasis on the doctoral area of specialization and an adequate treatment of other major areas of computer science and related disciplines.

CANDIDACY EXAMINATION

The Candidacy Examination will consist of two parts: (1) a four-hour written examination in the specialty area as defined by the plan of study, to be designed by the chairperson in consultation with the members of the research committee, and (2) a presentation of a written doctoral research prospectus to the committee with an oral review of the proposal.

RESEARCH COMMITTEE

The formation of a research committee should occur as soon as the student has identified a potential research area. This committee will consist of no more than five faculty members, three of whom must be Computer Science graduate faculty and at least one of whom must be from outside the College of Arts and Sciences.

RESIDENCE REQUIREMENT

Students in the Ph.D. program are normally expected to be full-time students. At the very least, students *must* spend at least two consecutive semesters as a full-time student at UCF (that is, registered for a minimum of nine hours each of the two terms). At least one of the semesters used for the residency requirement must occur while the student holds candidacy status.

TIME LIMITATION

The student has seven years from the beginning of regular graduate status in the Ph.D. program to complete all requirements for the Ph.D. degree.

SPECIAL DEGREE REQUIREMENTS

Each student is expected to demonstrate competency in an area relevant to his research. This must be carefully defined by the student's committee and approved by the Computer Science Graduate Committee and the Office of Graduate Studies.

DISSERTATION AND ORAL DEFENSE

Each student must write a dissertation on his research which describes a significant original contribution to the field of computer science. The oral defense of the dissertation is administered by the research committee which makes a critical inquiry into the work reported in the dissertation and into the areas of knowledge that are immediately relevant to the research. All members vote on acceptance or rejection of the dissertation. The dissertation must be approved by a majority of the committee. Upon approval, the final dissertation must be deposited in the department and in triplicate to the Office of the Graduate Studies before the final deadline of the term in which the student plans to graduate.

COMPUTER SCIENCE COURSES

CAP 5612 Computer Based Educational Systems 3 cr (3,0)
PR: COP 4550 or equivalent. The design and implementation of computer based educational systems. Selected projects using high-level programming languages.

CAP 5623 Heuristic Programming 3 cr (3,0)
PR: COP 4550, COT 4001. An introduction to basic artificial intelligence concepts including problem solving, knowledge representations, knowledge based systems, natural language understanding by computer.

CAP 5670 Introduction to Intelligent Systems 3 cr (3,0)
PR: COP 4550 or equivalent. Origin/evolution of machine intelligence; heuristic and epistemological approaches to artificial intelligence; what computers can and cannot do; symbiotic role of human and computers.

CAP 5722 Computer Graphics Systems I 3 cr (3,0)
PR: COP 3404 or equivalent. Architecture of graphics processors; display hardware; principles of programming and display software; problems and applications of graphic systems.

CAP 5746 Simulation/Performance of Computer Systems 3 cr (3,0)
PR: CDA 5106 and COP 5613. Performance measurement of hardware and software systems, simulation techniques, monitoring programs.

CAP 6613 Utilizing Microcomputers in Education 3 cr (0)
Instruction in microcomputers emphasizing applications of software in the classroom and for school record keeping.

CAP 6646 Computer Understanding of Natural Language 3 cr (3,0)
PR: CAP 5623. A study of the different approaches to build programs to "understand" natural language. The theory of parsing, knowledge representation, memory and inference will be studied.

CAP 6672 Intelligent Systems 3 cr (3,0)
PR: CAP 5670. Study of computer systems exhibiting intelligent attributes, particularly learning; basic concepts related to characteristics, capabilities, design and principles of operation; discussion of relevant philosophical/social issues.

CAP 6723 Computer Graphic Systems II 3 cr (3,0)
PR: CAP 5722. Modeling design and analysis of graphics systems; data structures, numerical techniques, algorithms and optimum seeking methods for various problems in computer graphics.

CDA 5106 Advanced Computer Architecture I 3 cr (3,0)
PR: CDA 4102. Evolution of computer architecture; memory organization; cache; virtual memory; high speed processor design; pipeline multi-functional and array machines; special architecture case studies; overview of channel architecture.

CDA 5182 Architecture and Design of VLSI 3 cr (3,0)
PR: CDA 4102 or equivalent. Overview of VLSI technology. Logical design of basic subsystems; integrated system design tools; design of a VLSI computer system.

CDA 5186 VLSI Design Tools 3 cr (3,0)
PR: CDA 5182, a strong programming background and C.I. VLSI implementation systems; layout languages; tools; graphic tools; sticks compactor; design rule checking algorithms; simulation models; tools; routing algorithms; silicon compilers; knowledge-based VLSI tools.

- CDA 5188 VLSI Testing and System Integration** 3 cr (3,0)
PR: CDA 5182. Test vectors; fault models; design for testability; LSSD; languages for testing; performance measurements; interrupts; bus concepts and standards; testing and systems integration.
- CDA 6107 Advanced Computer Architecture II** 3 cr (3,0)
PR: CDA 5106. Multiprocess systems; interconnection network; stack architectures; high-level language architecture; design languages; performance evaluation.
- CDA 6108 Current Topics in Computer Architecture** 3 cr (3,0)
PR: CDA 6107. Associative machine architectures; non-numeric and database machines; data flow architecture; fault tolerant architecture.
- CDA 6166 Computer Communications Networks Architecture** 3 cr (3,0)
PR: CDA 5106. Introduction to networking; architecture of circuit, message and packet switching networks; local computer networks architecture; modems, protocols.
- CDA 6168 Computer Networks Design and Distributive Processing** 3 cr (3,0)
PR: CDA 6166 and COP 5613. Computer communications networks design considerations, network operating system, distributive processing.
- CDA 6184 VLSI Algorithms and Architecture** 3 cr (3,0)
PR: CDA 5182. VLSI algorithms, algorithms on regular geometries, hierarchially organized machines; illustrative algorithms: Matrix, DFT, recurrence evaluation, pattern matching, searching, sorting, graph, etc.; area-time complexity issues.
- CIS 5012 Information and File Systems Analysis** 3 cr (3,0)
PR: CIS 4112. Logic and physical information system design. Analysis of file systems. Introduction to data management systems.
- CIS 5041 Information Organization and Retrieval** 3 cr (3,0)
PR: CIS 5012. Automatic analysis of information content in natural language text for automatic retrieval. Construction of dictionaries, null, synonym, etc. Recall and precision. Interactive feedback.
- CIS 5234 Computational Techniques in Management Information Systems** 3 cr (3,0)
PR: CIS 4112. The role of computers in management information systems; analysis, design approaches, processing methods and data management; use of state-of-the-art software in design and development.
- CIS 6122 Data Base Management Systems** 3 cr (3,0)
PR: CIS 5012. Data base development. Generalized data management systems. Data description and data models. Query languages. Study of available systems.
- CIS 6124 Data Base Management Systems Theory** 3 cr (3,0)
PR: CIS 6122. Theory of data models, data languages and data base management systems.
- CNM 5142 Computational Methods/Linear Systems** 3 cr (3,0)
PR: CNM 4110 and MAS 3113. Mathematical models for linear systems, linear programming, the simplex method, integer and mixed-integer programming, introduction to nonlinear optimization and linearization.
- CNM 5148 Computational Methods/Applications** 3 cr (3,0)
PR: CNM 4110. Computational solution techniques for algebraic equations, ODE and PDE models of applications selected from science, engineering, applied mathematics and computer science.
- CNM 6144 Computational Methods/Analysis I** 3 cr (3,0)
PR: CNM 5142. Analysis of direct and iterative solutions of systems of linear equations, eigenvalues and vectors and roots of nonlinear equations, error analysis.
- CNM 6145 Computational Methods/Analysis II** 3 cr (3,0)
PR: CNM 6144. Analysis of numerical methods for approximation, integration and solution of ordinary differential equations. Lagrange polynomials, splines, Gaussian quadrature, Fourier series. Stability and illconditioning. Error analysis.
- COP 5554 Programming Languages II** 3 cr (3,0)
PR: COP 4550 and COT 4001. Introduction to compiler construction, parsing, parser generators, attributed grammars and the implementation of block structures and recursion. Students write a high-level language translator.

- COP 5613 Operating System Design Principles** 3 cr (3,0)
PR: COP 4620 or equivalent. The structure and functions of operating systems, process communications techniques, scheduling algorithms, deadlocks, memory management, virtual systems, protection and security.
- COP 5632 Software Engineering** 3 cr (3,0)
PR: COP 4550. Study of design techniques for large software systems, modularization, task assignment, management techniques, implementation techniques, testing, quality control, documentation and maintenance.
- COP 5682 Software Tools** 3 cr (3,0)
PR: COP 4620 and COP 5554. Systems programming languages, concurrent programming, design and implementation of software development/maintenance tools. A large programming project is required.
- COP 6555 Software Science** 3 cr (3,0)
PR: COP 5554 or equivalent. Basic principles of software science including program level, effort, impurity classes and execution. Language comparison project using tools of software science; semantic characterization of languages.
- COP 6582 Theories of Programming Language Semantics** 3 cr (3,0)
PR: COT 5127. Models and theories of semantics. Lambda calculus, denotational semantics, attributed grammars, operational semantics, Vienna Definition Language.
- COP 6614 Operating Systems** 3 cr (3,0)
PR: COP 5613. Techniques in the design and implementation of operating systems. Case studies of several experimental and commercial operating systems.
- COP 6615 Operating Systems Theory** 3 cr (3,0)
PR: COP 5613. Scheduling and queuing theory as applied to the control of computer systems.
- COP 6643 Compiler Construction** 3 cr (3,0)
PR: COP 5554, COT 5127. Techniques in the design and implementation of compilers. A project is required.
- COP 6672 Program Correctness and Verification** 3 cr (3,0)
PR: COT 4001. Mathematical techniques and automated theorem proving for program verification; inductive assertions for partial and total correctness, proving correctness of flowchart programs and recursive programs.
- COT 5127 Formal Languages and Automata Theory** 3 cr (3,0)
PR: COP 4550 and COT 4001. Classes of formal grammars and their relation to automata, normal forms, closure properties, decisions problems, LR(k) grammars.
- COT 5305 Design and Analysis of Algorithms** 3 cr (3,0)
PR: COT 4001. Classifications of algorithms, e.g., recursive, divide-and-conquer, greedy, etc. Data structures and algorithm design and performance. Time and space complexity analysis.
- COT 5314 Computational Complexity** 3 cr (3,0)
PR: COT 4001. Properties of algorithms, computational equivalence of machines, time-space complexity measures, examples of algorithms of different complexity, classification of algorithms, classes P and NP.
- COT 5324 Computability Theory** 3 cr (3,0)
PR: COT 4001. Models of computable procedures. Equivalence of models; unsolvable problems; hierarchies of unsolvability; applications to other areas of computer science including formal languages, automata theory, operating systems, automated theorem proving and program verification.
- COT 6202 The Theory of Parsing and Translation** 3 cr (3,0)
PR: COT 5127. Methods of top-down and bottom-up parsing, LL(k), recursive descent, precedence, bounded-context, SR(s,k), SLR(k), LALR(k), LR(k), parser compression and generation.
- COT 6206 Abstract Formal Systems** 3 cr (3,0)
PR: COT 5127. Abstract families of grammars and languages, algebraic automata theory, Petri nets, program schemata, L-systems.
- CRM 5115 Economics of Computers** 3 cr (3,0)
PR: CIS 5012. The computer industry, terms and conditions of sale and rental, cost and effectiveness of computer systems. Determining value, demand and price of computer services.

CRM 5131 Managing the Computer Professional **3 cr (3,0)**
PR: CIS 5012 and MAN 5051 or C.I. The programming group, team and project tasks, personality factors, motivating, training, experience.

CAP, CDA, CIS, CNM, COP or COT prefixes are used for the following: **3 credits**
6918 Research
7919 Doctoral Research
7980 Doctoral Dissertation

ENGLISH

Richard Adicks Graduate Program Coordinator
Office: HFA 455, Phone 275-2212

R. R. Adicks, Ph.D. Professor
S. E. Omans, Ph.D. Chairman and Professor
R. E. Umphrey, Ph.D. Professor
W. C. Wyatt Professor
J. J. Donnelly, Ph.D. Associate Professor
R. S. Grove, Ph.D. Associate Professor
G. J. Schiffhorst, Ph.D. Associate Professor
M. E. Sommer, Ed.D. Associate Professor
B. W. Barnes, Ph.D. Assistant Professor

ADMISSION

The Graduate Record Examination (GRE) is required of all graduate students. Minimal requirements for admission are a grade point average (GPA) of 3.0 for the last 60 semester credit hours earned as an undergraduate or a total score of 1000 on the verbal/quantitative section of the General (Aptitude) test of the GRE. Foreign students must score at least 550 on the Test of English as a Foreign Language (TOEFL).

Other criteria for admission are a baccalaureate degree in English or its equivalent, at least a year's study of a foreign language, and approval by the Graduate Committee of the Department of English. Students are expected to have read widely in British and American literature, to be highly competent in writing, and to be familiar with the vocabularies of literary criticism and grammar.

A student with a baccalaureate degree in a subject other than English may qualify for graduate status by presenting a score of at least 540 on the Subject GRE Test on Literature in English and completing survey courses in British and American Literature.

PROGRAM IN ENGLISH

The Master of Arts in English, which is ordinarily not a thesis degree, consists of courses and seminars in British, American and world literature; linguistics; and the teaching of composition and creative writing.

The faculty of the Department of English have published research in Shakespearean drama, literature from the Renaissance to the present, and sociolinguistics, while others have published fiction and poetry. The result is a program which presents students with a wide variety of intellectual and cultural experiences.

MASTER OF ARTS DEGREE REQUIREMENTS—ENGLISH

Each student must take at least 30 hours, including one course in linguistics on the 4000 level or higher, and four core courses. A thesis is optional. Near the end of the degree program, each candidate writes a comprehensive examination based on a prescribed reading list.

Most classes meet in the evenings for the benefit of teachers and others who must attend part-time.

REQUIRED COURSES

15 Semester Hours

LIN	5137	Linguistics (or equivalent)	3 hours
LIT	6009	Literary Genres	3 hours
LIT	6105	World Literature	3 hours
LIT	6365	Movements in Literature	3 hours
LIT	6535	Major Authors	3 hours

ELECTIVES

15 Semester Hours

THESIS — Optional

COMPREHENSIVE EXAMINATION

Total Minimum Semester Hours Required: 30

ENGLISH COURSES

CRW 5932 Teaching Creative Writing

3 cr (2,1)

Creative writing practicum. May be repeated for credit.

ENG 5018 Literary Criticism

3 cr (3,0)

Historical survey of major critics from classical antiquity to the modern era.

ENG 5028 Rhetoric and Literature

3 cr (3,0)

Investigates the development of written strategies of persuasion. Traces their relation to practical and imaginative literature. Applications to classroom teaching of literature and composition.

ENL 5176 Restoration and 18th Century English Drama

3 cr (3,0)

ENL 5226 Renaissance Poetry and Prose

3 cr (3,0)

PR: Senior standing or C.I. The course will examine selected poetry and prose of Wyatt, Surrey, Sidney, Spenser, Marlowe, Raleigh, Daniel, Shakespeare, Chapman, Lyly, and others.

ENL 5236 The Age of Dryden and Pope

3 cr (3,0)

Prose, poetry, drama and literary traditions of British neoclassicism.

ENL 5335 Studies in Shakespeare

3 cr (3,0)

A selection of representative plays with emphasis on Shakespeare's development as an artist: aesthetics of dramatic literature.

ENL 5347 The Age of Milton

3 cr (3,0)

Emphasis on the non-dramatic works of John Milton. Selections from the non-dramatic works of other 17th Century figures.

LAE 5372 Theory and Practice in Composition

3 cr (2,1)

PR: Senior standing or C.I. Intensive study of theories of composition, with practical experience in the writing laboratory and in composition classes.

LAE 6375 Practicum: The Teaching of Composition

3 cr (3,0)

Close work with an experienced instructor in teaching an undergraduate composition course, combined with regular group meetings for discussion of problems of teaching composition.

LIN 5137 Linguistics

3 cr (3,0)

Modern linguistic theories and studies focusing on language acquisition and development, contemporary American English, semantics, and paralinguistics.

LIN 6932 Problems in Linguistics

3 cr (3,0)

PR: LIN 5137. Study of the application of linguistics to various aspects of teaching and communication.

- LIT 5097 Studies in Contemporary Fiction** 3 cr (3,0)
Fiction in the last 20 years in the United States and Britain. May be repeated for credit.
- LIT 5366 The Romantic Revolt (19th Century Literature)** 3 cr (3,0)
The romantic revolt in poetry and prose; English, American, and Continental literature, 1798-1832.
- LIT 5367 The Victorian Age** 3 cr (3,0)
PR: Senior standing or C.I. Study of poets and essayists from 1837 to 1900, including Tennyson, the Brownings, Arnold, Hopkins, Carlyle, and Mill; emphasizing Dickens, George Eliot, the Brontes, and Hardy and other novelists.
- LIT 6009 Literary Genres** 3 cr (3,0)
Provenance, structure and critical problems in a specific genre such as tragedy, the epic, the novel, or the lyric. May be repeated for credit.
- LIT 6105 World Literature** 3 cr (3,0)
Study of the influence on British and American literature of selected foreign works read in translation. May be repeated for credit.
- LIT 6305 Media and Popular Literature** 3 cr (3,0)
Study of the literary content of contemporary media; popular fiction, such as science fiction, detective fiction and historical fiction. Application to classroom teaching. May be repeated for credit.
- LIT 6365 Movements in Literature** 3 cr (3,0)
Study of a movement such as naturalism, romanticism, or classicism, or of a literary period such as the Baroque or the Southern Renaissance. May be repeated for credit.
- LIT 6535 Major Authors** 3 cr (3,0)
Study of a single author or of two or three associated authors, with emphasis on biography, bibliography, and style. May be repeated for credit.

HISTORY

Bruce F. Pauley Graduate Program Coordinator
Office: HFA 505B, Phone 275-2224

<i>T. Colbourn, Ph.D.</i>	President and Professor
<i>J. B. Fernandez, Ph.D.</i>	Professor
<i>B. F. Pauley, Ph.D.</i>	Professor
<i>J. H. Shofner, Ph.D.</i>	Chairman and Professor
<i>P. W. Wehr, Ph.D.</i>	Professor
<i>R. C. Crepeau, Ph.D.</i>	Associate Professor
<i>J. L. Evans, Ph.D.</i>	Associate Professor
<i>E. B. Fetscher, Ph.D.</i>	Associate Professor
<i>E. F. Kallina, Jr., Ph.D.</i>	Associate Professor
<i>T. D. Greenhaw, Ph.D.</i>	Assistant Professor

ADMISSION

The Graduate Record Examination (GRE) is required of all graduate students. Minimal requirements for admission to the program are a grade point average (GPA) of 3.0 for the last 60 semester hours of undergraduate study and a score of at least 500 on the verbal section of the General (Aptitude) test of the Graduate Record Examination (GRE).

PROGRAM IN HISTORY

The Master of Arts in History has two options: the thesis option and the nonthesis option. The program is aimed at providing for the academic growth of secondary school teachers, providing qualified teachers for community colleges, and contributing to the professional or personal enrichment of the students. Departmental areas of American-oriented research include European immigration, ethnic and racial minorities, popular culture and local history. Other fields include twentieth-century mass movements, Nazis and anti-Semitism in Central Europe, and English activities during the eighteenth century.

MASTER OF ARTS DEGREE REQUIREMENTS—HISTORY

Either option (thesis or nonthesis) requires 36 semester hours with no graduate credit given for any grade lower than "B." Specific requirements for each option are:

THESIS OPTION

HIS 6159	Historiography	3 hours
HIS 6971	Thesis	6 hours
	Area of Concentration (American or European)	18 hours
	Outside Area of Concentration in History	6-9 hours
	Electives	0-3 hours

NONTHESIS OPTION

HIS 6159	Historiography	3 hours
HIS 6946	Teaching Practicum	3 hours
	Area of Concentration (American or European)	18 hours
	Outside Area of Concentration	6-9 hours
	Electives	3-6 hours

Total Minimum Semester Hours Required: 36

EXAMINATION REQUIREMENTS

Each candidate for the Master of Arts in History must pass written and oral examinations during the term in which the degree is to be awarded. The examinations will test the candidate's knowledge of history. It will include a thesis defense when that option is chosen.

Students electing the nonthesis track shall be expected to participate in several seminars, each of which will require a research paper. Since each paper will require that the student demonstrate knowledge of research techniques, of bibliographic methods, and of effective writing style, the research and writing skills normally expected in a thesis will not be ignored in this program.

HISTORY COURSES

NOTE: All graduate colloquia listed below require intensive reading in the literature of a given field, class discussions, and the preparation of papers. The prerequisites for 5000-level courses are senior standing and the consent of the instructor. All seminars listed below involve supervised research and the writing of term papers. The consent of the instructor is required for every seminar.

AMH 5116 Colloquium in U.S. Colonial History	3 cr (3,0)
AMH 5137 Colloquium in U.S. Revolutionary Period Covers the years: 1763-1789.	3 cr (3,0)
AMH 5149 Colloquium in Early U.S. History, 1789-1815 Covers the early national period.	3 cr (3,0)
AMH 5169 Colloquium in the Age of Jackson	3 cr (3,0)
AMH 5176 Colloquium in Civil War and Reconstruction	3 cr (3,0)
AMH 5219 Colloquium in Late 19th Century U.S.	3 cr (3,0)
AMH 5296 Colloquium in 20th Century U.S.	3 cr (3,0)
AMH 5391 Colloquium in U.S. Cultural History	3 cr (3,0)
AMH 5407 Colloquium in the American South Covers topics of Southern history from colonial origins to the present.	3 cr (3,0)

AMH 5446 Colloquium in U.S. Frontier	3 cr (3,0)
AMH 5515 Colloquium in U.S. Diplomatic History	3 cr (3,0)
AMH 6117 Seminar in Colonial U.S. Covers years: 1492-1763.	3 cr (3,0)
AMH 6138 Seminar in American Revolution Covers years: 1763-1789.	3 cr (3,0)
AMH 6179 Seminar in the Civil War and Reconstruction Papers will be presented and defended in class.	3 cr (3,0)
AMH 6218 Seminar in Late 19th Century U.S. Covers selected topics on the farmer and labor movements and the growth of industrialization.	3 cr (3,0)
AMH 6356 Seminar in U.S. Politics Covers selected topics in American political history.	3 cr (3,0)
AMH 6393 Seminar in U.S. Cultural History	3 cr (3,0)
AMH 6408 Seminar in American South Papers will be presented and defended in class.	3 cr (3,0)
AMH 6447 Seminar in U.S. Frontier	3 cr (3,0)
AMH 6499 Seminar in Local History Supervised research and writing of term papers on selected topics in city, county and regional history.	3 cr (3,0)
AMH 6516 Seminar in U.S. Diplomatic History Covers years 1776-to the present.	3 cr (3,0)
EUH 5237 Colloquium in Europe from 1815-1848	3 cr (3,0)
EUH 5238 Colloquium in Europe from 1848-1914	3 cr (3,0)
EUH 5247 Colloquium in Europe from 1919-1939	3 cr (3,0)
EUH 5285 Colloquium in Europe Since World War II	3 cr (3,0)
EUH 5371 Colloquium in Spanish History Readings and discussion of important events in the history of Spain.	3 cr (3,0)
EUH 5517 Colloquium: Tudor-Stuart England	3 cr (3,0)
EUH 5527 Colloquium in 18th Century England Covers Hanoverian Britain.	3 cr (3,0)
EUH 5579 Colloquium in Soviet Russia Covers Russian history from 1911-present.	3 cr (3,0)
EUH 5595 Colloquium in Czarist Russia	3 cr (3,0)
EUH 5608 Colloquium in European Intellectual History	3 cr (3,0)
EUH 6248 Seminar in Fascist Dictators Compares the causes, characteristics and failures of fascist movements and dictators in Germany, Italy, Austria and other European countries from 1918-1945.	3 cr (3,0)
EUH 6288 Seminar in Europe after World War II	3 cr (3,0)
HIS 6159 Historiography Selected topics in the study of history. May be repeated for credit on consent of instructor.	3 cr (3,0)

HIS 6946 Teaching Practicum**3 cr (3,0)**

Student observation, participation, direction, and leadership in a college survey course.

HIS 6971 Thesis**1-6 cr (1-6,0)****LAH 5713 Colloquium in U.S.-Latin American Relations****3 cr (3,0)**

The course will analyze U.S.-Latin American relations from an historical perspective. It will be presented through readings and discussion of selected materials.

LAH 6308 Seminar in 20th Century Latin American History**3 cr (3,0)**

A seminar analyzing contemporary Latin American issues, such as militarism, revolutionary movements, social and economic reforms, from a historical perspective.

MATHEMATICAL SCIENCE

Larry C. Andrews Graduate Program Coordinator
 Office: CCII 259, Phone 275-2585

<i>L. C. Andrews, Ph.D.</i>	Professor
<i>L. Debnath, Ph.D.</i>	Chairman and Professor
<i>A. J. Pettofrezzo, Ph.D.</i>	Professor
<i>H. Sherwood, Ph.D.</i>	Professor
<i>J. M. Anthony, Ph.D.</i>	Associate Professor
<i>L. H. Armstrong, Ph.D.</i>	Associate Professor
<i>R. C. Brigham, Ph.D.</i>	Associate Professor
<i>M. N. Heinzer, Ph.D.</i>	Associate Professor
<i>E. Norman, Ph.D.</i>	Associate Professor
<i>P. J. O'Hara, Ph.D.</i>	Associate Professor
<i>C. P. Rautenstrauch, Ph.D.</i>	Associate Professor
<i>M. D. Taylor, Ph.D.</i>	Associate Professor
<i>M. P. Barr</i>	Assistant Professor
<i>R. M. Caron, Ph.D.</i>	Assistant Professor
<i>J. W. Hurst</i>	Assistant Professor
<i>R. C. Jones, Ph.D.</i>	Assistant Professor
<i>R. Rodriguez, Ph.D.</i>	Assistant Professor
<i>F. Salzmann, Ph.D.</i>	Assistant Professor

Several faculty members are active in mathematics research, some of which is supported by external grants.

ADMISSION

The Graduate Record Examination (GRE) is required of all graduate students. Admission requirements are the standard University criteria of a 3.0 grade point average (GPA) for the last 60 semester hours of credit earned towards the baccalaureate or a GRE score of at least 1000 for the combined verbal-quantitative sections of the General (Aptitude) Test. The GRE must be less than 5 years old.

Additionally, students entering the graduate program with regular status are assumed to have a working knowledge in such areas as calculus, differential equations, linear algebra (or matrix theory), with statistics and computer programming at the undergraduate level. Those students who find they are not adequately prepared in one or more of these areas can select appropriate courses from the undergraduate curriculum to make up such deficiencies. Applicants not qualified for regular status may be initially admitted to the University in a postbaccalaureate status.

PROGRAM IN MATHEMATICAL SCIENCE

The Master of Science degree program in Mathematical Science is an interdisciplinary program intended to provide a broad base in applied mathematics, statistics, and computer science. The program is available in the evening hours to accommodate the working student.

MASTER OF SCIENCE DEGREE REQUIREMENTS — MATHEMATICAL SCIENCE

The Mathematical Science degree requires a total of 30 credit hours, with a minimum of 24 hours of course work.

REQUIRED COURSES:

24 Semester Hours

A minimum of 24 semester hours must include graduate level mathematics, statistics, and computer science courses which are approved by the student's committee. Suggested courses in these areas are listed below:

Suggested mathematics courses:

MAA	5405	Techniques of Complex Variables	3 hours
MMA	5211	Advanced Calculus	4 hours
MAP	6406	Methods of Mathematical Analysis	4 hours

Suggested statistics courses (See Statistics Department):

STA	6447	Applied Probability	4 hours
STA	6354	Statistical Theory and Methods	3 hours
STA	6857	Applied Time Series Analysis	3 hours

Suggested computer science courses (See Computer Science Department):

CNM	5142	Computational Methods/Linear Systems	3 hours
CNM	6144	Computational Methods/Analysis	3 hours

RESTRICTED ELECTIVES

1-4 Semester Hours

Electives may be chosen from approved mathematics, statistics or computer science courses which are taught by the Department of Mathematics, Department of Statistics or the Department of Computer Science. Graduate courses outside these departments may also be used if approved by the student's committee.

THESIS OR RESEARCH REPORT

2-6 Semester Hours

Anywhere from 2 to 6 semester hours of credit may be given for the writing of a paper on an appropriate topic. Ordinarily a paper which is of sufficient magnitude to justify awarding more than 4 hours of credit is considered a thesis. Otherwise it is considered a research report.

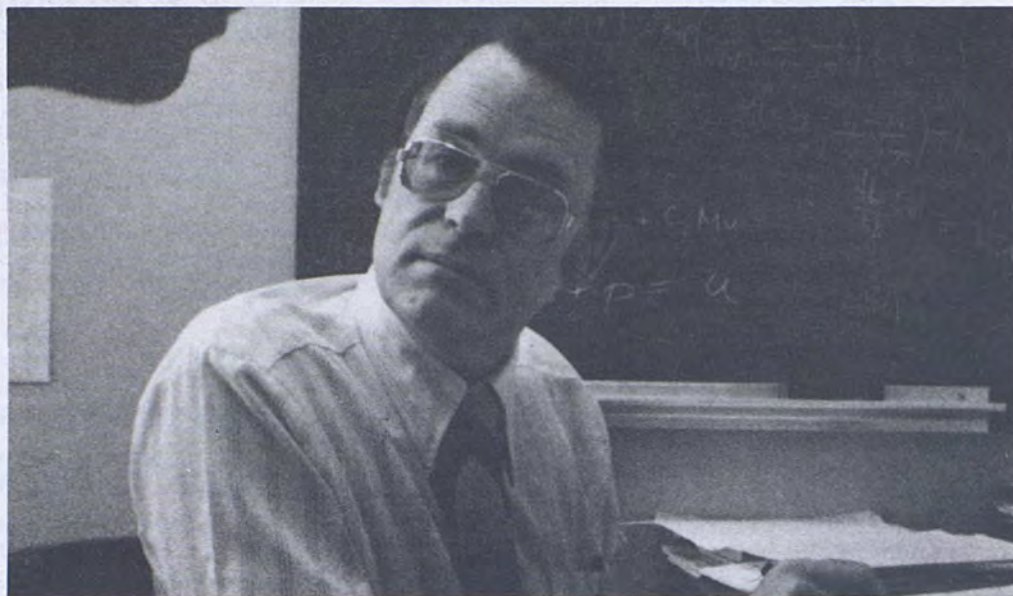
An oral defense of the thesis will be required of those students who elect to write a thesis.

EXAMINATION REQUIREMENTS

A final examination for either option may be given at the discretion of the student's committee.

Total Minimum Semester Hours Required:

30



MATHEMATICAL SCIENCE COURSES

MAA 5211 Advanced Calculus

4 cr (4,0)

PR: MAC 3313 or C.I. Differential and integral calculus of functions of several variables. Vector differential calculus. Two and three dimensional theory of vector integral calculus. Infinite series. Emphasis on applications.

MAA 5405 Techniques of Complex Variables

3 cr (3,0)

PR: MAC 3313 or C.I. Analytic functions; integration in the complex plane; Laurent series and residue calculus, inversion of Laplace transforms; conformal mappings; application in engineering and the physical sciences.

MAP 5426 Special Functions

3 cr (3,0)

PR: MAP 3302 or C.I. Series and integral representations, generating functions, recurrence relations and orthogonality properties of the special functions. Emphasis on Bessel, Legendre, and hypergeometric functions.

MAP 6406 Methods of Mathematical Analysis

4 cr (4,0)

PR: MAA 5211 or C.I. Fourier series, linear operators, integral equations, eigenvalue problems, calculus of variations.

MAP 6424 Transform Methods

3 cr (3,0)

PR: MAA 5405 or C.I. Laplace, Fourier, Hankel and other integral transforms, inversion theorems; the Z transform; applications to physical problems.

MAP 6445 Approximation Techniques

3 cr (3,0)

PR: MAA 4228 or MAA 5211 or C.I. Normed linear spaces; Weierstrass approximation theorem; Tchebycheff approximation by polynomials; trigonometric approximation; orthogonal expansions and least squares approximations.

MHF 5036 Logic

3 cr (3,0)

PR: COT 4001, MAC 3313, MAS 3103, or MAS 4301; or C.I. Propositional and predicate calculus, completeness, compactness, undecidability of arithmetic.

MHF 6325 Recursive Function Theory

3 cr (3,0)

PR: COT 4001 or C.I. Primitive recursive functions, recursive functions, recursively enumerable sets and relations, Turing reducibility.

MUSIC

J. Gary Wolf Department Chairman
Office: FA 105A, Phone 275-2867

MUSIC COURSES

MUT 5325 Arranging and Composing Music	2 cr (2,0)
PR: Satisfactory placement tests in theory, sight-singing, and ear training. Arranging and composing music for instrumental and vocal ensembles. Some emphasis on compositional techniques of the 20th century.	
MVB 5351 Trumpet V*	2 cr (1,1)
MVB 5352 French Horn V*	2 cr (1,1)
MVB 5353 Trombone V*	2 cr (1,1)
MVB 5354 Baritone V*	2 cr (1,1)
MVB 5355 Tuba V*	2 cr (1,1)
MVK 5351 Piano V*	2 cr (1,0)
MVK 5353 Organ V*	2 cr (1,1)
MVO 5250 Advanced Secondary Instruction	1 cr (1,0)
PR: Graduate standing and C.I. Advanced instructional techniques on a secondary instrument or in voice. May be repeated for credit.	
MVP 5351 Percussion V*	2 cr (1,0)
MVS 5351 Violin V*	2 cr (1,1)
MVS 5352 Viola V*	2 cr (1,1)
MVS 5353 Cello V*	2 cr (1,1)
MVS 5354 Bass V*	2 cr (1,1)
MVS 5355 Harp V*	2 cr (1,1)
MVS 5356 Guitar V*	2 cr (1,1)
MVV 5351 Voice V*	2 cr (1,1)
MVW 5351 Flute V*	2 cr (1,1)
MVW 5352 Oboe V*	2 cr (1,1)
MVW 5353 Clarinet V*	2 cr (1,1)
MVW 5354 Bassoon V*	2 cr (1,1)
MVW 5355 Saxophone V*	2 cr (1,1)

*PR: C.I. on all above music courses.

PHYSICS

Jack H. Noon..... Department Chairman
Office: EN 310, Phone 275-2325

PHYSICS COURSES

PHS 5404 Solid State Physics	3 cr (3,0)
PR: PHY 4045, PHY 3101 or C.I. Crystal lattice cell structure, phonons, free electron model, band theory of solids, Fermi surface, solid state applications.	
PHY 5505 Plasma Physics	3 cr (3,0)
PR: PHY 4043, PHY 3044, or C.I. Introduction to theory and experimental basis of both weakly and highly ionized plasmas. Instabilities, plasma waves, nonlinear effects, controlled thermonuclear fusion.	

- PHY 5228 Advanced Mechanics** **3 cr (3,0)**
 PR: PHY 4043 or C.I. Elements of continuum mechanics. Generalized coordinates, virtual work, Lagrange's equations, Hamilton's equation. Inertia tensors, stress tensors. Eulerian description of rigid body motion. Theory of small vibrations.
- PHY 5304 Nuclear Physics** **3 cr (3,0)**
 PR: PHY 4045 or C.I. Nuclear forces, structure, models, reactions, radioactivity, fission, fusion, strange particles.
- PHY 5346 Electrodynamics I** **3 cr (3,0)**
 PR: PHY 3044, MAP 3302, or C.I. Boundary value problems in electrostatics and magnetostatics. Maxwell's equations; EM fields in matter; wave generation and propagation; wave guides; and resonant cavities.
- PHY 5446 Laser Physics** **3 cr (3,0)**
 PR: PHY 3101, MAP 3302. Introduction to quantum optics and lasers. Time independent Schrodinger equation, matrix formulation, optical resonators, laser oscillations, laser systems, stimulated Raman and Brillouin scattering.
- PHY 5524 Statistical Physics** **3 cr (3,0)**
 PR: PHY 3046, STA 3032, PHY 4045 or C.I. A study of physical concepts and methods appropriate for the description of systems involving many particles. Ensemble theory, partition functions. Maxwell Boltzmann, Bose-Einstein, Fermi-Dirac statistics.
- PHY 5606 Quantum Mechanics** **3 cr (3,0)**
 PR: PHY 4045 or C.I. Basic postulates of quantum mechanics, operators, eigenvalues, parity, potential wells, harmonic oscillator, time dependent and time independent Schrodinger equation, matrix formulation, and perturbation theory.
- PHY 6246 Classical Mechanics** **3 cr (3,0)**
 PR: PHY 5228 or C.I. Variational principles. Lagrange, Hamiltonian, and Poisson bracket formulations of mechanics. Hamilton's principle of least action. Hamilton-Jacobi theory. Perturbation theory. Continuous systems.
- PHY 6347 Electrodynamics II** **3 cr (3,0)**
 PR: PHY 5346 or C.I. Dynamics of charged particles in electromagnetic fields. Antennas; radiation by moving charges; magnetohydrodynamics; and multipole radiation.
- PHY 6655 Applied Quantum Mechanics** **3 cr (3,0)**
 PR: PHY 5606 or C.I. Quantization of the electromagnetic field. Spontaneous and stimulated emission. Semiclassical laser theory.

POLITICAL SCIENCE

<i>M. Elliot Vittes</i>	Graduate Program Coordinator
Office: HFA 425, Phone 275-2608	
<i>R. Handberg, Ph.D.</i>	Associate Dean of Graduate Studies and Professor
<i>H. Kennedy, Ph.D.</i>	Professor
<i>M. Stern, Ph.D.</i>	Professor
<i>R. Bledsoe, Ph.D.</i>	Associate Professor
<i>S. A. Lilie, Ph.D.</i>	Chairman and Associate Professor
<i>W. S. Maddox, Ph.D.</i>	Associate Professor
<i>J. Johnson-Freese, Ph.D.</i>	Assistant Professor
<i>W. Q. Morales, Ph.D.</i>	Assistant Professor
<i>P. H. Pollock, Ph.D.</i>	Assistant Professor
<i>M.E. Vittles, Ph.D.</i>	Assistant Professor

ADMISSION

Minimum admission requirements are:

- a. Submission of a quantitative-verbal score of at least 1000 on the General (Aptitude) test of the Graduate Record Examination (GRE) or a 3.0 average in an undergraduate major in political science or a related discipline (subject to approval of the department).
 NOTE: A student must take the GRE, even if his undergraduate GPA is above a 3.0.

- b. Submission of three letters of recommendation to the program coordinator from individuals capable of assessing the applicant's ability to undertake graduate work successfully.

Admission to regular graduate status in Political Science must be approved by the Department of Political Science.

PROGRAM IN POLITICAL SCIENCE

The Master of Arts in Political Science degree program is sufficiently flexible to meet a range of student needs including (1) preparing students to enter positions in government or the private sector in which the ability to comprehend, influence, and respond to government policy is critical; (2) providing education for teachers in the community colleges; (3) providing education for secondary school teachers seeking higher degrees; and (4) providing an M.A. opportunity for students who wish to pursue a doctorate in political science elsewhere. Although the emphasis of the M.A. is in American politics and institutions, courses are available in international relations, comparative politics, and political theory.

MASTER OF ARTS DEGREE REQUIREMENTS — POLITICAL SCIENCE

The degree program in Political Science can be either a thesis or a nonthesis degree with the thesis option requiring a total of thirty hours and the nonthesis option requiring a total of thirty-three hours. The distribution of required courses, electives, and thesis hours are listed below:

REQUIRED COURSES

POS 6734	Research Methods	6 Semester Hours
POS 6746	Quantitative Methods	3 hours
		3 hours

RESTRICTED ELECTIVES

12 Semester Hours

Completion of at least four of the following seminars is required:

CPO 6007	Seminar in Comparative Politics	3 hours
INR 6007	Seminar in International Politics	3 hours
POS 6045	Seminar in American National Politics	3 hours
POS 6197	Seminar in Subnational Politics	3 hours
POS 6207	Seminar in Political Behavior	3 hours
POT 6007	Seminar in Political Theory	3 hours
PUP 6007	Seminar in Public Policy	3 hours

ADDITIONAL ELECTIVES

6 Semester Hours

May be taken in either Political Science or a cognate area.

THESIS OR NONTHESIS OPTIONS

Students seeking to use this degree to enter community college teaching or to pursue a doctorate at a later time are strongly urged to choose the thesis track.

Thesis Option

6 Semester Hours

Complete a thesis (POS 6971) for 6 hours credit on a topic acceptable to the directing professor and committee.

Nonthesis Option

9 Semester Hours

Complete nine additional hours. Three of these hours must be in Political Science; the remaining six hours may be in a cognate area.

EXAMINATION

Satisfactory performance on a comprehensive examination designed to measure knowledge and ability developed during the student's program of study is required. The examina-

tion will usually be administered after satisfactory completion of 24 hours in the thesis option or 27 hours in the nonthesis option.

Total Minimum Thesis Option Hours Required: 30

Total Minimum Nonthesis Option Hours Required: 33

POLITICAL SCIENCE COURSES

CPO 6004 Issues in Comparative Politics 3 cr (3,0)

PR: C.I. Analysis of contemporary problems and issues of comparative politics such as political economy, development, authority patterns, and instability.

CPO 6007 Seminar in Comparative Politics 3 cr (3,0)

PR: C.I. Introduction to the theory and methodology of comparative politics, institutions, and contextual factors of selected political systems such as Canada, European, and third world nations.

INR 6007 Seminar in International Politics 3 cr (3,0)

Introduces the student to the advances in international relations theory and research through a broad sampling of approaches and methods.

POS 6045 Seminar in American National Politics 3 cr (3,0)

Examines the operation of U. S. national political institutions by focusing on elements of the system; such as judicial process or interactions between branches of government.

POS 6127 Issues in State Public Policy 3 cr (3,0)

PR: C.I. Analysis of policy issues occurring in the American states with attention given to a single state and comparative studies.

POS 6157 Issues in Urban Public Policy 3 cr (3,0)

PR: C.I. Study of characteristic policy issues which arise in urban political systems, and of various public responses to those issues.

POS 6197 Seminar in Subnational Politics 3 cr (3,0)

Analysis of institutions, processes, and interrelationships of governmental units below the national level, with examination of factors contributing to conflict and cooperation among subnational units.

POS 6207 Seminar in Political Behavior 3 cr (3,0)

A review of theory and findings in regard to mass political behavior, including participation attitudes, communication, and electoral behavior.

POS 6237 Public Opinion and Policy Formation 3 cr (3,0)

PR: C.I. A substantive and theoretical approach to understanding relationships between public opinion and public policy, including opinion/linkage models as well as opinion measurement.

POS 6734 Research Methods 3 cr (3,0)

Methods of research design and execution, including both conceptualization and data gatherings.

POS 6746 Quantitative Methods 3 cr (3,0)

PR: POS 6734 or C.I. Applications and analysis of problems in the use of statistical data. Emphasis on methods of analysis.

POS 6918 Directed Independent Research Variable Credit

POS 6938 Special Topics/Seminars 3 cr (3,0)

This course title covers all special topics courses which are not listed in the catalog with a course number. May be repeated for credit.

POS 6946 Supervised Teaching Internship Variable Credit

POS 6971 Thesis Variable Credit

POT 6007 Seminar in Political Theory 3 cr (3,0)

An examination of analytic and normative theories of politics and society; using selected topics as a substantive focus.

PUP 6007 Seminar in Public Policy 3 cr (3,0)

PR: C.I. Analysis of the policy-making process including agenda-setting, formulation, and implementation; case studies may include environmental, economic, education, transportation, and welfare policy.

PUP 6057 Issues in National Public Policy**3 cr (3,0)**

PR: C.I. Study of the establishment and evaluation of selected national issues and priorities, means of implementation, and impacts of government programs.

PUP 6058 Issues in International Public Policy**3 cr (3,0)**

PR: C.I. Analysis of domestic and foreign inputs influencing foreign policy formulation and execution, with extended analysis devoted to executive structures and decision making behavior.

PSYCHOLOGY

Burton I. Blau Graduate Program Coordinator
Office: CB 314, Phone 275-2216

<i>D. W. Abbott, Ph.D.</i>	Professor
<i>W. A. Burroughs, Ph.D.</i>	Professor
<i>R. E. Connally, Ph.D.</i>	Professor
<i>J. M. McGuire, Ph.D.</i>	Professor
<i>J. B. Rollins, Ph.D.</i>	Associate Dean and Professor
<i>M. H. Thomas, Ph.D.</i>	Professor
<i>B. I. Blau, Ph.D.</i>	Associate Professor
<i>J. C. Brophy, Ph.D.</i>	Associate Professor
<i>R. D. Fisher, Ph.D.</i>	Associate Professor
<i>E. C. Shirkey, Ph.D.</i>	Associate Professor
<i>P. M. Tell, Ph.D.</i>	Associate Professor
<i>R. D. Tucker, Ph.D.</i>	Chairman and Associate Professor
<i>D. E. Scott Burr, Ph.D.</i>	Assistant Professor
<i>S. S. Guest-Houston, Ph.D.</i>	Assistant Professor
<i>J. J. Turnage, Ph.D.</i>	Assistant Professor
<i>W. Wooten, Ph.D.</i>	Assistant Professor
<i>M. A. Zegman, Ph.D.</i>	Assistant Professor

ADMISSION

The Graduate Record Examination (GRE) is required of all graduate students. In addition to the University minimum admission criteria of a quantitative-verbal score of 1000 on the GRE or a GPA of 3.0 for the last two years of the baccalaureate degree, three standard letters of reference (at least one from an academic source) must be initiated by the student and sent by the reference directly to the department. A departmental admissions committee reviews the student's credentials and notifies the student of its decision. Admission to the programs occurs only in the fall semester. Completed applications are due in the department by April 1.

COMPETENCY REQUIREMENTS

Certain competencies are required of all students.

General. All students must demonstrate competency in specified foundation areas as shown below. All students are strongly encouraged to have an undergraduate course in statistics.

Clinical Program. Competency in areas of Abnormal, Developmental, Learning, Personality, Physiological Psychology, and in Tests and Measurement may be satisfied by either of the following methods:

- Undergraduate course work in all areas with an earned grade of A or B, no longer than 5 years previous to admission to the program (or taken concurrently with the graduate program).
- A Subject (Advanced) Psychology GRE (Code 81) score of 600 or greater, achieved no longer than 5 years previous to admission to the program.

Industrial/Organizational Program. Competency in areas of Developmental, Learning, Motivation, Personality and Social Psychology may be satisfied by either of the following methods:

- Undergraduate course work in all areas with an earned grade of A or B, no longer than 5 years previous to admission to the program (or taken concurrently with the graduate program).

- b. A Subject (Advanced) Psychology GRE (Code 81) score of 600 or greater, achieved no longer than 5 years previous to admission to the program.

PROGRAMS IN PSYCHOLOGY

There are two different Master of Science programs in Psychology.

The Master of Science degree program in Clinical Psychology is concerned with the application of psychological principles to individuals. Major areas of emphasis include psychological assessment or evaluation skills, intervention or counseling and psychotherapy skills, plus an academic foundation in research methods. The program was initiated for the purpose of providing training and preparation at the master's level for individuals desiring to deliver psychological services through community agencies. Clinical psychologists are involved in mental health rehabilitation through individual, marital, family and group psychotherapy, as well as crisis intervention and specialized therapeutic procedures. Psycho-diagnosis, consultation, education and administration are also roles frequently assumed by the clinical psychologist.

The Master of Science degree program in Industrial/Organizational Psychology is concerned with the application of psychological principles to organizations. Major areas of emphasis include selection and training of employees, job satisfaction, test theory and construction, assessment center technology, statistics and experimental design and a variety of current topics.

Industrial/Organizational psychologists are involved in many issues of critical importance to society including fairness in the selection and treatment of employees, and the creation of work environments which maximize the satisfaction and commitment of employees.

MASTER OF SCIENCE DEGREE REQUIREMENTS — CLINICAL PSYCHOLOGY

The M.S. degree program in Clinical Psychology is a two-year, four-semester program for full-time students with no summer course work. The program consists of a minimum of 43 semester hours of work as follows:

ACADEMIC COURSE WORK

27 Semester Hours

CLP 6441	Psychological Assessment I*	3 hours
CLP 6445	Psychological Assessment II*	3 hours
CLP 6456	Clinical Intervention I*	3 hours
CLP 6457	Clinical Intervention II*	3 hours
CLP 6458	Clinical Intervention III*	3 hours
CLP 6459	Clinical Intervention IV*	3 hours
CLP 6932	Ethical and Professional Issues in Clinical Psychology	2 hours
PSB 6446	Advanced Abnormal and Clinical Psychopharmacology	3 hours
PSY 6216	Advanced Research Methodology I	4 hours

*Must coregister for the appropriate section of PSY 6946.

LABS AND PRACTICA

6 Semester Hours

PSY 6946	Psychology Practicum	6 hours
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INTERNSHIP (See details of program)

6 Semester Hours

CYP 6948	Psychology Internship	6 hours
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THESIS OR RESEARCH REPORT

4 Semester Hours

PSY 6938	Research Planning	1 hour
PSY 6909	Research Report	3 hours
	or	
PSY 6971	Thesis	3 hours
Total Minimum Semester Hours Required:		43

QUALIFYING EXAMINATION

At the conclusion of all specified first-year course work and as a prerequisite for internship (usually before the start of the fall semester, 2nd Year), students are expected to take the Qualifying Examination which is a broad integration of the student's knowledge and comprises two sections: Psychological Assessment and Psychological Intervention.

CLINICAL INTERNSHIP REQUIREMENT

The purpose of the internship requirement is to provide the M.S. candidate in Clinical Psychology with a comprehensive, practically-based experience under direct supervision. A public agency or nonprofit institution offering services to individuals, with nondiscriminatory practices (including ability to assume financial responsibilities) is the prototype. The intern is assigned to an acceptable agency for two consecutive academic semesters. An additional commitment of two hours per week is required for the group of interns to meet with a departmental faculty member for review, feedback and discussions. The intern participates in a wide variety of psychological assessment procedures, including intellectual, personality, educational, neuropsychological and differential diagnosis. A major portion of the training is in the area of psychotherapy/counseling.

The intern is expected to make a presentation at least once during the internship at the agency's formal seminars.

Given the community-based structure of the agency, it is desirable for the intern to have some exposure to the consultation role. It is believed that supervision by qualified and experienced personnel is the primary learning mode by which the intern develops his professional expertise and augments the classroom material previously acquired.

Facilities are provided by the intern or agency for audio and/or video tape recording of selected assessment and intervention experiences. The intern is provided with a system for maintaining an accurate account of his activity during the week. In addition, an Internship Expectation form is completed by the intern and supervisors. A maximum of 20 percent of the training time may be assigned to special services within the agency, or upon approval, in an area of interest to the intern at another facility.

RESEARCH REPORT OR THESIS

Each student will satisfactorily complete either a library review research paper or an empirical research project. An oral defense is required.

MASTER OF SCIENCE DEGREE REQUIREMENTS — INDUSTRIAL/ORGANIZATIONAL PSYCHOLOGY

The M.S. degree program in Industrial/Organizational Psychology is a four-semester program for full-time students with no summer course work. The program consists of a minimum of 40 semester hours of work as follows:

INDUSTRIAL/ORGANIZATIONAL PSYCHOLOGY

ACADEMIC CLASS WORK			26 Semester Hours
INP	6215	Assessment Centers and Leadership	3 hours
INP	6317	Organizational Psychology and Motivation	3 hours
INP	6605	Training and Performance Appraisal	3 hours
INP	6939	Current Topics and Applied Problems in Industrial/Organizational Psychology	3 hours
PSY	6216	Advanced Research Methodology I	4 hours
PSY	6217	Advanced Research Methodology II	4 hours
PSY	6308	Psychological Testing I	3 hours
PSY	6318	Applied Testing and Selection	3 hours
PRACTICA AND LABS			6 Semester Hours
INP	6946	Industrial Psychology Practicum I	3 hours
INP	6947	Industrial Psychology Practicum II	3 hours
THESIS			8 Semester Hours
PSY	6971	Thesis	8 hours
Total Minimum Semester Hours Required:			40

QUALIFYING EXAMINATIONS

All students in the I/O program must pass a qualifying examination which is administered in January of the second year and covers all course work to that point.

PRACTICA

Practica assignments serve to provide the student with experience in an applied setting while also aiding the organization in which the practicum occurs to meet some specific project need. Practica possibilities generated by the I/O faculty and students, may involve settings in private industry; federal, state, or local government; educational institutions; or consulting firms.

Practica assignments involve two semester commitments ranging from 12-15 hours per week on the part of the student. Depending on the nature of the assignment, this time may be distributed among the organization, library, field work, etc., in a variety of ways.

For each practicum a meeting is held between the student, the supervising faculty member, and a representative of the organization in which the work will be accomplished. Behavioral objectives are agreed upon, and it is expected that the student will carry out these objectives during the assigned time.

Each practicum placement is supervised by a faculty member and the student is also responsible to the "contact" person in the organization where the work is occurring.

Full-time students are typically assigned practica projects for the fall and spring terms of their second year.

RESEARCH REPORT OR THESIS

The I/O program requires that the student complete an empirical research thesis with an oral defense.

PSYCHOLOGY COURSES

CLP 5004 Psychology of Adult Adjustment

3 cr (3,0)

PR: C.I. A survey of situations encountered during adulthood, including marriage, birth, parenthood, trauma, illness, death, etc. Effective adjustment.

CLP 5166 Advanced Abnormal Psychology

3 cr (3,0)

PR: C.I. Consideration of classification, causation, management and treatment of emotional disorders. Review of theories and research in the field.

CLP 6416 Biofeedback and Stress

4 cr (2,2)

PR: Graduate admission and C.I. Assessment and management of physiological stress response through biofeedback. Biofeedback treatment of stress produced clinical problems.

CLP 6441 Psychological Assessment I*

3 cr (2,2)

PR: Graduate admission and C.I. Theories and techniques of psychological assessment with primary emphasis on intellectual assessment, interviewing skills and report writing.

CLP 6445 Psychological Assessment II*

3 cr (2,2)

PR: CLP 6441, Graduate admission and C.I. Theories and techniques of psychological assessment with primary emphasis on objective and projective techniques of personality assessment, interviewing skills and report writing.

CLP 6456 Clinical Intervention I*

3 cr (2,2)

PR: Graduate admission and C.I. Introduction to Counseling Theory. Experiential Laboratory.

CLP 6457 Clinical Intervention II*

3 cr (2,2)

PR: CLP 6456, Graduate admission and C.I. Group counseling: Theory and Process. Experiential Group Laboratory.

CLP 6458 Clinical Intervention III*

3 cr (2,2)

PR: CLP 6456, CLP 6457, Graduate admission and C.I. Introduction to the principles and procedures of behavior modification as a clinical intervention technique.

CLP 6459 Clinical Intervention IV*

3 cr (2,2)

PR: CLP 6441, 6445, 6456, 6457, 6458, graduate admission and C.I. Survey of theory and techniques in crisis intervention, family therapy, couples therapy, and sex therapy.

CLP 6932 Ethical and Professional Issues in Clinical Psychology	2 cr (2,0)
PR: Graduate admission, C.I. and Internship. Examination of APA Code of Ethics as applied to clinical situations. Topics include confidentiality, commitment procedures, licensing laws.	
CYP 6948 Psychology Internship	2-4 cr (2,20)
PR: Graduate admission, 2nd year status and C.I. Supervised placement in community setting for 8-20 hours per week. (May be repeated for credit.)	
DEP 5057 Developmental Psychology	3 cr (2,2)
PR: Graduate admission or C.I. Psychological aspects of development including intellectual, social, and personality factors.	
EAB 5765 Applied Behavior Analysis with Children and Youth	3 cr (3,0)
PR: DEP 5057 and EXP 5445 or C.I. Advanced survey of principles, procedures and techniques of applied behavior analysis, with special attention to applications with children and youth.	
INP 6215 Assessment Centers and Leadership	3 cr (3,0)
PR: Graduate admission and C.I. Survey of assessment center technology and application and of leadership theory and practice.	
INP 6317 Organizational Psychology and Motivation	3 cr (3,0)
PR: Graduate admission and C.I. Review of theories, research and application of psychological principles to organizational settings and human motivation.	
INP 6605 Training and Performance Appraisal	3 cr (3,0)
PR: Graduate admission and C.I. Survey of theories, research and practice in the areas of industrial/organizational training and performance appraisal.	
INP 6939 Current Topics and Applied Problems in Industrial/Organizational Psychology	3 cr (3,0)
PR: Graduate admission and C.I. Survey of current topics in Industrial/Organizational psychology with emphasis on applied problems.	
INP 6946 Industrial Psychology Practicum I	3 cr (1,6)
PR: Graduate admission and C.I. Supervised placement in setting.	
INP 6947 Industrial Psychology Practicum II	3 cr (3,0)
PR: Graduate admission and C.I. Supervised research in industry. (May be repeated for credit.)	
PSB 6446 Advanced Abnormal and Clinical Psychopharmacology	3 cr (3,0)
PR: Graduate admission and C.I. Diagnosis of psychopathology and drug treatment of these disorders. Examination of the efficacy of psychoactive drugs.	
PSY 6216 Advanced Research Methodology I	4 cr (3,2)
PR: Graduate admission and C.I. Logic and procedures of psychological research and evaluation; application of experimental and non-experimental techniques in analyzing psychological variables; review of relevant psychological research.	
PSY 6217 Advanced Research Methodology II	4 cr (3,2)
PR: PSY 6216, Graduate admission and C.I. Structure and planning of complex psychological experiments; internal and external validity; application of advanced experimental procedures in analyzing psychological variables; review of relevant psychological research.	
PSY 6308 Psychological Testing I	3 cr (3,0)
PR: Graduate admission and C.I. Theory of test construction including test reliability and validity.	
PSY 6318 Applied Testing and Selection	3 cr (3,0)
PR: PSY 6308, Graduate admission and C.I. Issues in selecting employees and an examination of currently used tests in industry.	
PSY 6938 Research Planning	1 cr (0,0)
PSY 6909 Research Report	1-3 cr (0,0)
PSY 6946 Psychology Practicum	1 cr (0,1)
PR: Graduate admission and C.I. Supervised practice in assessment and/or intervention techniques. (Will be repeated for credit.)	
PSY 6971 Thesis	1-8 cr (0,0)

*Must coregister for the appropriate section of PSY 6946.

PUBLIC ADMINISTRATION

Jefferson S. Duffey Graduate Program Coordinator
Office: PH 336, Phone 275-2603

F. K. Gibson, Ph.D. Associate Professor
N. G. Holten, Ph.D. Chairman and Associate Professor
J. S. Duffey Assistant Professor
G. J. Kimmitt, Ph.D. Assistant Professor
R. J. Korstad Assistant Professor

ADMISSION

In addition to the standard criteria for admission to Graduate Studies, with the Graduate Record Examination (GRE) scores no more than five years old, it will be necessary to submit three letters of recommendation from individuals capable of assessing the applicant's ability to successfully undertake graduate work.

An undergraduate degree in Political Science or Public Administration is desirable. Individuals with strong backgrounds in related disciplines may be admitted to the program although additional course work may be required to remove deficiencies. Students must have some basic course work in statistics, computer science, economics, and American national government. Students whose native language is other than English are required to have a minimal TOEFL score of 550.

PROGRAM IN PUBLIC ADMINISTRATION

The Department of Public Service Administration offers graduate work leading to the Master of Public Administration degree. This program offers a flexible course of study which prepares students for positions as administrators in various modes of public service and administration. The program offers an opportunity for students to acquire knowledge and master techniques essential to the design, implementation, administration, and evaluation of agencies and programs at all levels of government.

MASTER OF PUBLIC ADMINISTRATION DEGREE REQUIREMENTS

The student must complete a basic core program of 23 hours. Upon completion of the core, a student may elect to specialize in a particular cognate area or complete a generalist administration program. The program of study is developed in consultation with the student's major professor and approved by the graduate committee of the department. A minimum of three courses totaling not less than nine (9) semester hours must be completed for a cognate field outside of the department. A minimum of three courses totaling not less than eleven (11) hours is required for the general administration cognate. A student may select a policy analysis cognate from the Department of Political Science provided prior program approval is obtained from both departments. A minimum of thirty-six (36) hours is required for completion of the program.

MINIMUM CORE REQUIREMENTS

23 Semester Hours

Core Courses: Policy and Administration		
PAD 6037	Public Organizations	4 hours
PAD 6307	Policy Implementation	4 hours
Analytical Tools:		
PAD 6701	Analytical Techniques for Public Administration and	4 hours
POS 6734	Research Methods (See Political Science)	3 hours
	or	
SYA 6305	Social Research (See Sociology Department)	3 hours

Public Management Skills:

PAD 6227	Public Budgeting	4 hours
PAD 6417	Human Resource Management	4 hours

SPECIAL SKILL OR COGNATE AREA

Variable (9 hour minimum)

A minimum of three courses which concentrate on a specific skill area germane to the practice of public administration may be drawn from other departments.

RESEARCH REPORT

4 Semester Hours

Four semester hours of credit must be earned for an investigatory research project that results in a research report acceptable to the department's graduate committee.

EXAMINATION

A comprehensive written examination covering the required core courses must be successfully completed before the submission of the research report. The examination may not be undertaken prior to the completion of the 23-hour core component. An oral examination will be administered by the departmental graduate committee upon completion of the student's research report.

Total Minimum Semester Hours Required:

36

PUBLIC ADMINISTRATION COURSES

CCJ 5485 Issues in Justice Policy

4 cr (4,0)

Examination of selected issues of public policy regarding the functions and roles of criminal justice agencies vis a vis other government departments or agencies and public purposes.

PAD 5806 Local Government Operations

4 cr (4,0)

Operational functions of municipal and county governments and the role of the chief executive officer.

PAD 5807 Administrative Practice in the Public Sector

4 cr (4,0)

The application of various theoretical concepts to the real world of public administration. Policy formulation and execution is examined through the case study model.

PAD 6037 Public Organizations

4 cr (4,0)

An examination of the nature of public organizations and the impact of bureaucratic behavior on public policy formulation, implementation, and administration.

PAD 6227 Public Budgeting

4 cr (4,0)

Budgets as planning programming documents, stressing the relationships of policy and budgetary decisions, problems in grantsmanship and revenue decision making, program budgeting, PPBS and incrementalism.

PAD 6307 Policy Implementation

4 cr (4,0)

Program analysis and organization structure as policy tools, examining the implementation of differential policy and the administrator as policy maker and change agent.

PAD 6417 Human Resource Management

4 cr (4,0)

The administrator as manager and motivator of public employees with particular emphasis upon organizational behavior and contemporary public service legislation.

PAD 6701 Analytic Techniques for Public Administration

4 cr (4,0)

Analysis of rational choice theories, incremental decision-making, and a variety of techniques for public administration models.

PAD 6934 Issues in Public Administration

4 cr (4,0)

PR: C.I. Analysis of both substantive and theoretical issues confronting the broad spectrum of contemporary public administration.



SOCIOLOGY, APPLIED

William R. Brown Graduate Program Coordinator
Office: FA 402, Phone 275-2227

- W. D. Allen, Ph.D.* Professor
- W. R. Brown, Ph.D.* Chairman and Professor
- C. M. Unkovic, Ph.D.* Professor
- I. J. Cook, Ph.D.* Associate Professor
- D. R. Dees, Ph.D.* Associate Professor
- J. E. Hodgin, Ph.D.* Associate Professor
- D. E. Jones, Ph.D.* Associate Professor
- A. M. Stearman, Ph.D.* Associate Professor
- R. L. Wallace, Ph.D.* Associate Professor

ADMISSION

In addition to the standard admission criteria to Graduate Studies, the Department requires complete transcripts of past university/college work and three letters of reference including at least one from an academic source familiar with the applicant's abilities. The Graduate Record Examination (GRE) scores should be no more than seven years old.

Before a student can be admitted to the program, the following requirements must be met: successful completion ("C" or better) of undergraduate courses in sociological theory and statistics.

The applicant's records will be reviewed on an individual basis for academic deficiencies. Supplemental course work may be recommended. Note also that there is no automatic connection between acceptance as a postbaccalaureate student and acceptance into this degree-granting program. Consult the program coordinator whenever questions arise.

PROGRAM IN APPLIED SOCIOLOGY

The Department of Sociology and Anthropology offers graduate work leading to a degree in a Master of Arts in Applied Sociology. The purpose of this graduate program is to prepare students to effectively apply sociological and social-psychological knowledge, principles, technology, and research skills in a variety of organizational settings. Curricula are designed to provide students with theory and practice in the analysis of organizational and human problems and objectives and in the formulation and implementation of changes to alleviate or resolve the problems.

Examples of competencies in applied sociology include effective skills in conceptualization of human and organization problems, resolution of human relations problems, communication skills, program design and evaluation, planning, feasibility and needs assessment studies, the application of general systems theory to organizational problems, community development and planned change, social research, data management, and data analysis and presentation.

The program is designed to lead to a terminal master's degree for those individuals seeking employment in non-academic settings or for preparing themselves for advancement in their careers, although some students eventually intend to seek a doctorate in applied sociology.

MASTER OF ARTS DEGREE REQUIREMENTS — APPLIED SOCIOLOGY

The degree program requires 36 hours including the thesis. The required courses, electives, practicum, and thesis credit hours are distributed as follows:

REQUIRED COURSES

	15 Semester Hours
SYA 6305 Social Research	3 Hours
SYA 6455 Research Analysis	3 Hours
SYA 6656 Social Organization and Human Resources	3 Hours
SYA 6657 Program Design and Development	3 Hours
SYA 6658 Community Development and Planned Change	3 Hours

NONRESTRICTED ELECTIVES

9 Semester Hours

A student will select 9 or more hours of nonrestricted course work in consultation with his advisor.

PRACTICUM of actual field experience is required.

Minimum of 8 Hours

THESIS based on actual field experience is required.

Minimum of 4 Hours

EXAMINATION REQUIREMENTS

A comprehensive written examination over required courses and assigned readings and also an oral defense of the thesis are mandatory requirements. An oral examination over a required course (or courses) is required if the student receives a low pass on that core area (or areas).

Total Minimum Semester Hours Required:

36

APPLIED SOCIOLOGY COURSES

SYA 6305 Social Research

3 cr (3,0)

PR: C.I. Research methodology including problem conceptualization, sampling designs, research proposals, data collection and evaluation techniques for applied settings.

SYA 6455 Research Analysis

3 cr (3,0)

PR: SYA 6305, Undergraduate Statistics, and C.I. Develop competence in data management, selection of statistics for data analysis, computer user skills, evaluation analysis and data presentation.

SYA 6656 Social Organization and Human Resources

3 cr (3,0)

PR: C.I. Complex organization theory and practice; techniques of social systems analysis; competence in group dynamic skills and the use of human resources.

SYA 6657 Program Design and Development **3 cr (3,0)**
 PR: C.I. Techniques of system assessment, evaluation and design. Training in alternative approaches to design and facilitate client-provider relationships.

SYA 6658 Community Development and Planned Change **3 cr (3,0)**
 PR: C.I. The study of organization, structures, and processes of communities, neighborhoods and small groups. Strategies of directed change.

STATISTICAL COMPUTING

Paul N. Somerville Graduate Program Coordinator
 Office: CCII 135, Phone 275-2695

A. M. Dutton, Ph.D. Professor
B. Ostle, Ph.D. Professor
P. N. Somerville, Ph.D. Professor
L. A. Franklin, Ph.D. Assistant Professor
L. C. Malone, Ph.D. Assistant Professor
J. R. Schott, Ph.D. Assistant Professor
S. E. C. Tekyi-Mensah, Ph.D. Assistant Professor

ADMISSION

Admission requirements are the standard University criteria of a 3.0 grade point average (GPA) for the last 60 semester hours of credit earned towards the baccalaureate or a Graduate Record Examination (GRE) score of at least 1000 for the combined verbal-quantitative sections of the General (Aptitude) Test. The GRE must be less than 5 years old. To be admitted to the M.S. program in Statistical Computing with regular graduate status, it is desirable that the student should have completed the following courses or their equivalent: CNM 4110, COP 2511, MAC 3313, MAS 3113 (or MAS 3103), STA 4164, STA 4322. Those students who find they are not adequately prepared in these areas may select appropriate courses from the undergraduate curriculum to make up such deficiencies. The student must have completed CNM 4110 and STA 4322, or their equivalents, before the M.S. degree will be granted. With approval of the student's committee, up to 6 hours of 4000 level courses may be counted toward the degree. Applicants not qualified for regular status may be initially admitted to the University in a postbaccalaureate status.

PROGRAM IN STATISTICAL COMPUTING

The Master of Science degree program in Statistical Computing provides a sound foundation in statistical theory, statistical methods, and in the application of computer methodology to statistical analyses.

The program emphasizes the computer and provides the student with a thorough working knowledge of modern statistical software packages. A graduate of the program should be able to collaboratively design and execute the collection and complete analysis of data from any area.

The program is particularly well-suited for those individuals who have completed an undergraduate program in mathematics, statistics, or computer science, but is also available to persons in other disciplines who wish to develop an expertise in data analysis and statistical computing.

All graduate courses are offered during the evening hours in order to accommodate part-time and working students.

MASTER OF SCIENCE DEGREE REQUIREMENTS — STATISTICAL COMPUTING

The Statistical Computing degree requires a total of 30 credit hours, with a minimum of 24 hours of graduate-level course work.

REQUIRED COURSES:		9 Semester Hours
STA 6106	Statistical Computing	3 hours
STA 6236	Regression Analysis	3 hours
STA 6246	Linear Models	3 hours

RESTRICTED ELECTIVES

9 Semester Hours

(Three of the following courses are required):

CNM 5142	Computational Methods/Linear Systems	3 hours
CNM 6144	Computational Methods/Analysis I	3 hours
STA 6707	Multivariate Statistical Methods	3 hours
STA 6857	Applied Time Series Analysis	3 hours
STA 6938	Special Topics	3 hours

ELECTIVES

6-10 Semester Hours

Other courses will be selected by the student in consultation with his advisor subject to the approval of the student's graduate committee.

THESIS OR RESEARCH REPORT

2-6 Semester Hours

Ordinarily a report which is of sufficient magnitude to justify awarding more than 4 hours of credit is considered a thesis. Otherwise it is a research report.

An oral defense of the thesis will be required of those students who elect to write a thesis.

EXAMINATION REQUIREMENTS

A final examination may be given at the discretion of the student's committee.

Total Minimum Semester Hours Required: 30

STATISTICS COURSES

STA 5156 Probability and Statistics for Engineers

4 cr (4,0)

PR: STA 3032 or equivalent. Theory and applications of discrete and continuous random variables, hypothesis tests, confidence intervals, regression analysis and correlation.

STA 5206 Statistical Analysis

3 cr (3,0)

PR: A course in statistical methods and a course in statistical theory. This course relates the idea of probability and statistics, including distribution theory, to the collection and analysis of data.

STA 6106 Statistical Computing

3 cr (3,0)

PR: Knowledge of a programming language, STA 4164. CR: STA 6236. Computer algorithms and software for statistical problems will be developed.

STA 6236 Regression Analysis

3 cr (3,0)

PR: MAS 3113 and STA 4164. General linear model, model aptness and remedial measures, regression through the origin, independent and dependent indicator variables, multicollinearity, outliers, biased regression.

STA 6246 Linear Models

3 cr (3,0)

PR: MAS 3113, STA 4164 and STA 4322. Theoretical development of full rank linear statistical models, least squares and maximum likelihood estimation, interval estimation, hypothesis testing, introduction to less than full rank models.

STA 6354 Statistical Theory and Methods

4 cr (4,0)

PR: STA 4322. Principles of point estimation and hypothesis testing. General method for confidence intervals. Tests for randomness. Some non-parametric tests. Partitioning of sums of squares. Advanced topics in the analysis of variance.

STA 6447 Applied Probability

4 cr (4,0)

PR: MAA 5211 or C.I. Axioms of probability. Random variables and probability distributions. Functions of random variables. Characteristic functions. The Central Limit Theorem. Markov chains. Simulation of stochastic systems.

STA 6707 Multivariate Statistical Methods

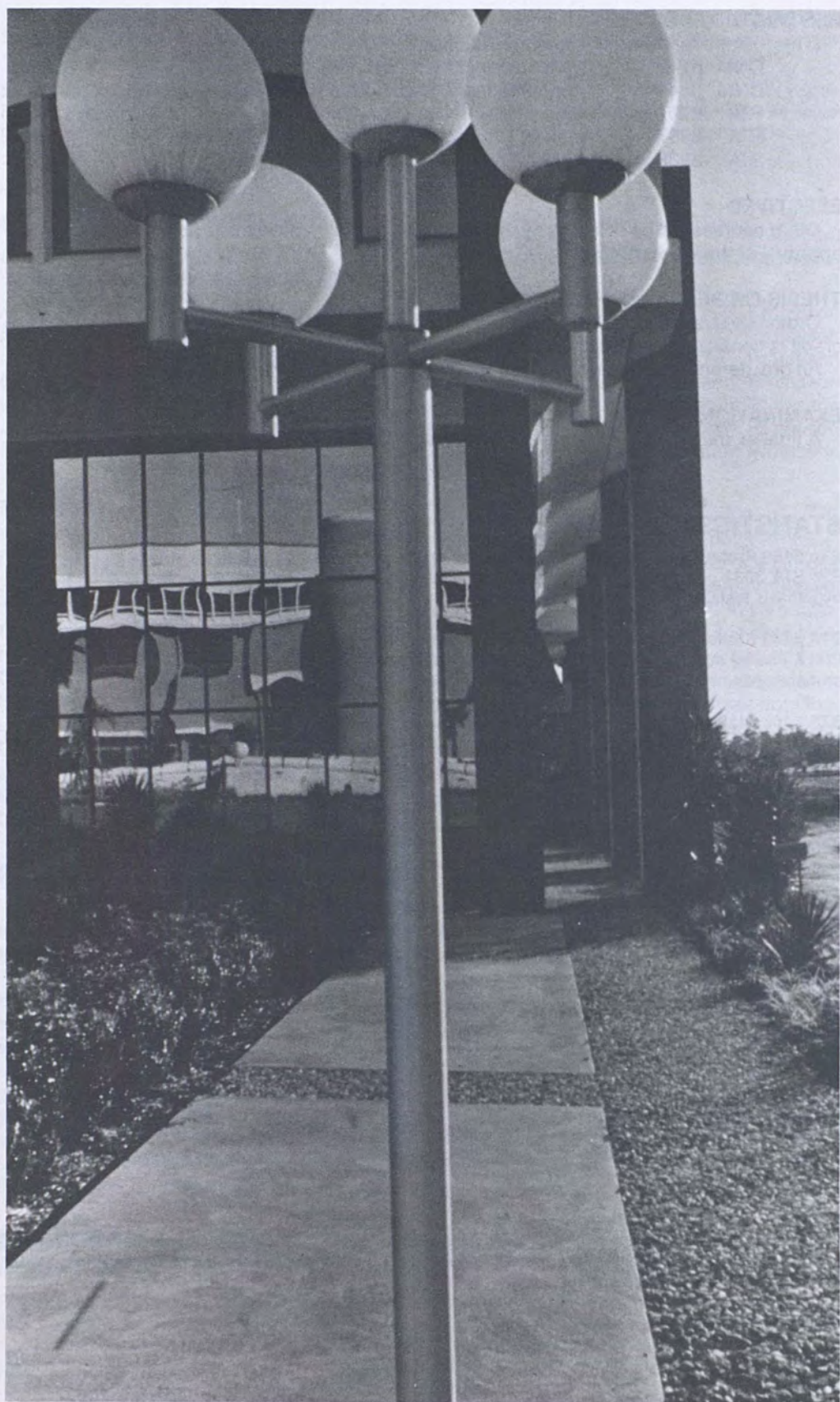
3 cr (3,0)

PR: MAS 3113, STA 4163 and STA 4321. Concepts of statistical relationships among several variables and methods for inference. Multivariate normal, Hotelling's T^2 , multivariate analysis of variance, canonical correlations and principal components.

STA 6857 Applied Time Series Analysis

3 cr (3,0)

PR: STA 4163. Stationarity, autocorrelation, moving averages and autoregressive processes. Non-stationary time series. Identification and estimation. Forecasting.



COLLEGE OF BUSINESS ADMINISTRATION

The College of Business Administration offers three professional programs leading to the master's degree: Master of Business Administration, Master of Science in Accounting, and Master of Arts in Applied Economics. All graduate programs in business are accredited by the American Assembly of Collegiate Schools of Business (AACSB).

COLLEGE ADMINISTRATION

C.L. Eubanks Dean
E.A. Moses Director of Graduate Programs and Associate Dean
W.R. Kilbride Assistant Dean

P.A. Klock Graduate Program Coordinator
 Office: PH 203, Phone 275-2187

Faculty

School of Accounting

H.R. Anderson, Ph.D. Director and Professor
C.G. Avery, Ph.D. Professor
W.L. Johnson, Ph.D. Associate Professor
T.E. Phillips, Ph.D. Associate Professor
J.H. Salter III, Ph.D. Associate Professor
L.J. Savage, Ph.D. Associate Professor
M Alidina, Ph.D. Assistant Professor
T.L. Campbell, D.B.A. Assistant Professor
S.P. Danese, Ph.D. Assistant Professor
P.R. Grierson, Ph.D. Assistant Professor
D.W. Scarlett, L.L.M. Assistant Professor

Economics

B.A. Rungeling, Ph.D. Chairman and Professor
R.G. Fritz, Ph.D. Associate Professor
R.L. Pennington, Ph.D. Associate Professor
F.A. Raffa, Ph.D. Associate Professor
K.R. White, Ph.D. Associate Professor
J.A. Xander, Ph.D. Associate Professor
P.A. Cicchetti, M.A. Assistant Professor
A.E. Day, Ph.D. Assistant Professor
D.A. Hosni, Ph.D. Assistant Professor
W.W. McHone, Ph.D. Assistant Professor
D.W. McNiel, Ph.D. Assistant Professor

Finance

E.A. Moses, Ph.D. Associate Dean and Professor
W.W. Reiff, D.B.A. Professor
D.F. Scott, Jr., Ph.D. Professor
J.M. Cheney, Ph.D. Associate Professor
D.R. Klock, Ph.D. Chairman and Associate Professor
N.K. Modani, Ph.D. Associate Professor
S.M. Atkinson, D.B.A. Assistant Professor
G.T. Chambers, L.L.M. Assistant Professor
J.J. Madura, D.B.A. Assistant Professor
D.E. Page, Ph.D. Assistant Professor
E.T. Veit, Ph.D. Assistant Professor

Management

<i>N.W. Comish, Ph.D.</i>	Professor
<i>C.L. Eubanks, Ph.D.</i>	Dean and Professor
<i>H.C. Jones, Ph.D.</i>	Chairman and Professor
<i>T.H. Jones Jr., Ph.D.</i>	Professor
<i>A. Pizam, Ph.D.</i>	Professor
<i>W. Berry, Ph.D.</i>	Associate Professor
<i>W.G. Callarman, D.B.A.</i>	Associate Professor
<i>M.S. Hollis, D.B.A.</i>	Associate Professor
<i>R.L. Martin, Ph.D.</i>	Associate Professor
<i>A.J. Schou, D.B.A.</i>	Associate Professor
<i>G.E. Stevens, D.B.A.</i>	Associate Professor
<i>W.A. Bogumil Jr., Ph.D.</i>	Assistant Professor
<i>L.W. Fernald, Jr., D.B.A.</i>	Assistant Professor
<i>W.W. McCartney, Ph.D.</i>	Assistant Professor
<i>C.D. Schou, Ph.D.</i>	Assistant Professor

Marketing

<i>L.E. Boone, Ph.D.</i>	Professor
<i>G.W. Paul, Ph.D.</i>	Chairman and Professor
<i>R.S. Rubin, Ph.D.</i>	Professor
<i>E.E. Teeple, D.B.A.</i>	Professor
<i>R.J. Calantone, Ph.D.</i>	Associate Professor
<i>D.L. Davis, D.B.A.</i>	Associate Professor
<i>R.P. DeWitt, Ph.D.</i>	Associate Professor
<i>D.A. Fuller, Ph.D.</i>	Associate Professor
<i>P.L. Gillett, Ph.D.</i>	Associate Professor
<i>H.A. Conley, D.B.A.</i>	Assistant Professor
<i>M.L. Joyce, D.B.A.</i>	Assistant Professor

ADMISSION

Admission to graduate study in the College of Business Administration is open to individuals with a baccalaureate degree in any discipline from a regionally accredited college or university. No previous training in business or economics is required as a prerequisite for graduate status. Thus, all graduate programs are open to graduates in education, engineering, arts, sciences, and other fields as well as business.

Admission is granted to individuals showing high promise of success in postgraduate studies. Various measures of high promise are used, including:

- The applicant's record of academic achievement while registered as an upper division student (usually a minimum 3.0 grade point average on a 4.0 scale).
- The applicant's performance on the Graduate Management Admissions Test (GMAT) including the total score as well as the verbal and quantitative components (normally a total score of 450 is necessary for further consideration. For the M.A. degree in Applied Economics only, scores on either the Graduate Record Exam (GRE) or GMAT may be submitted. If the GRE is used, a total score of at least 1,000 on the quantitative-verbal sections is normally required for further consideration.

Foreign students whose native language is not English are required to achieve a score of at least 575 on the Test of English as a Foreign Language (TOEFL) for further consideration.

Enrollment in graduate courses in the College of Business Administration is limited to students who have been accepted and classified with regular graduate status in the M.B.A. program, M.S. in Accounting or the M.A. in Applied Economics, and to other students with regular graduate status elsewhere in the University. Students holding postbaccalaureate status are not permitted to enroll in graduate business courses.

An applicant will not be considered for admission to any graduate course until a score on the GMAT or GRE (and TOEFL, if appropriate) has been received, in addition to transcripts showing proof of attainment of the bachelor's degree and transcripts from all colleges attended.

Unless there is a completed file by no later than three weeks before the beginning of classes, the College of Business Administration will not grant admission for that semester.

ACADEMIC STANDARDS

Graduate students in the College of Business Administration must maintain an overall 3.0 GPA in both their program of study and any graduate or undergraduate foundation core courses. In the event this is not maintained, a graduate student shall be placed in an academic provisional status. If a 3.0 GPA is then not obtained in the subsequent 9 semester hours of course work, the graduate student will be disqualified from the program. Further, if a graduate student accumulates grades of "C" or lower or unresolved "I" grades in *more than three (3)* foundation core courses, he will be disqualified from the program. If a graduate student accumulates *more than six (6)* hours of "C" or lower and/or unresolved "I" grades on course work in the professional core, then he will be disqualified from the graduate program. The forgiveness policy does not apply to any courses (graduate or undergraduate) taken by graduate students in the College of Business Administration. Students in the Master of Science in Accounting program must achieve a minimum grade of "C" in all accounting foundation core courses.



MASTER OF BUSINESS ADMINISTRATION

Program Advisor: E.A. Moses, PH 210, Phone 275-2181
P.A. Klock, PH 203, Phone 275-2187

The program leading to the Master of Business Administration degree at the University of Central Florida is designed to develop the student's analytical, problem-solving, and decision-making capabilities to meet the challenges of leadership in professional management positions at present and in the changing world of the future.

The curriculum provides a challenging and creative learning environment in an intensive program of study that has a broad-based administrative emphasis. Recognizing that management methods of tomorrow may bear little resemblance to techniques in current use, the program emphasis is on sound general principles and decision-making techniques that provide a base for continued learning and professional development rather than upon business procedures which are subject to obsolescence.

The program can be completed on either a full-time or part-time basis.

MASTER OF BUSINESS ADMINISTRATION — DEGREE REQUIREMENTS

Normally, the M.B.A. program can be completed in two years of full-time study. Recent related course work in business administration and certain quantitative areas, however, can reduce the length of the program to one calendar year of full-time study. The curriculum consists of two parts, a foundation core and a professional core.

The foundation core is defined by the course requirements listed below, and its completion is a prerequisite to entering the professional core. Note that all or part of the foundation core requirements may be satisfied through advanced standing given in view of a student's prior equivalent course work at the undergraduate or graduate level provided such course work has been satisfactorily completed at a regionally accredited college or university, preferably one accredited by the AACSB.

FOUNDATION CORE

30 Semester Hours

ACG 5005	Financial Accounting Concepts	3 hours
BUL 5125	Legal and Social Environment of Business	3 hours
ECO 5055	Economic Concepts	3 hours
ECO 5413	Statistics for Business and Economics	3 hours
FIN 5405	Financial Concepts	3 hours
MAC 1104	College Algebra	3 hours
MAC 3233	Concepts of Calculus	3 hours
MAN 5051	Management Concepts	2 hours
MAN 5501	Introduction to Production/Operations Management	2 hours
MAN 5830	Introduction to Management Information Systems	2 hours
MAR 5055	Marketing Concepts	3 hours

The professional core consists of 24 credit hours of advanced course work that substantially extends and applies knowledge developed in the foundation core. Through the selection of nine credit hours of approved electives, the student has the opportunity to develop some degree of specialization in one of the following: accounting, economics, finance, management, or marketing.

PROFESSIONAL CORE

24 Semester Hours

ACG 6425	Managerial Accounting Analysis	3 hours
ECO 6111	Economic Analysis of the Firm	3 hours
ECO 6415	Statistical Methods for Business Decisions	3 hours
FIN 6406	Financial Analysis and Management	3 hours
MAN 6206	Organizational Behavior and Development	3 hours
MAN 6721	Business Policy and Responsibility	3 hours
MAN 6814	Quantitative Models for Business Decisions	3 hours
MAR 6716	Marketing Policy	3 hours

ELECTIVES

9 Semester Hours

Electives may be taken in accounting, economics, finance, marketing or management. An elective course may be taken outside the College of Business Administration with permission of the program coordinator. The M.B.A. program does not require a thesis.

EXAMINATION

Satisfactory completion of an end-of-program examination is required before the M.B.A. degree may be awarded. The examination consists of four equal parts covering the areas of economics, finance, management, and marketing. The student must pass each of the parts. If any part of the examination is failed on the initial attempt, the student is eligible to retake that part during the term immediately following.

Total Minimum Semester Hours Required:

33-63

MASTER OF SCIENCE IN ACCOUNTING

Program Advisor: T. E. Phillips, PH 403, Phone 275-2322

The Master of Science degree in Accounting provides candidates with greater breadth and depth in accounting than is possible in baccalaureate programs. The program emphasis is on the preparation of individuals for careers as professional accountants in financial institutions, governments, industry, nonprofit organizations, and public practice. (This program satisfies the requirements of the State Board of Accounting Rule 21-A-27.02.)

MASTER OF SCIENCE IN ACCOUNTING — DEGREE REQUIREMENTS

The curriculum consists of a series of foundation core courses followed by 33 hours of advanced courses, at least 15 hours of which must be in ACG 6000 level courses. The foundation core courses may be entirely or partially satisfied through prior equivalent undergraduate course work. Such course work must have been satisfactorily completed at a regionally accredited college or university, preferably one accredited by the AACSB. Some of the prerequisite course work may be satisfied through credit by examination if approved by the college. Many of the semester hours required in the foundation core will have been satisfied by the student's undergraduate course work.

PART I-FOUNDATION CORE

84 Semester Hours

ACG 3103	Financial Accounting I	3 hours
ACG 3113	Financial Accounting II	3 hours
ACG 3361	Cost Accounting I	3 hours
ACG 3401	Accounting Information Systems I	3 hours
ACG 3501	Financial Accounting for Government and Nonprofit Organizations	3 hours
ACG 4123	Financial Accounting III	3 hours
ACG 4203	Financial Accounting IV	3 hours
TAX 4001	Federal Income Tax I	3 hours
ACG 4651	Auditing	3 hours
ACG 5005	Financial Accounting Concepts	3 hours
BUL 3112	Business Law I	3 hours
BUL 3121	Business Law II	3 hours
BUL 5125	Legal and Social Environment of Business	3 hours
ECO 5055	Economic Concepts	3 hours
ECO 5413	Statistics for Business and Economics	3 hours
ENC 1101	Composition I	3 hours
ENC 1102	Composition II	3 hours
FIN 5405	Financial Concepts	3 hours
MAC 1104	College Algebra	3 hours
MAC 3233	Concepts of Calculus	3 hours
MAN 4720	Business Policy	3 hours
MAN 5051	Management Concepts	2 hours
MAN 5501	Introduction to Production/Operations Management	2 hours
MAN 5830	Introduction to Management Information Systems	2 hours
MAR 5055	Marketing Concepts	3 hours
SPC 1014	Fundamentals of Oral Communication	3 hours
	Behavioral Sciences	3 hours
	Humanities	3 hours
	Political and Legal Environment	3 hours

Following satisfactory completion of the foundation core listed above, the Master of Science degree in Accounting is awarded upon satisfactory completion of a graduate program of 33 semester hours. Students, with the assistance and approval of an advisor, may select an area of specialization in Industry, Public, Tax, General, or Not-for-Profit Accounting. Required courses and restricted electives are listed below.

PART II-PROFESSIONAL CORE

REQUIRED COURSES

33 Semester Hours

18 Semester Hours

ACG 5346	Cost Accounting II	3 hours
TAX 5015	Federal Income Tax II	3 hours
ACG 5636	Advanced Auditing II	3 hours
ACG 6405	Accounting Information Systems II	3 hours
ACG 6805	Seminar in Accounting Theory	3 hours
ACG 6806	Seminar in Professional Accounting Issues	3 hours

RESTRICTED ELECTIVE COURSES

15 Semester Hours

Electives from the categories below must be selected with advisor approval.

Two courses from the following:

ACG 6356	Seminar in Cost Accounting	3 hours
ACG 6065	Seminar in Tax	3 hours
ACG 6696	Seminar in Auditing	3 hours
ACG 6435	Seminar in Accounting Control Systems	3 hours
ACG 6895	Professional Accounting Practice	3 hours
ACG 6697	Seminar in Auditing for Governmental and Nonprofit Organizations	3 hours

Two courses from the following:

ECO 6111	Economic Analysis of the Firm	3 hours
ECO 6415	Statistical Methods for Business Decisions	3 hours
FIN 6406	Financial Analysis and Management	3 hours
MAN 6206	Organizational Behavior and Development	3 hours
MAR 6716	Marketing Policy	3 hours

One additional course from Restricted Electives above or one of the following:

ACG 5206	Financial Accounting V	3 hours
ACG 5255	International and Multinational Accounting	3 hours
ACG 5675	Operational Auditing	3 hours
ACG 5506	Managerial Accounting for Governmental and Nonprofit Organizations	3 hours

EXAMINATION

Satisfactory completion of an end-of-program comprehensive examination is required.

The M.S. program in Accounting does not require a thesis.

Total Minimum Semester Hours Required: 33-117

MASTER OF ARTS IN APPLIED ECONOMICS

Program Advisor: A. E. Day, PH 442, Phone 275-2465

The Master of Arts in Applied Economics degree is a one-year (full-time) or two-year (part-time) program designed to provide specialization in economics for persons desiring careers as economists in the academic, governmental, business, and financial communities. Contemporary society offers almost unlimited opportunities to individuals with an understanding of economic relationships and the tools of analysis to understand today's economic problems. Economists work on such problems as sales forecasting, market analysis, economic feasibility, hedging and commodity pricing, unemployment, inflation, balance of payments, energy development, pollution abatement and many other current problems.

MASTER OF ARTS IN APPLIED ECONOMICS— DEGREE REQUIREMENTS

The Master of Arts degree in Applied Economics requires 30 semester hours presuming that all of the prerequisites have been completed prior to admission.

PREREQUISITES

12 Semester Hours

The following prerequisites (or equivalents) should be completed before enrolling in 6000-level graduate courses:

ECO 5055	Economic Concepts	3 hours
ECO 5413	Statistics for Business and Economics	3 hours
MAC 1104	College Algebra	3 hours
MAC 3233	Concepts of Calculus	3 hours

Prerequisite work may be entirely or partially satisfied through prior equivalent course work. Normally, such course work must have been satisfactorily completed at a regionally accredited college or university, preferably one accredited by the AACSB. Prerequisite course work does not count toward the 30 semester hours credit required for completion of the M.A. degree in Applied Economics.

REQUIRED COURSES

9 Semester Hours

ECO 6111	Economic Analysis of the Firm	3 hours
ECO 6204	Aggregate Economic Conditions and Analysis	3 hours
ECO 6415	Statistical Methods for Business Decisions	3 hours

ECONOMICS ELECTIVES

9-18 Semester Hours

A minimum of nine additional hours of economics elective course work is required.

NON-ECONOMICS ELECTIVES

0-9 Semester Hours

A maximum of nine hours of approved non-economics elective course work may be completed in disciplines such as accounting, finance, management, marketing, mathematics, statistics, public administration, and computer science. Career-oriented elective course work tracks are suggested below.

RESEARCH PROJECT, THESIS, OR INTERNSHIP

3-6 Semester Hours

Three to six credit hours of research, thesis, or internship is required to complete the M.A. in Applied Economics degree. The candidate may fulfill this requirement by completing: (1) a research project and report supervised and approved by the candidate's advisory committee, (2) a formal thesis on a topic selected in consultation with the candidate's advisory committee and meeting both departmental and university requirements, or (3) an internship consisting of three credit hours for work in a business or governmental agency and three additional credit hours for an end-of-project report.

FINAL EXAMINATION

Candidates must satisfactorily complete a comprehensive examination consisting of an oral presentation and defense of the research report, the formal thesis, or the assignments and research report associated with an internship.

Total Minimum Semester Hours Required: 30

CAREER-ORIENTED ELECTIVE TRACKS

Candidates for the Master of Arts degree in Applied Economics are encouraged to use the flexibility provided in the elective portion of the program to design a plan of study that enhances their particular career interests. The five suggested career-oriented elective tracks that follow are representative of some of the possibilities.

1. Financial Economics

For candidates seeking careers as financial economists in the fields of banking, brokerage, corporate or personal finance, selection among the following electives is recommended:

ECO 6206	Business Cycles and Forecasting
ECO 6226	Seminar in Money, Banking and Monetary Policy
ECP 6704	Managerial Economics
FIN 6406	Financial Analysis and Management
FIN 6425	Asset Management and Financial Decisions
FIN 6506	Analysis of Investment Opportunities
FIN 6627	International Financial Management
RMI 6008	Risk Management

2. Public Sector Economics

For candidates seeking careers in the public sector as managers, planners, policy analysts, or regulators, selection among the following electives is recommended:

ECO 6226	Seminar in Money, Banking and Monetary Policy
ECO 6505	Public Finance and Fiscal Policy
ECP 6205	Labor Economics
ECP 6405	Industrial Organization and Performance
ECP 6426	Economics of Regulated Industries
ECP 6615	Economics of Urban and Regional Problems
ECP 6704	Managerial Economics
REE 6046	Real Estate Analysis

Approved electives in Public Administration

Approved electives in Political Science

Approved electives in Political Theory

3. Quantitative Economics

For candidates seeking careers as analysts, consultants, or researchers in business, government, or nonprofit institutions, selection among the following quantitative electives is recommended:

ECO 6206	Business Cycles and Forecasting
ECO 6416	Econometrics
ECP 6704	Managerial Economics
MAN 6814	Quantitative Models for Business Decisions
MAR 6606	Marketing Research Methods

4. International Political Economy

For candidates seeking positions with international organizations (such as the World Bank or United Nations), or overseas business or government appointments, selection among the following electives is recommended:

ECO 6705	Seminar in International Economics
ECS 6006	Seminar in Comparative Economic Systems
ECS 6015	Economic Development
FIN 6627	International Financial Management
INR 4035	International Political Economy
INR 4401	International Law I
INR 4402	International Law II
INR 6007	Seminar in International Politics
PUP 6058	Issues in International Public Policy

5. Human Resource Economics

For candidates seeking careers in the area of human resources development or positions in interdisciplinary manpower related issues, selection among the following electives is recommended:

ECP 6205	Labor Economics
ECS 6015	Economic Development
EIN 4264	Industrial Hygiene and Occupational Health
EIN 5117	Management Information Systems
EIN 6258	Man-Computer Interaction
EVT 6267	Vocational Program Planning, Development and Evaluation
MAN 4401	Labor Relations Management
MAN 6156	Personnel Resources Administration
MAN 6206	Organizational Behavior and Development
MAN 6896	Systems Analysis and Development
PAD 4424	Labor Relations in the Public Sector
PAD 6417	Human Resource Management

LIST OF COURSES—COLLEGE OF BUSINESS ADMINISTRATION

ACG 5005 Financial Accounting Concepts 3 cr (3,0)

PR: Acceptance into the graduate program. The conceptual background for financial statements.

ACG 5206 Financial Accounting V 3 cr (3,0)

PR: ACG 3113 and meet departmental admission requirements. Problems of partnerships, accounting for branches, bankruptcy, installment sales, accounting for estates and trusts, and interim reporting.

ACG 5255 International and Multinational Accounting 3 cr (3,0)

PR: ACG 3113 with a grade of "C" or better or C.I. and meet departmental admission requirements. An examination of the environmental factors affecting international accounting concepts and standards. Cross-country differences in accounting treatments are compared.

ACG 5346 Cost Accounting II 3 cr (3,0)

PR: ACG 3361, FIN 3403, ECO 3411 or C.I. and meet departmental admission requirements. Continuation of ACG 3361. Overhead and joint cost allocation, capital budgeting and analysis, EOQ analysis, decentralization, and quantitative decision analysis.

ACG 5506 Managerial Accounting for Governmental and Nonprofit Organizations 3 cr (3,0)

PR: ACG 3501 or C.I. and meet departmental admission requirements. Study of problems and methods of applying managerial accounting concepts in a nonprofit environment.

ACG 5625 Auditing and EDP 3 cr (3,0)

PR: ACG 4651, ACG 3401 and meet departmental admission standards. An examination of auditing procedures followed when a company uses a computer to process financial records.

ACG 5636 Advanced Auditing 3 cr (3,0)

PR: ACG 3401, ACG 4651, STA 3023 and meet departmental admission requirements. A continuation of ACG 4651. Special topics relative to the standards, practices and procedures followed in the audit function.

ACG 5675 Operational Auditing 3 cr (3,0)

PR: ACG 4651 with a grade of "C" or better and meet departmental admission requirements. The standards, principles, practices and procedures followed in the internal audit function.

ACG 6356 Seminar in Cost Accounting 3 cr (3,0)

PR: ACG 5346, graduate standing and all foundation courses for the accounting program or equivalents. A study of current selected topics in cost and management accounting.

ACG 6405 Accounting Information Systems II 3 cr (3,0)

PR: Graduate standing and all foundation courses for the accounting program or equivalents. Design and analysis of information systems and special auditing topics.

ACG 6425 Managerial Accounting Analysis 3 cr (3,0)

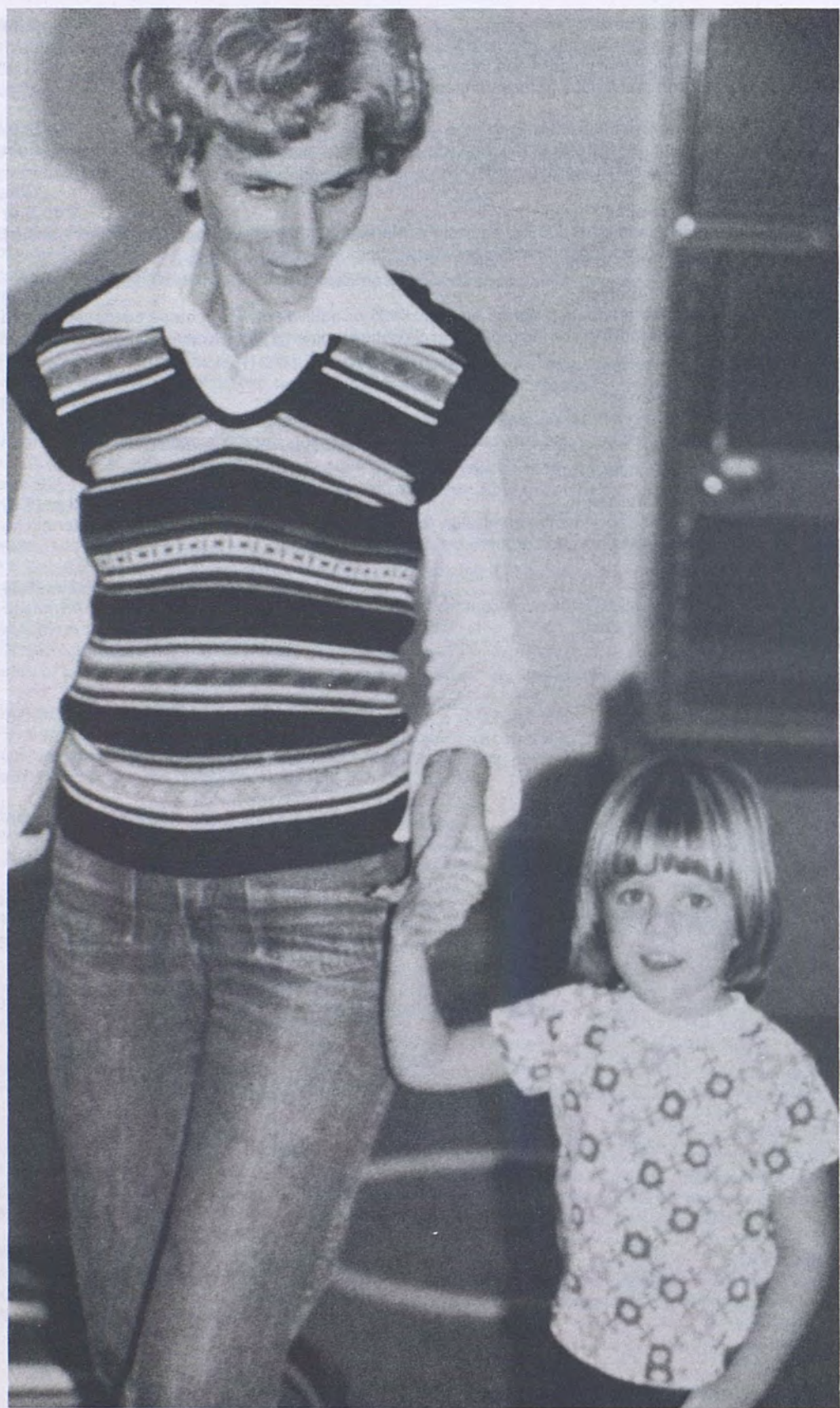
PR: Graduate standing and ACG 5005, or one year of accounting, and ECO 5413. (Not open for accounting majors.) Accounting as an information measurement system for internal planning and control.

- ACG 6435 Seminar in Accounting Control Systems** 3 cr (3,0)
PR: Graduate standing and all foundation courses for the accounting program or equivalents. An integrative course designed to provide a systematic approach to the integration of financial accounting, managerial accounting, taxation, and general business courses.
- ACG 6696 Seminar in Auditing** 3 cr (3,0)
PR: ACG 5636, graduate standing and all foundation courses for the accounting program or equivalents. A study of current selected auditing topics.
- ACG 6697 Seminar in Auditing for Government and Nonprofit Organizations** 3 cr (3,0)
PR: Graduate standing and all foundation courses for the accounting program or equivalents. Examination of standards for audit of governmental organizations and programs; institutional issues of auditor independence; reporting audit findings in a public-sector environment.
- ACG 6805 Seminar in Accounting Theory** 3 cr (3,0)
PR: Graduate standing and all foundation courses for the accounting program or equivalents. An examination of the evolution of contemporary accounting theory with emphasis on current and future developments.
- ACG 6806 Seminar in Professional Accounting Issues** 3 cr (3,0)
PR: Graduate standing and all foundation courses for the accounting program or equivalents. An examination of current issues confronting the accounting profession.
- ACG 6895 Professional Accounting Practice** 3 cr (3,0)
PR: Graduate standing and all foundation courses for the accounting program or equivalents. Study of the formation and operation of a professional accounting practice.
- BUL 5125 Legal and Social Environment of Business** 3 cr (3,0)
PR: Admission to graduate program. Analysis of the legal and ethical environment of business, the effects of legislation and regulation on business activity, and the role of law and ethics in the decision making process.
- ECO 5055 Economic Concepts** 3 cr (3,0)
PR: Acceptance into the graduate program. Introduction to micro and macro economic analysis.
- ECO 5413 Statistics for Business and Economics** 3 cr (3,0)
PR: Acceptance into the graduate program and MAC 3233 or equivalent. Statistical theory and problems relating to business and economics including time series and correlation theory, index number theory and statistical inference.
- ECO 6111 Economic Analysis of the Firm** 3 cr (3,0)
PR: Graduate standing and ECO 5055 or equivalent. Commodity price and output determination; factor price determination and functional income distribution; analysis of different types of markets.
- ECO 6204 Aggregate Economic Conditions and Analysis** 3 cr (3,0)
PR: Graduate standing and ECO 5505 or equivalent. An analysis of aggregate economic conditions including the determination of output, employment and income levels.
- ECO 6206 Business Cycles and Forecasting** 3 cr (3,0)
PR: ECO 5055 and ECO 6415 or equivalents, graduate standing. Use of economic tools for measuring changes in aggregate economic activity, changes in production and prices, and the use of statistical techniques.
- ECO 6226 Seminar in Money, Banking and Monetary Policy** 3 cr (3,0)
PR: Graduate standing. Study of the structural foundation and policy making activities of the monetary authorities.
- ECO 6305 History of Economic Thought** 3 cr (3,0)
PR: Graduate standing. A study of the leading ideas of the major contributors to the development of economic thought.
- ECO 6415 Statistical Methods for Business Decisions** 3 cr (3,0)
PR: Graduate standing and ECO 5413 or equivalent. Multivariate models, time series models, and accompanying problems are analyzed and applied to forecast situations.

- ECO 6416 Econometrics** 3 cr (3,0)
PR: ECO 6415 and graduate standing. The mathematical formulation of economic theories and the use of statistical procedures to measure the theoretical relationships and to verify or reject the theories.
- ECO 6505 Public Finance and Fiscal Policy** 3 cr (3,0)
PR: Graduate standing and ECO 5055 or equivalent. Analysis of the role of government and the effects of spending, taxing, and borrowing on the economy.
- ECO 6705 Seminar in International Economics** 3 cr (3,0)
PR: Graduate standing. An inquiry into the theory of international trade and finance, commercial policy and economic integration.
- ECP 6205 Labor Economics** 3 cr (3,0)
PR: Graduate standing and ECO 5055 or equivalent. An investigation into the nature and function of the labor markets, with specific concern for both institutional and noninstitutional imbalance.
- ECP 6405 Industrial Organization and Performance** 3 cr (3,0)
PR: Graduate standing and ECO 6111. A study of the performance of various types of market structure and practice relative to price and efficiency.
- ECP 6426 Economics of Regulated Industries** 3 cr (3,0)
PR: Graduate standing. A study of the economic, legal, and administrative foundations of regulatory policy in a broad range of industries in the American economy.
- ECP 6615 Economics of Urban and Regional Problems** 3 cr (3,0)
PR: Graduate standing and ECO 6111. Economic analysis of the problems arising from and associated with the growth and development of cities and regions.
- ECP 6704 Managerial Economics** 3 cr (3,0)
PR: Graduate standing and ECO 6111 or equivalent. The use of economic tools and methods of reasoning applied to a wide range of business and economic problems.
- ECS 6006 Seminar in Comparative Economic Systems** 3 cr (3,0)
PR: Graduate standing. An examination of factors that influence economic systems, patterns of resource allocation and income distribution in differing economic environments.
- ECS 6015 Economic Development** 3 cr (3,0)
PR: Graduate standing. Analysis of theories and problems of growth and development with special attention to resource scarcity, population growth, and interaction of foreign trade and internal development.
- FIN 5405 Financial Concepts** 3 cr (3,0)
PR: Acceptance into the graduate program, ACG 5005 and ECO 5055 and ECO 5413 or equivalents. Effects of financial decisions upon the firm, interrelationships of these effects and alternatives available to financial managers in making these financial decisions.
- FIN 6406 Financial Analysis and Management** 3 cr (3,0)
PR: Graduate standing and FIN 5405 or equivalent. Conceptual and practical problems associated with financial management of the nonfinancial corporation.
- FIN 6425 Asset Management and Financial Decisions** 3 cr (3,0)
PR: Graduate standing and FIN 6406. Considers the interrelated decision making process of asset allocations, corporate fund raising, dividend policies and market maximization.
- FIN 6506 Analysis of Investment Opportunities** 3 cr (3,0)
PR: Graduate standing and FIN 6406. Deals with the theory and tools of analysis required in the management of financial assets.
- FIN 6627 International Financial Management** 3 cr (3,0)
PR: ECO 6415, FIN 6406. The theory of finance as applied to the operations of multinational firms and international capital markets.
- MAN 5051 Management Concepts** 2 cr (2,0)
PR: Acceptance into the graduate program. Theory and practice of managing organizations to include planning, organizational theory, human behavior and control.

- MAN 5501 Introduction to Production/Operations Management** 2 cr (2,0)
PR: Acceptance into the graduate program and ECO 5413 or equivalent. Introduction to the fundamental concepts, processes and institutions involved in the production of goods and services required by modern society.
- MAN 5830 Introduction to Management Information Systems** 2 cr (2,0)
PR: Acceptance into the graduate program. Designed to provide the student with the fundamentals of business data processing and management information systems used by organizations in a modern society.
- MAN 6055 Planning and Control Analysis** 3 cr (3,0)
PR: Graduate standing and MAN 5051 or equivalent. Emphasizes elements of the planning and control processes including objectives, action programs and control procedures. Discusses integration of the two processes.
- MAN 6075 History of Management Thought** 3 cr (3,0)
PR: Graduate standing and MAN 5051. The historical development of management in modern society with emphasis on the interrelationship between the management processes and the economic, social, and political environments.
- MAN 6121 Group Decisions and Analysis** 3 cr (3,0)
PR: Graduate standing and MAN 5051 or equivalent. Experience in company-wide management decision making by groups using the management game techniques. Analysis of the group decision-making process using video tapes.
- MAN 6156 Personnel Resources Administration** 3 cr (3,0)
PR: Graduate standing. A seminar in integrating the personnel, manpower planning, and labor relations fields through the study of concepts and problems in these areas.
- MAN 6206 Organizational Behavior and Development** 3 cr (3,0)
PR: Graduate standing and MAN 5051 or equivalent. The analysis of human behavior in organizations in terms of the individual, small group, intergroup relationships, and the total organization.
- MAN 6721 Business Policy and Responsibility** 3 cr (3,0)
PR: Graduate standing and completion of all professional core courses or their equivalent. MBA program capstone course providing the student experience in formulating policy and strategy for the direction of a business firm from the integrated viewpoint of a CEO.
- MAN 6814 Quantitative Models for Business Decisions** 3 cr (3,0)
PR: Graduate standing and ECO 5413 or equivalent. Quantitative techniques useful for the solution of business problems. Mathematical model building to aid the decision making process is stressed.
- MAN 6840 Research and Development Management** 3 cr (3,0)
PR: Graduate standing and MAN 5051. An examination of the function of research and development and the impact of technological innovation on our economic and social systems.
- MAN 6896 Systems Analysis and Development** 3 cr (3,0)
PR: MAN 5051 and graduate standing. Study and application of systems concepts for the improvement of organizational work and information systems.
- MAR 5055 Marketing Concepts** 3 cr (3,0)
PR: Acceptance into the graduate program. Study of functions, institutions and basic marketing of goods in the U.S. economy.
- MAR 5941 Small Business Consulting** 3 cr (3,0)
PR: ACG 2001, ACG 2011, ECO 2013, MAN 3010, MAR 3023, or graduate status. Provides students opportunity to apply knowledge learned in the classroom to real business situations. Open to undergraduate majors in the College of Business Administration with approval of the department chairman.
- MAR 6406 Sales Management and Control** 3 cr (3,0)
PR: Graduate standing and MAR 5505 or equivalent. Designed to provide an analysis of the sales and management process. Topics covered include selection and training, compensation, behavioral issues and sales planning, evaluation, and control.

- MAR 6606 Marketing Research Methods** 3 cr (3,0)
PR: Graduate standing. Investigation of primary research methods used to generate information for marketing decision makers. Problem definition, research design, data collection, data processing, statistical interpretation, and communication of research results.
- MAR 6706 Contemporary Marketing Problems** 3 cr (3,0)
PR: Graduate standing, MAR 6716, or C.I. Analysis of contemporary marketing problems resulting from social, economic, and political developments.
- MAR 6716 Marketing Policy** 3 cr (3,0)
PR: Graduate standing and MAR 5055 or equivalent. Marketing policy formulation and decision making with respect to planning, pricing, promotion and distribution.
- REE 6046 Real Estate Analysis** 3 cr (3,0)
PR: Acceptance into the graduate program and FIN 5405 or equivalent. This course melds theory and practice towards the objective of solving urban land allocation problems faced by public and private sector decision makers.
- RMI 6008 Risk Management** 3 cr (3,0)
PR: Acceptance into the graduate program and FIN 5404 or equivalent. An introduction to risk management with emphasis on the business firm, but also treating several major risk management issues in the public sector.
- TAX 5015 Federal Income Tax II** 3 cr (3,0)
PR: TAX 4001 and meet departmental admission requirements. Concepts and methods of determining taxable income for partnerships and corporations and selected topics.
- TAX 6065 Seminar in Tax** 3 cr (3,0)
PR: Graduate standing and all foundation courses for the accounting program or equivalents. Advanced study of and research in tax law.



COLLEGE OF EDUCATION

Advanced courses through the College of Education are for students with at least baccalaureate degrees. Both degree and nondegree programs may be planned for people in education-related positions in social and government agencies, business and industry, as well as for professional educators in private and public schools. Master of Education, Master of Arts, and Master of Science (in School Psychology only) degrees are awarded. Doctor of Education and Educational Specialist degrees are available in cooperation with Florida Atlantic University and/or the University of Florida. Courses are scheduled in the evening to meet the needs of people employed in the community.

COLLEGE ADMINISTRATION

<i>C. C. Miller</i>	Dean
<i>R. G. Cowgill</i>	Associate Dean
<i>P. E. Higginbotham</i>	Assistant Dean
<i>P. E. Higginbotham</i>	Advanced Studies Coordinator
Office: ED 115, Phone 275-2437	

Faculty

<i>B. B. Anderson, Ed.D.</i>	Professor
<i>V. Barr-Johnson, Ph.D.</i>	Professor
<i>D. K. Brumbaugh, Ed.D.</i>	Professor
<i>W. Clarke, Ed.D.</i>	Professor
<i>R. G. Cowgill, Ph.D.</i>	Associate Dean and Professor
<i>C. D. Dziuban, Ph.D.</i>	Professor
<i>W. K. Esler, Ph.D.</i>	Chairperson, Department of Educational Foundations and Professor
<i>F. E. Green, Ed.D.</i>	Professor
<i>H. O. Hall, Ed.D.</i>	Professor
<i>D. E. Hernandez, Ed.D.</i>	Professor
<i>M. C. Hynes, Ph.D.</i>	Professor
<i>M. L. Kysilka, Ph.D.</i>	Director, Educational Research Institute and Professor
<i>R. Lange, Ph.D.</i>	Professor
<i>R. D. Martin, Ed.D.</i>	Chairperson, Department of Instructional Programs and Professor
<i>C. C. Miller, Ed.D.</i>	Dean and Professor
<i>E. E. Miller, Ed.D.</i>	Professor
<i>F. D. Rohter, Ph.D.</i>	Professor
<i>R. A. Rothberg, Ed.D.</i>	Professor
<i>R. A. Thompson, Ed.D.</i>	Professor
<i>R. E. Weidenheimer, Ed.D.</i>	Professor
<i>J. H. Armstrong, Ed.D.</i>	Associate Professor
<i>J. S. Beadle, Ph.D.</i>	Associate Professor
<i>R. C. Bird, Ph.D.</i>	Associate Professor
<i>T. S. Cleland, Ph.D.</i>	Associate Professor
<i>D. W. Gurney, Ph.D.</i>	Associate Professor
<i>T. L. Harrow, Ph.D.</i>	Associate Professor
<i>S. L. Hiatt, Ph.D.</i>	Associate Professor
<i>P. E. Higginbotham, Ed.D.</i>	Assistant Dean and Associate Professor
<i>B. Hoover, Ed.D.</i>	Associate Professor
<i>R. D. Hunter</i>	Associate Professor
<i>N. R. McGee, Ed.D.</i>	Associate Professor
<i>J. N. McLain, Ph.D.</i>	Associate Professor
<i>P. C. Manning, Ed.D.</i>	Associate Professor
<i>J. Midgett, Ed.D.</i>	Associate Professor

<i>A. H. Olson, Ed.D.</i>	Associate Professor
<i>J. L. Olson, Ph.D.</i>	Associate Professor
<i>M. J. Palmer, Ed.D.</i>	Associate Professor
<i>R. F. Paugh, Ed.D.</i>	Associate Professor
<i>J. W. Powell, Ed.D.</i>	Chairperson, Department of Educational Services and Associate Professor
<i>J. N. Shadgett, Ed.D.</i>	Associate Professor
<i>B. W. Siebert, Ph.D.</i>	Associate Professor
<i>T. J. Sullivan, Ed.D.</i>	Associate Professor
<i>A. T. Wood, Ph.D.</i>	Associate Professor
<i>D. J. Baumbach, Ed.D.</i>	Assistant Professor
<i>R. M. Bollet, Ed.D.</i>	Assistant Professor
<i>D. M. Blume, Ed.D.</i>	Assistant Professor
<i>R. A. Cornell, Ed.D.</i>	Assistant Professor
<i>E. B. Cox, Ph.D.</i>	Assistant Professor
<i>G. R. Gergley</i>	Assistant Professor
<i>H. Harlacher</i>	Assistant Professor
<i>H. J. Haughee, Ph.D.</i>	Assistant Professor
<i>A. R. Joels, Ph.D.</i>	Assistant Professor
<i>H. P. Martin, Ed.D.</i>	Assistant Professor
<i>D. J. Mealar, Ph.D.</i>	Assistant Professor
<i>J. A. Miller, Ed.D.</i>	Assistant Professor
<i>G. W. Orwig, Ed.D.</i>	Assistant Professor
<i>K. H. Renner</i>	Assistant Professor
<i>P. T. Sciortino, Ph.D.</i>	Assistant Professor
<i>S. E. Sorg, Ph.D.</i>	Assistant Professor

PROGRAMS IN EDUCATION

Possible areas of specialization for postbaccalaureate work or master's degrees include:

Administration/Supervision	Mathematics Education
Art Education	Music Education
Business Education	Physical Education
Counselor Education	Reading Education
Educational Media Specialist	School Psychology
Instructional Technology Specialization	Science Education
Elementary Education	Social Sciences Education
Early Childhood Education Specialization	Speech Education
English Education	Vocational Education
Exceptional Child Areas:	
Emotionally Handicapped	
Specific Learning Disability	
Educable Mentally Handicapped	

Studies beyond the master's degree level leading to Specialist of Education and/or Doctor of Education degrees are available through cooperative programs between the University of Central Florida and other State universities, as shown below:

Florida Atlantic University—Ed.S. or Ed.D.
Administration/Supervision
Community/Junior College Education
University of Florida
Counselor Education (Ed.D. only)

MASTER'S DEGREES

Admission

The Graduate Record Examination (GRE) is required of all graduate students. Minimal requirements for admission are a grade point average (GPA) of 3.0 for the last 60 semester hours of undergraduate study *and* a minimum score of at least 840 on the verbal-quantitative sections of the GRE. Alternatively, a GPA of less than 3.0 combined with a GRE of 1000 would also be acceptable. In addition, a student seeking a Master of Education degree must show evidence that all course work has been completed for the basic bachelor's level State of Florida teaching certificate. Master of Arts programs, available in some specialties, and a Master of Science in School Psychology may be planned without the student's having previously completed certification courses.

Those students who fail to meet the University admissions standards have the opportunity to apply for admission via the provisional category. Admission through this category is severely limited and restricted to those students who show academic and professional promise. To be considered for provisional selection, a student must file an application with the Advanced Studies Coordinator of the College of Education. Faculty committees with members from each department within the college select students for provisional positions.

The following items are examples of criteria that the committees may use in evaluating a student:

- a. Ranking of undergraduate grade point average
- b. Ranking of GRE score
- c. Contribution, current and projected, to the profession
- d. Number of years of professional experience
- e. Number of postbaccalaureate hours taken
- f. Grade point average on any postbaccalaureate work
- g. Recommendations by advisor and other professionals

At the completion of 9 semester hours *after* becoming a provisional student, the student will be changed to regular degree status, if the student's grade point average for the 9 hours is at least 3.0. If the average is below 3.0, the student will be reverted to postbaccalaureate status.

Program of Study

Each advanced student is assigned an advisor by the Advanced Studies Office. If, prior to having an approved program on file with the College of Education, a student receives credit at another institution and plans to have the credit transferred to his UCF program, he enrolls in these courses at his own risk. Postbaccalaureate students may use their advisors for information and consultation, but this planning cannot be considered as planning a degree program.

Performance Standards

The College of Education standards for students' academic performances are slightly higher than the minimum requirements for graduate students as set by the Graduate Studies Office. In addition to the minimum standard of maintaining a "B" (3.0 GPA) on all graduate work and earning no more than 6 hours of "C" work or unresolved "I" (incomplete) grades, College of Education students must maintain at least a "C" (2.0) GPA average in all co-requisite work prescribed in concert with their graduate degree program.

As explained in the University procedures, a student whose grade point average on his degree work falls below 3.0 will be placed on academic provisional status for 9 hours. During those 9 hours, a student must raise his grade point average back up to the 3.0 minimum to remain in the program. No transfer work may be used to raise the average. A student will be allowed only one academic provisional period. The College of Education considers the status of all newly admitted master's students to be probationary for their first 9 program hours. At the end of 9 hours, a student must have a 3.0 minimum average or he will be reverted to nondegree status. No further provisional status will be extended.

Comprehensive Examination

All students are required to complete written comprehensive examinations prior to graduation from the degree programs. The examinations will be planned and evaluated by each student's major department. Examinations will receive an evaluation of "pass," "conditional pass," or "fail." If a student receives a "conditional pass" grade, he will be given a prescription for further study. A failed examination requires a re-examination.

Research Project

All programs include a research project (6918) and a research course (EDF 6481).

DOCTOR OF EDUCATION AND SPECIALIST OF EDUCATION—DEGREES

COOPERATIVE DOCTORAL PROGRAMS WITH FLORIDA ATLANTIC UNIVERSITY

Educational Specialist (Ed.S.) and Doctoral (Ed.D.) degree programs are offered in two areas. One area is in Administration and Supervision for students who are interested in decision-making positions in educational organizations. The second is Community/Junior College Education, designed primarily for the junior college teacher, although it could be appropriate for other teaching situations. The subject field majors in Community/Junior College Education are generally limited to fields offered at UCF or FAU. The programs offer students an opportunity to study in Orlando rather than having to move or commute to the Boca Raton area; however, the degrees will be awarded by Florida Atlantic University.

The availability of courses in the Orlando area is dependent upon the individual student's program, the number of co-op students needing the same course, and university funding. Many courses already offered at UCF are planned into a program, and courses from FAU are offered at the campus on a regular basis. A student probably will be able to complete all of his degree work without attending classes at Boca Raton. Beyond the class-work stage of course work, the student will be able to do his dissertation at UCF with occasional contact with the FAU campus advisor.

DOCTOR OF EDUCATION—Administration and Supervision

Admission Requirements

1. A master's degree from an approved college or university.
2. Grade-point average and Graduate Record Examination scores as follows:
 - a. An average of 3.0 or higher in the last 60 semester hours of work prior to the receipt of the baccalaureate degree, and
 - b. an average of 3.25 or higher on all graduate work attempted, and
 - c. a score equivalent to at least the 50th percentile on the subject test in Education of the Graduate Record Examination, and a combined score of 840 or higher on the verbal and quantitative portions of the GRE general test.or
 - a. A combined score of 1000 or higher on the verbal and quantitative portions of the general Graduate Record Examination, and
 - b. a score equivalent to at least the 50th percentile on the subject test in Education of the Graduate Record Examination. GRE scores over 20 years old will not be accepted, and departments may require applicants to retake the GRE if the scores are more than 5 years old.
3. Completion of at least 3 years of full-time teaching experience. Exceptions are subject to approval.
4. Each applicant for admission to the Doctor of Education degree in Administration and Supervision must be approved for admission by the Department of Administration and Supervision and the College of Education. This recommendation shall in part be based upon an interview.

Degree Requirements

The Administration and Supervision specialization area requires a minimum of 33 hours credit, all of which must be at the graduate level. A cognate requirement of 15 credit hours may be met by courses in one or more fields outside the College of Education. An appropriately supervised internship in administration or a field project may be required, particularly in the case of the student who has not been in an administrative or supervisory position. The requirement in research and statistics is 12 semester hours. Qualifying examinations are given in administration, curriculum, educational foundations, and guidance. Credit for the dissertation research is a minimum of 20 semester hours, and the dissertation must be a scholarly work of a caliber which contributes to original knowledge or attacks a significant field or professional problem.

DOCTOR OF EDUCATION—Community/Junior College Education

The doctoral program in the Community/Junior College Education envisions the preparation of broadly educated community college teachers. It is anticipated that each candidate in the program will already have a broad education background, and the program will provide the culminating experiences to develop those competencies required for doctoral level performance in the candidate's chosen areas of specialization.

Admission Requirements

1. Master's degree from an approved college or university.
2. Minimum grade-point average of 3.25 on all graduate work attempted.
3. A combined score of 1000 or higher on the verbal and quantitative portions of the general GRE test and a score equivalent to at least the 50th percentile in the appropriate* subject test of the Graduate Record Examination. GRE scores over 20 years old will not be accepted, and departments may require applicants to retake the GRE if the scores are more than five years old.
4. Completion of at least three years of full-time teaching experience or its equivalent (exceptions subject to approval).
5. Each applicant for admission to the Doctor of Education degree in Community/Junior College Education must be approved for admission by the Department of Adult, Secondary and Higher Education, College of Education, and by the department of his teaching field.

*In the program for Administration and Supervision, the subject GRE test should be in Education; in Community/Junior College Education, the subject test may be in the person's major subject field or in Education.

Three years of full-time K-12 teaching experience is required for Administration and Supervision certification in the State of Florida. Any Administration and Supervision applicant who does not have the experience must include a statement with his application waiving his expectation for certification at degree completion. Both Administration and Supervision and Community/Junior College Education students without degree completion or appropriate experience should expect to have internships included in their degree programs.

In addition to these basic admission requirements, an interview is a necessary part of the admissions procedure in order for the faculty to discuss with the student his motivation and his expectations for the program.

Provisional Admission

Any candidate who does not meet all criteria may prepare and submit for review by the UCF Graduate Advisory Committee and Florida Atlantic University, a complete support file including, but not limited to, the following materials:

1. An essay describing the applicant's professional goals.
2. An up-to-date vita.
3. Letters of recommendation which must be included from supervisors verifying applicant's current professional position and any future plans for advancement—faculty at UCF and FAU must be included if applicant has attended either university before.
4. Evidence of professional leadership (examples of professional production or involvement such as programs designed, grants written and funded, books published, and positions held in professional organizations).

Admission recommendations will be made jointly by FAU and UCF in accordance with the above requirement. FAU will determine final acceptance and will notify each applicant when his admission status is determined.

The number of people admitted to the cooperative programs will be limited to insure the availability of faculty and facilities. Date of application completion (when all records are on file) and qualifications of the applicants will be considered in the selection procedure.

Residency Requirements

For the FAU/UCF Cooperative Doctoral Program, satisfaction of residency will be by the student's attending at least two semesters, earning a minimum of 6 hours each semester taken at either FAU or UCF. The semesters do not have to be consecutive. For the Specialist Degree, one semester of at least 6 semester hours is required.

Progress in a program will be marked by successful completion of courses undertaken and by passing qualifying examinations, following most of the student's course work. When the student has passed his qualifying examinations, and has a dissertation proposal approved, he will be eligible for admission to candidacy. After admission to candidacy, the student works to complete his dissertation research with advice from his faculty committee.

Transfer Credit and Time Limits

Work counted toward a degree may be no more than seven years old by the time the degree is completed. Six hours of "B" or better graduate work may be considered for transfer from another institution outside the SUS. Nine (9) semester hours may be considered from SUS universities.

The descriptions following are based on the minimum amount of work required after the baccalaureate degree. How much work must be earned beyond the master's degree is determined by the student's faculty committee and is based upon his qualifications and experiences.

Degree Requirements

The Community/Junior College Education specialization area requires a minimum of 30 hours in graduate level courses in a teaching major. Other requirements include 16 hours in an area cognate to the teaching field, 20 hours of graduate level courses in professional education, and 10 hours in research and statistics. Qualifying examinations are given in the major teaching area, higher education and an approved professional education area. A minimum of 20 semester hours is required in dissertation credit, and the dissertation must be a scholarly work of a caliber which contributes to original knowledge or attacks a significant field or professional problem.

SPECIALIST PROGRAMS

An Ed.S. graduate must have completed a minimum of 36 semester hours of graduate course work in Administration and Supervision. A minimum of 9 semester hours of curriculum course work and 6 hours of cognate courses is also required. Candidates who plan to continue on to doctoral studies may be encouraged to include courses in Foundations and Personnel Services in the Specialist program in preparation for doctoral qualifying exams.

For More Information

For applications and information on the admission procedures, contact Dr. Patricia Higginbotham (305) 275-2436. For curriculum questions, talk with Dr. Harry Hall (305) 275-2950/275-2334.

UNIVERSITY OF CENTRAL FLORIDA/UNIVERSITY OF FLORIDA COOPERATIVE DOCTORAL PROGRAM IN COUNSELOR EDUCATION

The University of Central Florida in collaboration with the University of Florida offers a cooperative Doctor of Education (Ed.D.) Degree. Although it is offered at the University of Florida, a Doctor of Philosophy (Ph.D.) program is *not* available for the UCF-UF programs. All degrees are awarded by the University of Florida. The Ed.D. degree consists of three parts—course work, field experience (practicum), and research.

The only specialization currently approved is in Counselor Education. Students may be admitted only in the fall semester. Counselor Education is a doctoral program only; no specialist degree applications will be processed. Applicants must have a master's degree with a major in guidance with an emphasis on counseling. The program is designed for people aspiring to be practicing counselors as well as for counselor educators. Each individual's program will be designed to meet his professional goals.

Minimum Admission Requirements

Admission requirements are those of the Graduate School and the Advanced School of the College of Education, University of Florida. The principal requirements are listed below:

- a. Previous completion of a master's degree from an accredited institution.
- b. A satisfactory score (1100 or above) on the General Test of the Graduate Record Examination.
- c. High scholastic average on undergraduate (3.0 grade-point average or above for the last 60 semester hours) and previous graduate work (3.5 grade-point average or above).
- d. Satisfactory personal and professional references.
- e. A statement of professional goals must be included with the application.

Provisional Admission

Some exceptions may be permitted for provisional admission provided the candidate demonstrates other sufficient evidences of admissibility. Any candidate who will not meet all criteria must prepare and submit for review by the UCF Graduate Advisory Committee a complete support file including, but not limited to, the following materials:

- a. An essay describing the applicant's professional goals;
- b. An up-to-date vita;
- c. Letters of recommendation (if not sent in for the original application file). Letters must be included from current supervisors verifying applicant's professional position and any future plans for advancement. Letters must also be included from faculty at UCF or the cooperating institution if an applicant has attended either;
- d. Evidence of professional leadership — examples of professional production or involvement such as programs designed, grants written and funded, books published, positions held in professional organizations.

Admission recommendations will be made jointly by the University of Florida and the University of Central Florida in accordance with the above requirements. The University of Florida will determine final acceptance and notify each applicant when his admission status is determined.

The number of people admitted to the cooperative programs will be limited to insure the availability of faculty and facilities. Date of application completion (when all records are on file) and qualifications of the applicants will be considered in the selection procedure.

RESIDENCY

The residency requirement for the University of Florida has been modified for the cooperative programs. Courses offered by both the University of Florida and the University of Central Florida will be accepted by the University of Florida Graduate School for credit toward the degree. The period of concentrated study for the Ed.D. degree may be satisfied by earning a minimum of 36 semester hours within a 27-month period of registrations on either or both campuses. Prior to admission to candidacy at least one semester of full-time study (minimum 10 credits) must be completed at the University of Florida.

PROGRAM REQUIREMENTS

Each individual's program of study will be planned by his committee in consultation with the student. Committees have a minimum of three members; one member may be a UCF faculty member; the chairman will be from the University of Florida. The chairman with input from other faculty will be responsible for determining the student's readiness for, and the planning and evaluation of, written and oral qualifying exams which follow completion of the planned course work.

GENERAL PROGRAM REQUIREMENTS

Up to 36 hours may be transferred from a master's degree if those hours fit the student's program. Up to six hours of post-master's work may be transferred into the program provided the credits are from an institution awarding a doctorate in the area of that course work. Also required are a minimum of 21 semester hours in Education in a master's program or 33 semester hours in combined master's and bachelor's work with at least 15 semester hours from courses numbered 5000 or above.

The requirements above are basic; individual students may have to do more work than described. For example, a person without a professional education background would have some "catch-up" work to do; a provisionally-admitted student would have to meet additional prescriptive requirements to strengthen his potential for success.

APPLICATIONS, TRANSCRIPTS AND GRE SCORES.

Applications for the UCF-UF cooperative doctoral program are available only from the College of Education at UCF. They may be obtained by mail, by calling (305) 275-2436, or in Room ED 109 on campus. To insure on-time processing, applications and all supporting information must be in the Admissions Office at least 12 weeks before taking courses. Quotas for the program may be reached before the published deadline dates for applications. Complete applications should be returned to Dr. Patricia Higginbotham, at UCF.

Official transcripts of *all* college work (graduate and undergraduate) must be ordered from the schools the student attended and sent directly to UCF (even if they are already on file at the University of Florida). Official Graduate Record Examination scores must be sent directly from Educational Testing Service, Princeton, New Jersey, 08540, to the UCF Graduate Admissions Office. GRE scores more than five years old will be acceptable if ETS still has a record on file. A request to ETS must be accompanied by a check or money order for \$5.00.

Transcripts and scores sent to UCF or UF for review for some other graduate, undergraduate, or cooperative program cannot be transferred over to the UCF-UF program; new copies must be ordered. No action can be taken for admission consideration until all records have arrived at UCF.

Further Information

For general information on requirements and admissions, contact Dr. Patricia Higginbotham, (305) 275-2436. For curriculum information, contact Dr. Bob Bollet, Counselor Education, 275-2052/275-2597.

MASTER'S DEGREE PROGRAMS IN EDUCATION

Programs are offered in a wide variety of areas within the general field of education. Master of Education programs are open only to students who have a baccalaureate degree and have completed course work for regular Florida State Teaching Certification. Master of Arts programs are open to qualified individuals who are noncertified or for certified bachelor-level students pursuing a second teaching field. In this section, the degree components for the various programs are outlined. Students should consult faculty advisors for answers to specific questions.

MASTER'S PROGRAMS OF STUDY

Degrees and programs of study are arranged alphabetically in the following order:

Administration/Supervision — M.Ed. & M.A.

Teacher Specialist — M.A.

Counselor Education — M.Ed. & M.A.

Community-Agency Counseling — M.A.

Educational Media Specialist — M.Ed.

Instructional Technology

Specialization — M.A.

Elementary Education

Master of Education

Art (Visual Arts) Education

Early Childhood Education Specialization

Elementary Education Specialization

Mathematics Specialization

Music Education Specialization

Reading Specialization

Master of Arts

Art (Visual Arts) Education

Elementary Education Specialization

Program for Certified Teachers

Program for Non-Education Majors

Exceptional Child Specialization Areas—M.Ed.

Educable Mentally Handicapped

Emotionally Handicapped

Specific Learning Disability

Physical Education — M.Ed.

Master of Arts Options:

Exercise Physiology

Exercise Sciences

Perceptual Motor Development

Sports Medicine

School Psychology — M.S.

Secondary Education

Master of Education

Business-Vocational Education

English Language Arts

Mathematics Education

Science Education

Social Science Education

Master of Arts Specialization areas:

Business Education, English,

Mathematics, Science, Social

Science

Science Education/Health Sciences

Extended Content Program

Vocational Education

Administrator Option — M.Ed.

Master Teacher Option — M.Ed.

General Vocational Option — M.A.

Health Related Option — M.A.

ADMINISTRATION AND SUPERVISION

These programs are perceived as a sequential set of activities developed as a format for establishing an educational leadership plan for the area. Practicing professionals and aspiring educators have the opportunity to enter the program which fits their needs. The M.Ed. option includes Administration and Supervision K-12, Administration and Supervision K-6, and Administration and Supervision 7-12. These programs require 39-42 semester hours.

The M.A. in Educational Administration does not fulfill state certification requirements. Additional courses may be required in special methods, general methods and curriculum as prerequisites to the degree which is individualized to meet the needs of the student and requires 42 semester hours for completion.

MASTER OF EDUCATION IN ADMINISTRATION & SUPERVISION

Three years K-2 teaching experience is required by the State of Florida for Certification in Administration and Supervision.

AREA A—CORE

EDA 6918

Research Project

12 Semester Hours

3 hours

EDF 6481

Fundamentals of Graduate Research in Education

3 hours

EDF 6432

Measurement and Evaluation in Education

3 hours

Choose one:

EDF 6155

Lifespan Human Development and Learning

3 hours

EDF 6517

History and Philosophy of American Education

3 hours

EDF 6608

Social Factors in American Education

3 hours

AREA B—SPECIALIZATION			21 Semester Hours
EDA 6061	Organization and Administration of Schools		3 hours
EDA 6502	Organization and Administration of Instructional Programs		3 hours
EDG 6940	Graduate Internship*		3 hours
EDS 6123	Educational Supervisory Functions		3 hours
EDS 6130	Educational Supervisory Techniques		3 hours
or			
EDS 6111	Administration & Supervision of Staff Development		3 hours
And two of the following:			
EDA 6232	Legal Aspects of School Operation		3 hours
EDA 6240	Educational Financial Affairs		3 hours
EDA 6260	Educational Systems and Facilities		3 hours
AREA C—CURRICULUM			6 Semester Hours
Both courses in either ESE or EDE.			
ESE 6325	Curriculum Design		3 hours
EDE 5541	Individualizing Instruction in the Elementary School		3 hours
or			
ESE 6416	Curriculum Evaluation		3 hours
EDE 6205	Elementary School Curriculum		3 hours
COREQUISITES: Prescribed by College of Education to meet State Certification requirements or as support for degree program. An undergraduate course or in-service credit may be used to satisfy the requirement.			
RED 6335	Reading in the Content Areas		3 hours
Total Minimum Semester Hours Required:			39

MASTER OF ARTS

ADMINISTRATION/SUPERVISION OPTION

This program does not lead to Certification in School Administration or Supervision.

AREA A—CORE			15 Semester Hours
EDF 6155	Lifespan Human Development and Learning		3 hours
EDF 6481	Fundamentals of Graduate Research in Education		3 hours
EDF 6517	History and Philosophy of American Education		3 hours
or			
EDF 6608	Social Factors in American Education		3 hours
EDF 6401	Statistics for Educational Data		3 hours
or			
EDF 6432	Measurement and Evaluation in Education		3 hours
EDA 6918	Research Project		3 hours
AREA B—SPECIALIZATION			9 Semester Hours
Courses will be selected with approval of the advisor.			
AREA C—ADMINISTRATION			18 Semester Hours
EDA 6061	Organization and Administration of Schools (required)		3 hours
EDA 6232	Legal Aspects of School Operation		3 hours
EDA 6240	Educational Financial Affairs		3 hours
EDA 6260	Educational Systems and Facilities		3 hours
EDA 6502	Organization and Administration of Instructional Programs (required)		3 hours
EDG 6940	Graduate Internship (required)		3 hours
EDS 6123	Educational Supervisory Functions		3 hours
or			
EDS 6130	Educational Supervisory Techniques		3 hours
Total Minimum Semester Hours Required:			42

MASTER OF ARTS

TEACHER SPECIALIST OPTION

AREA A—CORE		15 Semester Hours
EDF 6481	Fundamentals of Graduate Research in Education	3 hours
EDF 6155	Lifespan Human Development and Learning	3 hours
EDF 6517	History and Philosophy of American Education	3 hours
EDF 6608	Social Factors in American Education	3 hours
EDF 6918	Directed Independent Research	3 hours
AREA B—ANALYSIS AND SKILL DEVELOPMENT		15 Semester Hours
CAP 6613	Utilizing Microcomputers in Education	3 hours
EDF 6257	Analysis of Classroom Teaching	3 hours
EDF 6259	Strategies of Classroom Management	3 hours
EDG 6345	Teaching Skills Development	3 hours
EDF 6940	Graduate Internship	3 hours
ELECTIVES—Select from:		6 Semester Hours
EDE 6205	Elementary School Curriculum	3 hours
or		
ESE 6325	Curriculum Design	3 hours
ESE 6416	Curriculum Evaluation	3 hours
EDS 6130	Educational Supervisory Techniques	3 hours
EGC 5033	Guiding Human Relationships	3 hours
LIS 6313	Multi-Media Message Design	3 hours
Total Minimum Semester Hours Required:		36

COUNSELOR EDUCATION

This program has three program options. The Master of Education degree program is designed to meet the needs of students who have a baccalaureate degree and have completed course work for regular Florida State Teaching Certification and plan to work as a counselor in a school setting (elementary, middle, secondary, junior college). This degree requires a minimum of 33 semester hours.

The second option is a Master of Arts degree program for the student who has a baccalaureate degree in a discipline other than education. This degree is for the student desiring certification in guidance for the public schools, K-12, at the master's level. This degree program requires a minimum of 39 semester hours.

The third option is a Master of Arts degree program in community-agency counseling for the student who is not interested in working in a school setting, but is interested in other counseling employment (e.g., employment service, vocational rehabilitation, juvenile courts, crisis intervention centers, etc.). This program is planned to meet State of Florida license standards. A minimum of 60 semester hours is required.

Other criteria: For consideration for admission to any of the counselor education programs, an applicant must secure and complete a special packet of materials for review by a faculty admissions committee.

MASTER OF EDUCATION IN COUNSELOR EDUCATION

AREA A—CORE		12 Semester Hours
EDF 6155	Lifespan Human Development and Learning	3 hours
EDF 6432	Measurement and Evaluation in Education	3 hours
EDF 6481	Fundamentals of Graduate Research in Education	3 hours
EGC 6918	Research Project	3 hours
AREA B—SPECIALIZATION		21 Semester Hours
EGC 5005	Introduction to Guidance and Human Services	3 hours
EGC 6235	Procedures for Group Testing	3 hours
EGC 6317	Vocational & Career Development Procedures	3 hours
EGC 6435	Theories of Individual Counseling	3 hours
EGC 6436	Techniques of Counseling	3 hours
EGC 6446	Counseling Practicum	3 hours
EGC 6505	Group Procedures in Counseling	3 hours

COREQUISITES: Prescribed by College of Education to meet State Certification requirements or as support for degree program. An undergraduate course or in-service credit may be used to satisfy the requirement.

RED 6335	Reading in the Content Areas	3 hours
Total Minimum Semester Hours Required:		33

MASTER OF ARTS IN COUNSELOR EDUCATION

AREA A—CORE		15 Semester Hours
EDF 6155	Lifespan Human Development and Learning	3 hours
EDF 6432	Measurement and Evaluation in Education	3 hours
EDF 6481	Fundamentals of Graduate Research in Education	3 hours
EDF 6517	History and Philosophy of American Education	3 hours
EGC 6918	Research Project	3 hours
AREA B—SPECIALIZATION		21 Semester Hours
EGC 5005	Introduction to Guidance and Human Services	3 hours
EGC 6235	Procedures for Group Testing	3 hours
EGC 6317	Vocational and Career Development Procedures	3 hours
EGC 6435	Theories of Individual Counseling	3 hours
EGC 6436	Techniques of Counseling	3 hours
EGC 6446	Counseling Practicum	3 hours
EGC 6505	Group Procedures in Counseling	3 hours
AREA C—ADDITIONAL CERTIFICATION		3 Semester Hours
EDA 6061	Organization and Administration of Schools	3 hours
EDA 6502	Organization and Administration of Instructional Programs	3 hours
EDE 6205	Elementary School Curriculum	3 hours
EDG 6337	Techniques of Games Use in Education	3 hours
EDS 6123	Educational Supervisory Functions	3 hours
EDS 6130	Educational Supervisory Techniques	3 hours
ESE 6218	Curriculum Writing	3 hours
LIS 4428	Utilization of Education Media	3 hours

COREQUISITES: Prescribed by College of Education to meet State Certification requirements or as support for degree program. An undergraduate course or in-service credit may be used to satisfy the requirement.

RED 6335	Reading in the Content Areas	3 hours
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A 3-hour teaching methods course in undergraduate specialization or a practicum in student teaching or full-time experience in a K-12 setting is needed for certification.

Total Minimum Semester Hours Required: 39

MASTER OF ARTS IN COMMUNITY-AGENCY COUNSELING

AREA A—CORE*		15 Semester Hours
EDF 6155	Lifespan Human Development and Learning	3 hours
EDF 6481	Fundamentals of Graduate Research in Education	3 hours
EDF 6401	Statistics for Educational Data	3 hours
EGC 6918	Research Project	2,1 hours
LIS 5262	Computer Application Instructional Technology	3 hours

AREA B—SPECIALIZATION*			27 Semester Hours
CLP 5166	Advanced Abnormal Psychology		3 hours
EGC 6317	Vocational & Career Development Procedures		3 hours
EGC 6426	Introduction to Community Counseling		3 hours
EGC 6435	Theories of Individual Counseling		3 hours
EGC 6436	Techniques of Counseling		3 hours
EGC 6505	Group Procedures in Counseling		3 hours
EGC 6515	Group Counseling Theories		3 hours
EGC 6706	Consultation and Staffing		3 hours
Choose one:			
EGC 6215	Individual Psycho-Educational Testing I, Binet, WISC-R, WAIS		3 hours
EGC 6225	Individual Psycho-Educational Testing II		3 hours
EGC 6235	Procedures for Group Testing		3 hours
AREA C—COGNATE ELECTIVES			6 Semester Hours
CLP 5004	Psychology of Adult Adjustment		3 hours
EGC 6409	Current Trends		3 hours
EGC 6414	Family Counseling I		3 hours
EGC 6415	Family Counseling II		3 hours
EGC 6461	Counseling Substance Use and Abuse		3 hours
EGC 6463	Counseling Minorities		3 hours
EGC 6467	Counseling Older Persons/Their Families		3 hours
AREA D—PROFESSIONAL FIELD EXPERIENCES			12 Semester Hours
EGC 6446	Counseling Practicum		3,3 hours
EGC 6946	Counseling Internship		3,3 hours

PROGRAM FOR STATE OF FLORIDA LICENSURE

*After finishing Areas A and B, the graduate student will take comprehensive written exams, followed by oral defense of the comprehensive written exams. If both the written and oral exams are passed, the student would then apply for candidacy for the degree.

Total Minimum Semester Hours Required: 60

THE EDUCATIONAL MEDIA PROGRAM

This program leads to a Master of Education degree for school media specialists. It is designed to offer advanced skills in administration, production, instructional design, research, and evaluation of media programs, as well as knowledge and applications of innovations and new technologies for education. Additional course work is required for those not certified in media.

MASTER OF EDUCATION IN EDUCATIONAL MEDIA

AREA A—CORE			12 Semester Hours
EDF 6481	Fundamentals of Graduate Research Education		3 hours
EME 6918	Research Project		3 hours
Choose one:			
EDF 6155	Lifespan Human Development and Learning		3 hours
EDF 6517	History and Philosophy of American Education		3 hours
EDF 6608	Social Factors in American Education		3 hours
Choose one:			
EDF 6401	Statistics for Educational Data		3 hours
EDF 6432	Measurement and Evaluation in Education		3 hours

AREA B—SPECIALIZATION			15 Semester Hours
EME	6613	Instructional System Design	3 hours
EME	6946	Graduate Internship	3 hours
LIS	5262	Computer Applications in Instructional Technology	3 hours
LIS	5312	Advanced Production Techniques	3 hours
LIS	5454	Administrative Principles in Media Centers	3 hours
LIS	6313	Multi-Media Message Design	3 hours
LIS	6509	Seminar Educational Media	3 hours

AREA C—ELECTIVES			6 Semester Hours
EDG	6337	Games Use in Education	3 hours
EEX	5051	Exceptional Children in School	3 hours
EGC	5005	Introduction to Guidance and Human Services	3 hours
EME	5208	Media and Methods	3 hours
LAE	6714	Investigation in Children's Literature	3 hours
LAE	5464	Literature for Adolescents	3 hours

COREQUISITES: Prescribed by College of Education to meet State Certification requirements or as support for degree program. An undergraduate course or in-service credit may be used to satisfy the requirement.

RED	6335	Reading in the Content Areas	3 hours
Total Minimum Semester Hours Required:			33

OTHER COURSES

The following courses are required if previous certification was *NOT* in media:

LIS	4310	Production of Materials for Media Center	3 hours
LIS	4428	Utilization of Educational Media	3 hours
LIS	4453	School Media Sciences	3 hours
LIS	4510	Development of Media Collections	3 hours
LIS	4540	Interaction Techniques in Media Sciences	3 hours
LIS	4601	Reference Sources and Services	3 hours
LIS	4731	Organization of Media and Information	3 hours

MASTER OF ARTS IN EDUCATIONAL MEDIA

INSTRUCTIONAL TECHNOLOGY

This program leads to a Master of Arts degree and is designed for those who wish to work in business, industry, government, medicine, or other settings where training takes place. Instructional technologists analyze training problems and requirements, design, develop, evaluate, and manage instructional programs.

AREA A—CORE			6 Semester Hours
EDF	6481	Fundamentals of Graduate Research in Education	3 hours
EME	6918	Research Project	3 hours

AREA B—SPECIALIZATION			30 Semester Hours
EME	5054	Instructional Technology — A Survey of Applications (required)	3 hours
EME	6613	Instructional Systems Design (required)	3 hours
EME	6946	Graduate Internship (required)	3 hours
LIS	6313	Multi-Media Message Design (required)	3 hours
Electives—Any not listed below MUST be approved:			
EDF	6401	Statistics for Educational Data	3 hours
EDF	6432	Measure and Evaluation	3 hours
EME	6053	Current Trends in Instructional Technology	3 hours
EME	6403	Computer Assisted Instruction	3 hours
LIS	5262	Computer Applications in Instructional Technology	3 hours
LIS	5312	Advanced Production	3 hours
Total Minimum Semester Hours Required:			36

ELEMENTARY EDUCATION

MASTER OF EDUCATION IN ELEMENTARY EDUCATION

Contact Person: Dr. John Armstrong (305) 275-2934

ART EDUCATION (VISUAL ARTS), K-12 (M.Ed.)

Contact Person: Dr. Ruth Weidenheimer (305) 275-2008/275-2932

This program is designed to meet the expanded needs of the art teacher in the studio content areas, to examine contemporary problems in art education, review recent curriculum developments, study innovative developments, explore interdisciplinary concepts and become involved in research problems specific to the art teacher. This degree requires 33 semester hours and previous certification in art.

AREA A—CORE		12 Semester Hours
ARE 6918	Research Project	3 hours
EDF 6481	Fundamentals of Graduate Research in Education	3 hours
Choose one:		
EDF 6155	Lifespan Human Development and Learning	3 hours
EDF 6517	History and Philosophy of American Education	3 hours
EDF 6608	Social Factors in American Education	3 hours
Choose one:		
EDF 6401	Statistics for Educational Data	3 hours
EDF 6432	Measurement and Evaluation in Education	3 hours
AREA B—SPECIALIZATION		21 Semester Hours
ARE 5251	Art for Exceptionalities	3 hours
ARE 5255	Arts in Recreation	3 hours
ARE 5444	Jewelry Making	3 hours
ARE 5648	Contemporary Visual Arts Education	3 hours
ARE 6455	K-12 Art Instructional Materials I	3 hours
ARE 6456	K-12 Art Instructional Materials II	3 hours
ART 5109C	Crafts Design	3 hours

COREQUISITES: Prescribed by College of Education to meet State Certification requirements or as support for degree program. An undergraduate course or in-service credit may be used to satisfy the requirement.

RED 6335	Reading in the Content Areas	3 hours
Total Minimum Semester Hours Required:		33

EARLY CHILDHOOD SPECIALIZATION (M.Ed.)

The purpose of this program is to prepare students to become master teachers of, or consultants for, programs in nursery school through grade three. The program includes a "professional core" of research, human development, and measurement and evaluation courses; field experiences and courses focusing on programs, creative activities, organization of instruction, individualizing, perception and an overview of the exceptional student. This specialization fulfills Florida Early Childhood (nursery-kindergarten) certification requirements.

AREA A—CORE		12 Semester Hours
EDE 6918	Research Project	3 hours
EDF 6481	Fundamentals of Graduate Research in Education	3 hours
EDF 6155	Lifespan Human Development and Learning	3 hours
EDF 6401	Statistics for Educational Data	3 hours
or		
EDF 6432	Measurement and Evaluation in Education	3 hours

AREA B—SPECIALIZATION			19 Semester Hours
EDE	5541	Individualizing Instruction in the Elementary School	3 hours
EEC	5205	Programs in Early Childhood Education	3 hours
EEC	5206	Organization of Instruction in Early Childhood Education	3 hours
EEC	5208	Creative Activities in Early Childhood	4 hours
EEX	5051	Exceptional Children in the Schools	3 hours
PET	6238C	Perceptual Motor Development	3 hours
AREA C—Alternate course at the 6000 level may be selected. in consultation with an advisor.			3 Semester Hours
MAE	6517	Diagnosis/Remediation of Difficulties in Mathematics for the Classroom Teacher	3 hours
Total Minimum Semester Hours Required:			34

ELEMENTARY EDUCATION SPECIALIZATION (M.Ed.)

This program is designed to meet the needs of the classroom teacher whose career goal is to remain in the classroom. It provides experiences in the foundations of education, an update of the student's skills and understanding related to current research finding and instructional trends in basic subject matter areas, diagnosis and remediation in reading and mathematics, and an elective area permitting a selection of courses in a specific area, for example, reading or kindergarten education.

AREA A—CORE			12 Semester Hours
EDE	6918	Research Project	3 hours
EDF	6481	Fundamentals of Graduate Research in Education	3 hours
Choose one:			
EDF	6155	Lifespan Human Development and Learning	3 hours
EDF	6517	History and Philosophy of American Education	3 hours
EDF	6608	Social Factors in American Education	3 hours
Choose one:			
EDF	6401	Statistics for Educational Data	3 hours
EDF	6432	Measurement and Evaluation in Education	3 hours
AREA B—CURRICULUM			15 Semester Hours
LAE	6616	Trends in Language Arts Education	3 hours
MAE	6517	Diagnosis/Remediation of Difficulties in Mathematics for the Classroom Teacher	3 hours
RED	5514	Classroom Diagnosis and Treatment of Reading Difficulties	3 hours
SCE	6616	Trends in Elementary School Science Education	3 hours
SSE	6617	Trends in Elementary School Social Studies Education	3 hours
AREA C—ELECTIVES			6 Semester Hours
EDE	5541	Individualizing Instruction in the Elementary School	3 hours
EDE	6205	Elementary School Curriculum	3 hours
EEX	5051	Exceptional Children in the Schools	3 hours
LAE	6714	Investigation in Children's Literature	3 hours
MAE	5637	Laboratory Programs in Mathematics	3 hours
MUE	5611	Trends in Elementary School Music Education	3 hours
RED	6116	Trends in Reading Education	3 hours
SSE	5440	Law Education Studies Material	3 hours
Total Minimum Semester Hours Required:			33

MATHEMATICS SPECIALIZATION (M.Ed.)

Contact Person: Dr. Michael Hynes, (305) 275-2007/275-2932

This is a program for elementary teachers who serve as special mathematics laboratory teachers; or as adjunct mathematics-learning disability teachers helping the regular classroom teacher in diagnosing, prescribing and remediating the instruction of children identified as learning disabled in mathematics; or as mathematics specialists who are the curriculum resource instructional leaders in their school.

This program includes the development of competencies in diagnosing learning difficulties and error patterns in mathematics, organizing and managing laboratory experiences, using a wide variety of specific teaching techniques for all content strands in a K-8 (pre-algebra) mathematics classroom individualized instruction programs. The program may qualify one for certification in Elementary School and Junior High School Mathematics if he has sufficient mathematics (12 semester hours) content courses and certain experience-methods requirements.

AREA A—CORE		12 Semester Hours
EDF 6481	Fundamentals of Graduate Research in Education	3 hours
MAE 6918	Research Project	3 hours
Choose one:		
EDF 6155	Lifespan Human Development and Learning	3 hours
EDF 6517	History and Philosophy of American Education	3 hours
EDF 6608	Social Factors in American Education	3 hours
Choose one:		
EDF 6401	Statistics for Educational Data	3 hours
EDF 6432	Measurement and Evaluation in Education	3 hours
AREA B—SPECIALIZATION		12-15 Semester Hours
MAE 5637	Laboratory Programs in Mathematics	3 hours
MAE 6517	Diagnosis/Remediation of Difficulties in Mathematics for the Classroom Teacher	3 hours
MAE 6549	Practicum in Mathematics Instruction, K-12	1-3 hours
MAE 6899	Seminar in Teaching Mathematics	3 hours
AREA C—ELECTIVES		6-9 Semester Hours
MAE 5318	Current Methods in Elementary School Mathematics	3 hours
MAE 6145	Mathematics Curriculum, K-12	3 hours
MAE 6448	Designing Instructional Packages for Computer Applications	3 hours
MAE 6641	Problem Solving and Critical Thinking Skills in Mathematics, K-12	3 hours

COREQUISITES: Prescribed by College of Education to meet State Certification requirements or as support for degree program. An undergraduate course or in-service credit may be used to satisfy the requirement.

RED 6335	Reading in the Content Areas	3 hours
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This program is not approved for automatic certification by the State of Florida. To be certified as an elementary mathematics specialist, a person must have a minimum of 12 semester hours in mathematics INCLUDING college algebra or higher mathematics.

Total Minimum Semester Hours Required: 33

MUSIC EDUCATION SPECIALIZATION (M.Ed.)

Contact Person: Dr. Mary J. Palmer (305) 275-2108/275-2934

This program, in cooperation with the Department of Music, is for students who are certified to teach music (K-12). The Master of Education program, organized to increase knowledge and improve teaching skills, includes advanced work in research and educational foundations; a practicum in music education; and courses in foundations of music education, general music, teaching performing organizations and curriculum. Advanced courses in music history, music theory, conducting and performance are included.



AREA A—CORE		12 Semester Hours
EDF 6481	Fundamentals of Graduate Research in Education	3 hours
MUE 6918	Research Project	3 hours
Choose one:		
EDF 6155	Lifespan Human Development and Learning	3 hours
EDF 6517	History and Philosophy of American Education	3 hours
EDF 6608	Social Factors in American Education	3 hours
Choose one:		
EDF 6401	Statistics for Educational Data	3 hours
EDF 6432	Measurement for Evaluation in Education	3 hours
AREA B—CURRICULUM		9 Semester Hours
MUE 6155	Teaching Performing Organizations	3 hours
MUE 6349	Advanced General Music	3 hours
MUE 6946	Practicum in Music Education	3 hours
AREA C—SPECIALIZATION		12 Semester Hours
MUG 4102	Advanced Conducting	2 hours
MUH 4340	Seminar: Music to Bach	2 hours
MUH 4361	Seminar: Music Since Bach	2 hours
MUT 5325	Arranging and Composing Music	2 hours
*MV 5251	Secondary Graduate Performance	1 hour
*MV 5251	Secondary Graduate Performance	1 hour
*MV 5351	Principal Graduate Performance	2 hours
*Full prefix will be determined by the instrument on which student performs, i.e., MVK signifies piano/organ.		

COREQUISITES: Prescribed by College of Education to meet State Certification requirements or as support for degree program. An undergraduate course or in-service credit may be used to satisfy the requirement.

RED 6335	Reading in the Content Area	3 hours
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OTHER REQUIREMENT

A placement examination in music history, music theory, and sight singing (or completion of equivalent courses below) is required.

MUH 4218	Review of Music History	1 hour
MUT 4031	Review of Music Theory	1 hour
MUT 4275	Review of Sight-Singing and Ear Training	2 hours

Total Minimum Semester Hours Required:	33
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READING SPECIALIZATION K-12 (M.Ed.)

Contact Person: Dr. Richard A. Thompson (305) 275-2018/275-2934

This program prepares teachers for certification as reading specialists (e.g., reading resource teacher, reading laboratory teacher, reading/language arts supervisor, primary education specialist) in grades K-12 in public schools and private reading laboratories or clinics. Diagnosis of reading disabilities, techniques of corrective reading, psychological measurement, reading in the content fields, management of reading programs, reading trends and research and dimensions of the language arts other than reading are included with considerable emphasis on practicums with disabled readers from the early childhood to adult levels. People certified in areas of education other than elementary are eligible to pursue a degree in the program.

AREA A—CORE	12 Semester Hours
EDF 6481	Fundamentals of Graduate Research in Education 3 hours
RED 6918	Research Project 3 hours

Choose one:

EDF 6155	Lifespan Human Development and Learning	3 hours
EDF 6517	History and Philosophy of American Education	3 hours
EDF 6608	Social Factors in American Education	3 hours

Choose one:

EDF 6401	Statistics for Educational Data	3 hours
EDF 6432	Measurement & Evaluation in Education	3 hours

AREA B—SPECIALIZATION	21 Semester Hours	
RED 5333	Reading in the Secondary School	3 hours
RED 6116	Trends in Reading Education	3 hours
RED 6335	Reading in the Content Areas	3 hours
RED 6515	Remedial Reading Practicum	3 hours
RED 6746	Management of Reading Programs	3 hours
RED 6845	Clinical Diagnosis and Remediation of Reading Difficulties*	3 hours
RED 6846	Clinical Reading Practicum	3 hours

PREREQUISITES: Prescribed by College of Education to meet State Certification requirements or as support for degree program.

RED 5147 (or 3012)	Developmental Reading	3 hours
RED 5514 (or 4519)	Diagnosis & Treatment Reading Difficulties	3 hours

Total Minimum Semester Hours Required:	33
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MASTER OF ARTS IN ELEMENTARY EDUCATION

Contact Person: Dr. Betty Anderson, 275-2016, 275-2934

The Elementary Education Specialization (Master of Arts) program is designed for students to become qualified (and certified) to teach in the elementary school classroom, grades one through six. Programs may be developed for people certified in other teaching fields who

wish to qualify in Elementary Education and in a more comprehensive program, and for those building on any non-education baccalaureate degree.

The Master of Arts degree for the baccalaureate *non-education* major also includes the broad areas of human development, history/philosophy of education, measurement and evaluation, curriculum, teaching strategies and practical experience in elementary school classrooms (internship).

ART (VISUAL ARTS) EDUCATION (M.A.)

The Master of Arts program in visual arts is planned to provide the art-orientated person with a degree which includes certification. The 40 hour program meets state certification requirements in foundations, special methods in art education, general methods in teaching and the student teaching component. An M.A. program in Art Education can be arranged for the student who is not interested in becoming certified to teach art, but wants preparation for museum work, art therapy, or becoming involved in life-long learning in art for adult education. Prerequisites depend on previous experience of the student.

AREA A—PROFESSIONAL CORE		18 Semester Hours
ARE 6918	Research Project	3 hours
EDF 6155	Lifespan Human Development and Learning	3 hours
EDF 6432	Measurement and Evaluation in Education	3 hours
EDF 6481	Fundamentals of Graduate Research in Education	3 hours
EDF 6517	History and Philosophy of American Education	3 hours
ESE 6325	Curriculum Design	3 hours
	or	
EDE 6205	Elementary Curriculum	3 hours
AREA B—SPECIALIZATION		12 Semester Hours
ARE 5251	Art for Exceptionalities	3 hours
ARE 5255	Arts in Recreation	3 hours
ARE 5444	Jewelry Making in Schools	3 hours
ARE 5648	Contemporary Visual Arts Education	3 hours
ARE 6455	K-12 Art Instructional Materials I (required)	3 hours
ARE 6456	K-12 Art Instructional Materials II (required)	3 hours
ART 5109C	Crafts Design	3 hours
AREA C—INTERNSHIP		10 Semester Hours
EDG 6940	Graduate Internship (or equivalent)	3 hours
EDG 6940	Graduate Internship	7 hours

COREQUISITES: Prescribed by College of Education to meet State Certification requirements or as support for degree program. An undergraduate course or in-service credit may be used to satisfy the requirement.

RED 6335	Reading in the Content Areas	3 hours
Total Minimum Semester Hours Required:		40

ELEMENTARY EDUCATION SPECIALIZATION PROGRAM FOR CERTIFIED TEACHERS (M.A.)

A program for students previously certified as a Secondary Teacher or as a K-12 Teacher is shown below:

AREA A—PROFESSIONAL CORE		15 Semester Hours
EDE 6917	Research Project	3 hours
EDF 6481	Fundamentals of Graduate Research in Education	3 hours
MAE 6518	Diagnosis/Remediation of Difficulties in Mathematics for the Classroom Teacher	3 hours
RED 5147	Developmental Reading	3 hours
RED 5514	Classroom Diagnosis and Treatment of Reading Difficulties	3 hours

AREA B—SPECIALIZATION		21 Semester Hours
ARE 4313	Art in the Elementary School	3 hours
HLP 4460	Teaching Elementary School Health and Physical Education	3 hours
LAE 6616	Trends in Language Arts Education	3 hours
LAE 6714	Investigation in Children's Literature	3 hours
MAE 5318	Current Methods in Elementary School Mathematics	3 hours
SCE 6616	Trends in Elementary School Science Education	3 hours
SSE 6617	Trends in Elementary School Social Studies Education	3 hours

COREQUISITES: Prescribed by College of Education to meet State Certification requirements or as support for degree program. An undergraduate course or in-service credit may be used to satisfy the requirement.

RED 6335	Reading in the Content Area	3 hours
Choose one of the following if preparation is at the Secondary level:		
EDE 5541	Individualizing Instruction in the Elementary School	3 hours
EDE 6205	Elementary School Curriculum	3 hours
Total Minimum Semester Hours Required:		36

ELEMENTARY EDUCATION SPECIALIZATION PROGRAM FOR NON-EDUCATION MAJORS (M.A.)

A minimum requirement for this degree would be 36 hours. However, depending upon the student's background, the program could be extended to 46 hours. This program provides for professional and specialization preparation in Elementary Education as shown below:

AREA A—PROFESSIONAL CORE

EDE 6205	Elementary School Curriculum	3 hours
EDE 6918	Research Project	3 hours
EDF 6155	Lifespan Human Development and Learning	3 hours
EDF 6481	Fundamentals of Graduate Research in Education	3 hours
EDF 6432	Measurement and Evaluation in Education	3 hours
EDF 6517	History and Philosophy of American Education	3 hours

AREA B—SPECIALIZATION

LAE 4314	Language Arts in the Elementary School	3 hours
MAE 5318	Current Methods in Elementary School Mathematics	3 hours
SCE 6616	Trends in Elementary School Science Education	3 hours
SSE 6617	Trends in Elementary School Social Studies Education	3 hours
RED 5147	Developmental Reading	3 hours
RED 5514	Classroom Diagnosis and Treatment of Reading Difficulties	3 hours

AREA C—INTERNSHIP

EDG 6940	Graduate Internship (or equivalent)	3 hours
EDG 6940	Graduate Internship	7 hours

COREQUISITES

ARE 4313	Art in the Elementary School	3 hours
EDE 4937	Drug Abuse Education	3 hours
HLP 4460	Teaching Elementary School Health & Physical Education	3 hours
MUE 3401	Music in the Elementary School	3 hours
Total Minimum Semester Hours Required:		36

EXCEPTIONAL CHILD SPECIALIZATION AREAS— MASTER OF EDUCATION

The Master of Education K-12 degree program in exceptional student education focuses on three types of exceptionality:

- EH Emotionally Handicapped — Inability to achieve adequate academic progress or satisfactory interpersonal relationships not attributed primarily to physical, sensory, or intellectual deficits.
- EMH Educable Mentally Handicapped — Significant impairment in general intellectual functioning concurrent with deficits in adaptive behavior which are manifested during the development period.
- SLD Specific Learning Disability — Disorder in one or more of the basic psychological processes involved in understanding or in using spoken and written language; learning problems not due primarily to other handicapping conditions.

Students who are not certified in Special Education must take the following prerequisite courses **before entering** the master's program. A student who is interested only in certification will have to take a combination of graduate and undergraduate courses.

EEX	5051	Exceptional Children in the Schools	3 hours
EEX	3102	Language Development & Common Disorders	3 hours
EEX	3221	Assessment Exceptional Learners	3 hours
RED	5147	Developmental Reading	3 hours
		or	
RED	6335	Reading in the Content Areas	3 hours
MAE	5318	Current Methods in Elementary School Math	3 hours
		or	
MAE	6641	Problem Solving & Critical Thinking Skills in Mathematics	3 hours

One of the following specialization courses is required; the choice is dependent upon the student's specialty area and advisor's recommendation.

Emotionally Handicapped Specialty

EED	4011	Introduction to Teaching the Emotionally Disturbed	
		or	
EED	4212	Curriculum and Program Adaptation, E.H.	
		or	

Specific Learning Disability Specialty

ELD	4011	Introduction to Specific Learning Disabilities	
ELD	4242	Program Planning for Specific Learning Disabilities	
		or	

Mentally Handicapped Specialty

EMR	4011	Introduction to Mental Retardation	
		or	
EMR	4371	Curriculum Methods and Materials for Retarded Persons	

This program is for those persons who have an undergraduate degree in Exceptional Education or who have an education background.

AREA A—CORE

			12 Semester Hours
EDF	6481	Fundamentals of Graduate Research in Education	3 hours
EEX	6918	Research Project	3 hours
Choose one:			
EDF	6155	Lifespan Human Development & Learning	3 hours
EDF	6517	History & Philosophy of American Education	3 hours
EDF	6608	Social Factors in American Education	3 hours
Choose one:			
EDF	6401	Statistics for Educational Data	3 hours
EDF	6432	Measurement and Evaluation in Education	3 hours

AREA B—CURRICULUM CORE			18 Semester Hours
EEX 6612	Methods of Behavioral Management		3 hours
EEX 6107	Teaching Spoken & Written Language		3 hours
EEX 6342	Seminar—Critical Issues in Special Education		3 hours
EEX 6266	Curriculum Prescriptions for the Exceptional Population		3 hours

Choose one:

EPH 5335	Physical and Sociological Implications of Handicapping Conditions	3 hours
EEX 6257	Exceptional Adolescents	3 hours

Choose one:

EEX 6883	Clinical Practice**	3 hours
or Restrictive Elective chosen from the following:		
EDE 6205	Elementary School Curriculum	3 hours
ESE 6325	Curriculum Design	3 hours
LAE 6637	English Programs in the Secondary School	3 hours
MAE 6517	Diagnosis/Remediation of Difficulties in Mathematics for the Classroom Teacher	3 hours
MAE 6641	Problem Solving and Critical Thinking Skills	3 hours
ARE 5251	Art for Exceptionalities	3 hours
RED 5514	Diagnosis & Treatment of Reading Difficulties	3 hours
EGC 5033	Guiding Human Relationships	3 hours

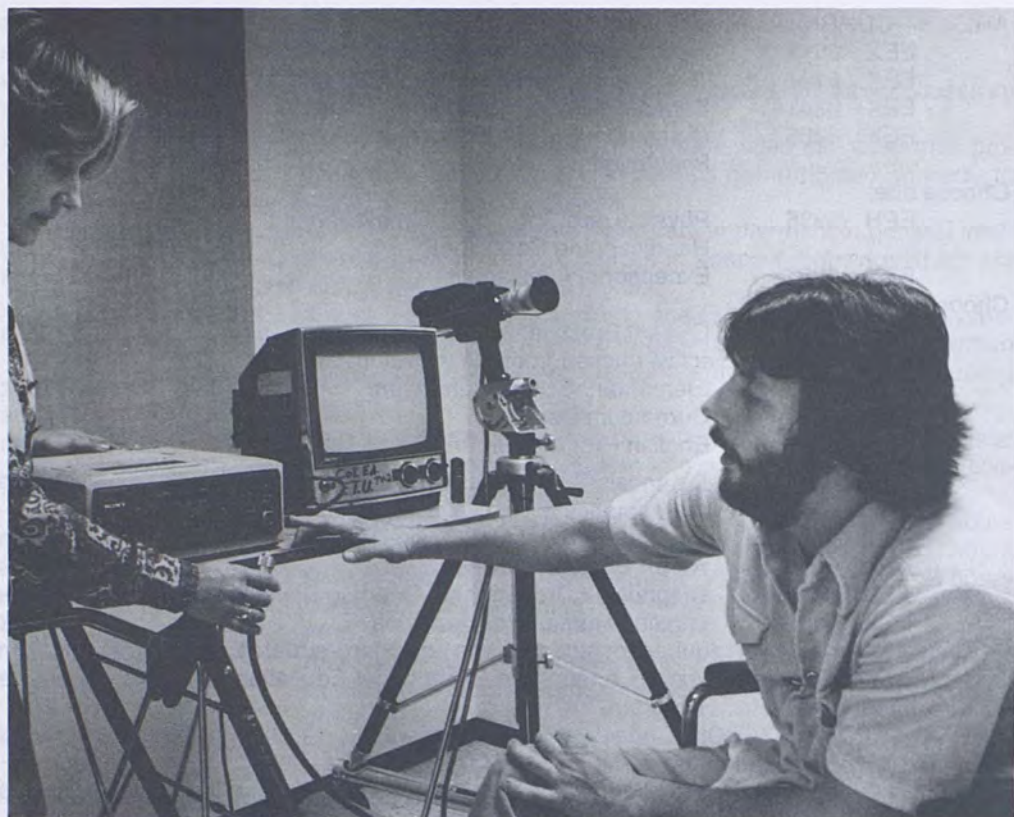
**Clinical Practice is not required for students with an undergraduate Exceptional Education degree or for teachers who have taught in Exceptional Education for two years before enrolling in the Master's Program.

AREA C—SPECIALIZATION. Choose one of the following 3 Semester Hours

Choice will be dependent upon the student's specialty area.

ELD 6323	Theory & Application for Specific Learning Disabilities	3 hours
EMR 6205	Theory & Application for Educable Mentally Handicapped	3 hours
EED 6226	Theory & Application for Emotionally Handicapped	3 hours

Total Minimum Semester Hours Required 33



PHYSICAL EDUCATION

Programs in Physical Education offer a Master of Education (M.Ed.) and Master of Arts (M.A.) in Education degrees with specialization in various aspects of physical education. The M.Ed. degree program is designed for people with a background in education who are already certified by the state to teach physical education. This program is sufficiently flexible to meet a range of student needs in improving proficiency and awareness in (1) teaching skills, (2) curricular innovations, (3) research findings and techniques, (4) interpersonal skills and (5) administrative techniques.

The M.A. degree program is structured for students who may or may not have a background in education or physical education to provide a more in-depth study of a specific area of physical education. Students fulfilling the requirements of these programs will be prepared to enter positions in education, private business, industry and government.

MASTER OF EDUCATION IN PHYSICAL EDUCATION

AREA A—CORE		12 Semester Hours
EDF 6481	Fundamentals of Graduate Research in Education	3 hours
PET 6918	Research Project	3 hours
Choose one:		
EDF 6155	Lifespan Human Development and Learning	3 hours
EDF 6517	History and Philosophy of American Education	3 hours
EDF 6608	Social Factors in American Education	3 hours
Choose one:		
EDF 6401	Statistics for Educational Data	3 hours
EDF 6432	Measurement and Evaluation in Education	3 hours

AREA B—SPECIALIZATION			15 Semester Hours
PET	6146	Current Trends and Philosophical Foundations of Physical Education	3 hours
PET	6238C	Perceptual Motor Development	3 hours
PET	6386C	Environmental Exercise Physiology	3 hours
PET	6515C	Measurement in Kinesiology and Physical Education	3 hours
PET	6910	Problem Analysis—Review of Literature	3 hours
AREA C—ELECTIVES			6 Semester Hours
LEI	6443	Recreation	3 hours
PET	6040C	Analysis of Human Performance	3 hours
PET	6405	Administration of Physical Education and Athletic Programs	3 hours
PET	6425	Curriculum Design in Physical Education	3 hours
PET	6908	Independent Study	
PET	6938	Special Topics	
COREQUISITES: Prescribed by College of Education to meet State Certification requirements or as support for degree program. An undergraduate course or in-service credit may be used to satisfy the requirement.			
RED	6335	Reading in the Content Areas	3 hours
Total Minimum Semester Hours Required:			33

MASTER OF ARTS IN PHYSICAL EDUCATION OPTIONS

EXERCISE PHYSIOLOGY OPTION

AREA A—CORE			21-27 Semester Hours
EDF	6481	Fundamentals of Graduate Research in Education	3 hours
PET	4360C*	Exercise Physiology — Cardiovascular**	2 hours
PET	4361C*	Exercise Physiology — Respiratory**	2 hours
PET	6386C	Environmental Exercise Physiology	2 hours
PET	6910	Problem Analysis — Review of Literature	3 hours
PET	6908	Independent Study (in exercise physiology)	2-4 hours
PET	6918	Research Project (in exercise physiology)	3 hours
PET	6938	Special Topics (in exercise physiology)	3 hours
PET	6938	Seminar (in exercise physiology)	2-4 hours
PET	6946	Internship (in exercise physiology)	3-5 hours
AREA B—STATISTICS			3-8 Semester Hours
EDF	6401	Statistics for Educational Data (required)	3 hours
AREA C—PHYSICAL EDUCATION			3 Semester Hours
PET	4310C	Anatomical and Mechanical Kinesiology	3 hours
PET	6040C	Analysis of Human Performance	3 hours
PET	6146	Current Trends and Philosophical Foundations of Physical Education	3 hours
AREA D—ELECTIVES—(with advisor approval)			3-8 Semester Hours
COREQUISITE—Does not count toward the 36 required hours.			
PEM	3101	Body Development**	2 hours
PREREQUISITES			
Credit in biochemistry.			
National certification in CPR.			

*No more than 6 hours of 4000-level courses may be included in total program.

**The requirement for this course may be waived by the student's advisor if a prior similar course has been taken at an accredited institution of higher learning with a course grade of B or better.

Total Minimum Semester Hours Required: 36



EXERCISE SCIENCE OPTION

AREA A—CORE			22-29 Semester Hours
EDF 6481	Fundamentals of Graduate Research in Education		3 hours
PET 4310	Anatomical and Mechanical Kinesiology**		3 hours
PET 4360C*	Exercise Physiology—Cardiovascular**		2 hours
PET 4361C*	Exercise Physiology—Respiratory**		2 hours
PET 6040C	Analysis of Human Performance		3 hours
PET 6386C	Environmental Exercise Physiology		3 hours
PET 6910	Problem Analysis—Review of Literature		3 hours
PET 6908	Independent Study		2-4 hours
PET 6938	Seminar in Exercise Science		2-4 hours
PET 6946	Internship		3-5 hours
PET 6918	Research Project		2,1 hours
AREA B—STATISTICS			3 Semester Hours
EDF 6401	Statistics for Educational Data		3 hours
AREA C—SPECIALIZATION			3 Semester Hours
PET 4035C*	Motor Development/Learning		3 hours
PET 6146	Current Trends and Philosophical Foundations of Physical Education		3 hours
PET 6238C	Perceptual Motor Development		3 hours
AREA D—ELECTIVES (with advisor approval).			3-8 semester hours
COREQUISITE—Does not count toward the 36 required hours.			
PEM 3101	Body Development**		2 hours
PREREQUISITES			
Credit in Biochemistry			
National certification in CPR			

*No more than 6 hours of 4000-level courses may be included in total program.

**The requirement for this course may be waived by the student's advisor if a prior similar course has been taken at an accredited institution of higher learning with a course grade of B or better.

Total Minimum Semester Hours Required:

36

PERCEPTUAL MOTOR DEVELOPMENT OPTION

AREA A—PROFESSIONAL			15 Semester Hours
EDF	6155	Lifespan Human Development and Learning	3 hours
EDF	6401	Statistics for Educational Data	3 hours
EDF	6481	Fundamentals of Graduate Research in Education	3 hours
PET	6146	Current Trends and Philosophical Foundations of Physical Education	3 hours
PET	6386C	Environmental Exercise Physiology	3 hours
AREA B—SPECIALIZATION			12 Semester Hours
EDG	6946	Graduate Internship	3 hours
PET	6238C	Perceptual Motor Development	3 hours
PET	6910	Problem Analysis—Review of Literature	3 hours
PET	6918	Research Project	3 hours
AREA C—ELECTIVES			9 Semester Hours
EEX	5051	Exceptional Children in the Schools	3 hours
EEX	5215	Psycho-educational Appraisal of Exceptional Children	3 hours
ELD	6112	Foundations and Diagnosis of Learning Disabilities	4 hours
PET	6405	Administration of Physical Education and Athletic Programs	3 hours
PET	6425	Curriculum Design in Physical Education	3 hours
PET	6908	Independent Study	
PET	6938	Special Topics	
Total Minimum Semester Hours Required:			36

SPORTS MEDICINE OPTION

AREA A—CORE			27 Semester Hours
EDF	6481	Fundamentals of Graduate Research in Education	3 hours
PET	5635	Therapeutic Exercise/Modalities	3 hours
PET	6386C	Environmental Exercise Physiology	3 hours
PET	6515C	Measurement in Kinesiology and PE	3 hours
PET	6910	Problem Analysis—Review of Literature	3 hours
PET	6616	Physical Evaluation	3 hours
PET	6477	Administration of Athletic Training	3 hours
PET	6918	Research Project	2,1 hours
PET	6946	Clinical Practice	3 hours
AREA B—STATISTICS			3 Semester Hours
EDF	6401	Statistics for Educational Data	3 hours
AREA C—PHYSICAL EDUCATION (Select two courses)			6 Semester Hours
PET	4310	Anatomical and Mechanical Kinesiology	3 hours
PET	6040C	Analysis of Human Performance	3 hours
PET	6146	Current Trends & Philosophical Foundations of PE	3 hours
PET	6405	Administration of PE & Athletic Programs	3 hours
Total Minimum Semester Hours Required:			36



SCHOOL PSYCHOLOGY

The Master of Science degree program in School Psychology is a unique specialization in psychology and education. This program is based on the assumptions that school psychologists can apply relevant knowledge and skills from a variety of disciplines to the learning and adjustment problems of preschool and school age children; and that relevant knowledge and skills can be transmitted through a variety of services including (a) consultation with teachers and parents, (b) direct services to children and young adults, and (c) indirect services to school and community organizations. School psychologists may practice in public or private schools, colleges and universities, rehabilitation centers, hospitals, mental health clinics, government agencies, child guidance centers, penal institutions, and may develop private practices. Applicants with backgrounds in education, psychology or other undergraduate majors may qualify. The program involves formal preparation and practical experiences focusing on psychological foundations (human development, learning and motivation), psycho-educational assessment, exceptional students, remediation or intervention techniques, counseling skills, as well as a full-time supervised internship of two semesters in the public school setting. Graduates are certifiable at the state level.

Other criteria: Applicants for the School Psychology program are required to attend a formal interview. This program can accommodate only a limited number of students; therefore, there is a possibility of being denied admission even when all criteria is met.

MASTER OF SCIENCE IN SCHOOL PSYCHOLOGY

AREA A—CORE

			24 Semester Hours
DEP	5057	Developmental Psychology	3 hours
EDF	6401	Statistics for Educational Data	3 hours
EDF	6481	Fundamentals of Graduate Research in Education	3 hours
EEX	5051	Exceptional Children in the Schools	3 hours
EXP	5445	Psychology of Learning and Motivation	3 hours
RED	5514	Diagnosis and Treatment of Reading Difficulties	3 hours
SPS	6608	Seminar in School Psychology	3 hours
SPS	6918	Research Project	3 hours

AREA B—SPECIALIZATION			36 Semester Hours
EAB	5765	Applied Behavior Analysis with Children & Youth	3 hours
EGC	6215	Individual Psycho-Educational Testing I: Binet, WISC-R, WAIS-R	3 hours
EGC	6225	Individual Psycho-Educational Testing II	3 hours
EGC	6435	Theories of Individual Counseling	3 hours
EGC	6436	Techniques of Counseling	3 hours
EGC	6505	Group Procedures in Counseling	3 hours
SPS	6606	School Consultation Techniques	3 hours
SPS	6936	Problems in School Psychology	3 hours
SPS	6946	School Psychology Internship	12 hours
PRE- OR COREQUISITES			
EDA	6061	Organization and Administration of Schools	3 hours
EDF	6517	History & Philosophy of American Education	3 hours
	or		
EDF	6608	Social Factors in American Education	3 hours
One other course in administration/supervision, curriculum or general methods.			3 hours
Total Minimum Semester Hours Required:			60

SECONDARY EDUCATION

Contact Person: Dr. John H. Armstrong (305) 275-2015/275-2934

MASTER OF EDUCATION IN SECONDARY EDUCATION

The M.Ed. degree programs in Secondary Education are designed to extend and update teaching skills for classroom teachers working with adolescent students in a specific academic area at the middle, junior, or high school level.

The program has three areas of emphasis. A "professional core" includes research fundamentals and project, human development or history/philosophy of education, and measurement/evaluation or statistics for educational data. The "curriculum core" focuses on advanced curriculum concepts, research finding in instructional trends, and advanced teaching strategies. Specialization core courses may be selected from offerings in the appropriate discipline department in consultation with the advisor.

Subject field specializations are available in the following areas:

Business-Vocational Education	Science
English Language Arts	Social Sciences
Mathematics	Vocational Education

BUSINESS-VOCATIONAL EDUCATION

AREA A—CORE			12 Semester Hours
EDF	6481	Fundamentals of Graduate Research in Education	3 hours
ESE	6918	Research Project	3 hours
Choose one:			
EDF	6155	Lifespan Human Development and Learning	3 hours
EDF	6517	History and Philosophy of American Education	3 hours
EDF	6608	Social Factors in American Education	3 hours
Choose one:			
EDF	6401	Statistics for Educational Data	3 hours
EDF	6432	Measurement and Evaluation in Education	3 hours
AREA B—VOCATIONAL CORE			9 Semester Hours
BTE	6172	Business Education Curriculum	3 hours
EVT	6264	Administration in Vocational Education	3 hours
EVT	6265	Supervision in Vocational Education	3 hours

AREA C—SPECIALIZATION		12 Semester Hours
BTE 6371	Advanced Business Instruction Techniques	3 hours
BTE 6773	Office Simulation Techniques	3 hours
BTE 6935	Seminar in Business Education	3 hours
BTE 6946	Practicum Business Education	3 hours

AREA D—OPTIONAL ELECTIVES

EVT 5260	Cooperative Programs in Vocational Education	3 hours
EVT 6664	School/Community Relations for Vocational Education	3 hours

COREQUISITES: Prescribed by College of Education to meet State Certification requirements or as support for degree program. An undergraduate course or in-service credit may be used to satisfy the requirement.

EVT 4066	Principles and Practices of Vocational Education	3 hours
RED 6335	Reading in the Content Areas	3 hours

Total Minimum Semester Hours Required: 33

ENGLISH LANGUAGE ARTS

AREA A—CORE		12 Semester Hours
EDF 6481	Fundamentals of Graduate Research in Education	3 hours
ESE 6918	Research Project	3 hours

Choose one:

EDF 6155	Lifespan Human Development and Learning	3 hours
EDF 6517	History and Philosophy of American Education	3 hours
EDF 6608	Social Factors in American Education	3 hours

Choose one:

EDF 6401	Statistics for Educational Data	3 hours
EDF 6432	Measurement and Evaluation in Education	3 hours

AREA B—CURRICULUM		9 Semester Hours
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Select from the following courses:

LAE 4342	Teaching Language Composition	3 hours
LAE 5464	Literature for Adolescents	3 hours
LAE 6637	English Programs in the Secondary Schools	3 hours
EME 5208	Media and Methods	3 hours
ESE 6218	Curriculum Writing	3 hours

AREA C—SPECIALIZATION		12 Semester Hours
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Courses to be selected in consultation with the advisor.

COREQUISITES: Prescribed by College of Education to meet State Certification requirements or as support for degree program. An undergraduate course or in-service credit may be used to satisfy the requirement.

RED 6335	Reading in the Content Areas	3 hours
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Total Minimum Semester Hours Required: 33

MATHEMATICS EDUCATION

AREA A—CORE		12 Semester Hours
EDF 6481	Fundamentals of Graduate Research in Education	3 hours
ESE 6918	Research Project	3 hours

Choose one:

EDF 6155	Lifespan Human Development and Learning	3 hours
EDF 6517	History and Philosophy of American Education	3 hours
EDF 6608	Social Factors in American Education	3 hours

Choose one:

EDF 6401	Statistics for Educational Data	3 hours
EDF 6432	Measurement and Evaluation in Education	3 hours

AREA B—CURRICULUM CORE		15 Semester Hours
MAE 5637	Laboratory Programs in Mathematics (required)	3 hours
MAE 6517	Diagnosis/Remediation of Difficulties in Mathematics for the Classroom Teacher (required)	3 hours
MAE 6899	Seminar in Teaching Mathematics (required)	3 hours
Select two courses from the following:		
EME 5208	Media and Methods	3 hours
ESE 6218	Curriculum Writing	3 hours
MAE 4648	Designing Instructional Packages for Computer Applications	3 hours
MAE 6145	Mathematics Curriculum	3 hours
MAE 6549	Practicum in Mathematics Instruction, K-12	3 hours
MAE 6641	Problem Solving and Critical Thinking Skills in Mathematics, K-12	3 hours

AREA C—SPECIALIZATION 6 Semester Hours

Courses to be selected in consultation with an advisor.

COREQUISITES: Prescribed by College of Education to meet State Certification requirements or as support for degree program. An undergraduate course or in-service credit may be used to satisfy the requirement.

RED 6335	Reading in the Content Areas	3 hours
Total Minimum Semester Hours Required:		33

SCIENCE EDUCATION

AREA A—CORE		12 Semester Hours
EDF 6481	Fundamentals of Graduate Research in Education	3 hours
ESE 6918	Research Project	3 hours
Choose one:		
EDF 6155	Lifespan Human Development and Learning	3 hours
EDF 6517	History and Philosophy of American Education	3 hours
EDF 6608	Social Factors in American Education	3 hours
Choose one:		
EDF 6401	Statistics for Educational Data	3 hours
EDF 6432	Measurement and Evaluation in Education	3 hours
AREA B—CURRICULUM		12 Semester Hours
SCE 5238	Inquiry in the Sciences	3 hours
SCE 6237	Science Programs in Secondary School	3 hours
Electives — Select in consultation with advisor		6 hours

AREA C—SPECIALIZATION 9 Semester Hours

Courses to be selected in consultation with the advisor.

COREQUISITES: Prescribed by College of Education to meet State Certification requirements or as support for degree program. An undergraduate course or in-service credit may be used to satisfy the requirement.

RED 6335	Reading in the Content Areas	3 hours
Total Minimum Semester Hours Required:		33

SOCIAL SCIENCE EDUCATION

AREA A—CORE		12 Semester Hours
EDF 6481	Fundamentals of Graduate Research in Education	3 hours
ESE 6918	Research Project	3 hours
Choose one:		
EDF 6155	Lifespan Human Development and Learning	3 hours
EDF 6517	History and Philosophy of American Education	3 hours
EDF 6608	Social Factors in American Education	3 hours
Choose one:		
EDF 6401	Statistics for Educational Data	3 hours
EDF 6432	Measurement and Evaluation in Education	3 hours

AREA B—CURRICULUM			12 Semester Hours
ESE 6218	Curriculum Writing		3 hours
ESE 6325	Curriculum Design		3 hours
SSE 5334	Inquiry in the Social Sciences		3 hours
SSE 6636	Contemporary Social Science Education		3 hours

AREA C—SPECIALIZATION 9 Semester Hours

Courses to be selected in consultation with the advisor.

COREQUISITES: Prescribed by College of Education to meet State Certification requirements or as support for degree program. An undergraduate course or in-service credit may be used to satisfy the requirement.

RED 6335	Reading in the Content Areas	3 hours
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Total Minimum Semester Hours Required: 33

MASTER OF ARTS IN SECONDARY EDUCATION

The Master of Arts degree programs in Secondary Education are for students to become qualified (and certified) to teach in the middle school, junior high, or senior high classroom. It is a comprehensive program for building on the non-education academic area bachelor's degree in business education, English language arts, mathematics, science, social science, science education/health sciences, and extended content. Professional courses involve the areas of human development, history/philosophy of education, measurement and evaluation, curriculum writing, teaching strategies, and practical experience in secondary school classrooms (internship).

OPTION SPECIALIZATION: BUSINESS EDUCATION, ENGLISH, MATHEMATICS, SCIENCE, SOCIAL SCIENCE

AREA A—PROFESSIONAL CORE			18 Semester Hours
EDF 6155	Lifespan Human Development and Learning		3 hours
EDF 6432	Measurement and Evaluation in Education		3 hours
EDF 6481	Fundamentals of Graduate Research in Education		3 hours
EDF 6517	History and Philosophy of American Education		3 hours
ESE 6218	Curriculum Writing		3 hours
ESE 6918	Research Project		3 hours

AREA B—SPECIALIZATION 12 Semester Hours

Courses to be selected in consultation with an advisor. These hours must include a 5000- or 6000-level special methods course.

AREA C—INTERNSHIP			10 Semester Hours
EDG 6940	Graduate Internship (or equivalent)		3 hours
EDG 6940	Graduate Internship		7 hours

COREQUISITES: Prescribed by College of Education to meet State Certification requirements or as support for degree program. An undergraduate course or in-service credit may be used to satisfy the requirement.

RED 6335	Reading in the Content Areas	3 hours
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Total Minimum Semester Hours Required: 40

SCIENCE EDUCATION/HEALTH SCIENCES

This specialization emphasis is a cooperative program between the College of Education and the College of Health. It is designed to prepare persons with a baccalaureate degree in a health related profession to become educators in their field. Health sciences constitute 50 percent of the program, with professional courses selected for the other 50 percent. Course selection with an advisor is related to background preparation, experience, and interest of the student.

AREA A—CORE			6 Semester Hours
EDF 6481	Fundamentals of Graduate Research in Education		3 hours
ESE 6918	Research Project		3 hours

AREA B—PROFESSIONAL	12 hours
Courses to be selected from graduate level Education courses in consultation with the advisor.	
AREA C—SPECIALIZATION	18 hours
Minimum requirement of 18 semester hours to be selected from graduate level courses in consultation with the advisor.	
Total Minimum Semester Hours Required:	36

EXTENDED CONTENT PROGRAM

This program is designed for the student whose objective is to combine an in-depth study of his specialization area in order to teach in the community college. The major emphasis is in content specialization courses.

AREA A—CORE	9 Semester Hours
EDF 6481 Fundamentals of Graduate Research in Education	3 hours
EDF 6517 History and Philosophy of American Education	3 hours
Select one: EME 5208; EDF 6401; EDF 6432; RED 6335	3 hours
AREA B—CURRICULUM	15 Semester Hours
EDG 6940 Graduate Internship	6 hours
ESE 6218 Curriculum Writing	3 hours
Advanced methods course in subject field	3 hours
ESE 6918 Research Project	3 hours
AREA C—SPECIALIZATION	18 Semester Hours
Courses to be selected in consultation with the advisor.	
Total Minimum Semester Hours Required:	42

VOCATIONAL EDUCATION

Contact persons: Drs. Robert Paugh, Steven Sorg or Larry Hudson (305) (275-2929)

Two types of degrees are available in Vocational Education. The Master of Education degree is designed to meet the needs of students who have a baccalaureate degree and who have completed course work for regular Florida State Teaching Certification. This degree requires a minimum of 33 semester hours.

The Master of Arts degree is designed for the student who has a baccalaureate degree in a discipline other than education. This degree requires a minimum of 39 semester hours.

MASTER OF EDUCATION IN VOCATIONAL EDUCATION

ADMINISTRATOR OPTION

AREA A—CORE	12 Semester Hours
EDF 6481 Fundamentals of Graduate Research in Education	3 hours
Choose one:	
EDF 6608 Social Factors in American Education	3 hours
EDF 6155 Lifespan Human Development and Learning	3 hours
EDF 6517 History and Philosophy of American Education	3 hours
Choose one:	
EDF 6401 Statistics for Educational Data	3 hours
EDF 6432 Measurement and Evaluation in Education	3 hours
Choose one:	
EDG 6940 Graduate Internship	3 hours
EVT 6918 Research Project	3 hours

AREA B—SPECIALIZATION

21 Semester Hours

Courses to be selected in consultation with the advisor.

EDA 6232	Legal Aspects of School Operation	3 hours
EVT 5685	Competency-Based Vocational Education	3 hours
EVT 6264	Administration in Vocational Education	3 hours
EVT 6265	Supervision in Vocational Education	3 hours
EVT 6664	School/Community Relations for Vocational Education	3 hours

COREQUISITES: Prescribed by College of Education to meet State Certification requirements or as support for degree program.

EVT 4066	Principles and Practices of Vocational Education	3 hours
RED 6335	Reading in the Content Areas	3 hours

An undergraduate or in-service credit may be used to satisfy the requirement.

Total Minimum Semester Hours Required: 33

MASTER TEACHER OPTION**AREA A—CORE**

12 Semester Hours

EDF 6481	Fundamentals of Graduate Research in Education	3 hours
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Choose one:

EDF 6155	Lifespan Human Development and Learning	3 hours
EDF 6517	History and Philosophy of American Education	3 hours
EDF 6608	Social Factors in American Education	3 hours

Choose one:

EDF 6401	Statistics for Educational Data	3 hours
EDF 6432	Measurement and Evaluation in Education	3 hours

Choose one:

EDG 6940	Graduate Internship	3 hours
EVT 6918	Research Project	3 hours

AREA B—SPECIALIZATION

21 Semester Hours

Courses to be selected in consultation with the advisor.

COREQUISITE

EVT 4066	Principles and Practices of Vocational Education	3 hours
RED 6335	Reading in the Content Areas	3 hours

Total Minimum Semester Hours Required: 33

MASTER OF ARTS IN VOCATIONAL EDUCATION**GENERAL VOCATIONAL OPTION****AREA A—CORE**

9-13 Semester Hours

EDF 6481	Fundamentals of Graduate Research in Education	3 hours
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Choose one:

EDF 6155	Lifespan Human Development and Learning	3 hours
EDG 6517	History and Philosophy of American Education	3 hours
EDF 6608	Social Factors in American Education	3 hours

Choose one:

EDG 6940	Graduate Internship	3-7 hours
EVT 6918	Research Project	3 hours

AREA B—SPECIALIZATION			30 Semester Hours
EVT	4066	Principles and Practices of Vocational Education	2-4 hours
EVT	4368	Advanced Teaching Techniques for Vocational Education	2-4 hours
EVT	5561	Student Guidance in the Vocational Program	2-3 hours
EVT	5564	Student Vocational Organizations	2-3 hours
EVT	5685	Competency-Based Vocational Education	2-4 hours
EVT	6664	School/Community Relations for Vocational Education	2-4 hours
Other education courses at the 6000 level must be selected in consultation with an advisor.			8-18 hours
Total Minimum Semester Hours Required:			39-43

HEALTH RELATED OPTION

AREA A—CORE			9 Semester Hours
EDF	6481	Fundamentals of Graduate Research in Education	3 hours
Choose one:			
EDF	6155	Lifespan Human Development and Learning	3 hours
EDF	6517	History and Philosophy of American Education	3 hours
EDF	6608	Social Factors in American Education	3 hours
Choose one:			
EDG	6940	Graduate Internship	3-7 hours
EVT	6918	Research Project	3 hours
AREA B—SPECIALIZATION			19-23 Semester Hours
EVT	4066	Principles and Practices of Vocational Education	3 hours
EVT	4368	Advanced Teaching Techniques for Vocational Education	3 hours
EVT	5315	Applied Clinical Teaching Techniques in Vocational Education	3 hours
EVT	5316	Clinical Coordination for the Health Occupations Teacher	3 hours
EVT	5685	Competency-Based Vocational Education	2-4 hours
EVT	6265	Supervision in Vocational Education	3 hours
EVT	6664	School/Community Relations for Vocational Education	2-4 hours
AREA C—ELECTIVES			7-11 Semester Hours
Courses must be at the 6000 level and selected in consultation with an advisor.			
Total Minimum Semester Hours Required:			39

LIST OF COURSES — COLLEGE OF EDUCATION

ARE 5251 Art for Exceptionalities	3 cr (2,1)
Concepts, principles, and methods of integrating art processes into the education of the physically, emotionally, and mentally handicapped.	
ARE 5255 Art in Recreation	3 cr (2,1)
Art activities and experiences appropriate for use in playground, leisure services, occupational orientation and other recreational areas.	
ARE 5358 Found Arts	3 cr (3,0)
PR: ARE 4440 and ARE 4443 or C.I. Materials available for instruction in the public schools will be explored in depth in relation to their appropriateness and productive qualities.	
ARE 5444 Jewelry Making in Schools	3 cr (3,0)
PR: C.I. Jewelry making appropriate for school age children using standard public school equipment.	

- ARE 5648 Contemporary Visual Arts Education** 3 cr (3,0)
PR: ARE 4443 or C.I. Continued study of current programs and innovations in public school Visual Arts Programs.
- ARE 6455 K-12 Art Instructional Materials I** 3 cr (3,0)
Advanced application of two-dimensional, three-dimensional, and graphics materials to appropriate levels of instruction in elementary and secondary schools.
- ARE 6456 K-12 Art Instructional Materials II** 3 cr (3,0)
Continuation of ARE 6455.
- ART 5109C Crafts Design** 3 cr (2,1)
Crafts design and production, including the use of rigid, flexible, and linear materials.
- BTE 6172 Business Education Curriculum** 3 cr (3,0)
PR: Basic Teacher Certificate or C.I. Curriculum planning and development; objectives, innovations, problems and issues in contemporary business programs.
- BTE 6371 Advanced Business Instruction Techniques** 3 cr (3,0)
PR: Graduate Standing or C.I. Research, methods and materials related to current practices in Business Education.
- BTE 6773 Office Simulation Techniques** 3 cr (3,4)
PR: Basic Teacher Certificate or C.I. Methods of office simulation for teachers at the developmental and performance levels.
- BTE 6935 Seminar in Business Education** 3 cr (3,0)
PR: Graduate Standing or C.I. Current problems, issues and trends in Business Education.
- BTE 6946 Practicum Business Education** 3 cr (3,0)
PR: Graduate Standing. Techniques, materials and instructional media; evaluation and new trends of instruction in all areas of Business Education.
- CAP 6613 Utilizing Microcomputers in Education** 3 cr (0)
Instruction in microcomputers emphasizing applications of software in the classroom and for school record keeping.
- CLP 5004 Psychology of Adult Adjustment — See College of Arts and Sciences, Department of Psychology**
- CLP 5166 Advanced Abnormal Psychology — See College of Arts and Sciences, Department of Psychology**
- DEP 5057 Developmental Psychology — See College of Arts and Sciences, Department of Psychology**
- EAB 5765 Applied Behavior Analysis with Children and Youth — See College of Arts and Sciences, Department of Psychology**
- EDA 6106 Trends in Educational Administration** 3 cr (3,0)
PR: Master's Degree and/or Rank II certification including a course in school organization. Exemplary organization patterns in school administration will be examined. Study of patterns of functions in selected outstanding school organizations.
- EDA 6201 Educational Business Management Systems** 3 cr (3,0)
PR: Master's Degree and a graduate course in school finance and business administration. Identification and study of exemplary management procedures and systems in education.
- EDA 6222 Administration of Educational Personnel and Contracts** 3 cr (3,0)
PR: Master's Degree and/or Rank II certification, including a course in educational Law. Study of educational settings in which administrators deal with contracts and legal dimensions of instructional, technical, and staff personnel. Federal, state, local factors will be analyzed.

- EDA 6061 Organization and Administration of Schools** 3 cr (3,0)
PR: Basic Teacher Certificate or C.I. School organization patterns, kindergarten through junior college. Study of functions such as scheduling, staffing, community relations, design and operation of facilities, financial management.
- EDA 6195 Educational Leadership II** UF 3 cr
Contemporary research on diffusion of innovations, planning of change, organizational theory and political power in policy decision making. Role of administrators and instructional leaders in establishing educational policies.
- EDA 6201 Business Management in Education** FAU 3 cr
Fiscal management of individual schools and districts including budgeting, purchasing and accounting for school funds.
- EDA 6205 School-Based Management** FAU 3 cr
Administrative task analysis, flow charting, casting, work scheduling, systems theory design, feedback networks, P.P.B.S. and other topics and techniques applicable to systematic planning for and management of educational enterprises.
- EDA 6232 Legal Aspects of School Operation** 3 cr (3,0)
PR: Basic Teacher Certificate or C.I. Study of state and federal laws affecting the operation of public schools emphasizing individual rights and responsibilities of students, faculty and administrators.
- EDA 6240 Educational Financial Affairs** 3 cr (3,0)
PR: Basic Teacher Certificate or C.I. Theoretical and practical approaches to managing school business affairs at Central Office and individual school levels.
- EDA 6260 Educational Systems and Facilities** 3 cr (3,0)
PR: Basic Teacher Certificate or C.I. Application of current educational management and behavioral theory for systems approaches in schools and educational facilities.
- EDA 6502 Organization and Administration of Instructional Programs** 3 cr (3,0)
PR: Basic Teacher Certificate or C.I. Purpose and functions of school learning centers, curricula, and establishment of educational priorities, review and analysis of various grouping patterns for individualizing instruction.
- EDA 7241 Economics of Public Education** FAU 3 cr
Economic effects of schools upon the local, state and national economy; resource allocation and education investment.
- EDA 7260 Educational Facilities** FAU 3 cr
Administration of educational facilities such as surveys, finance plans and specifications, equipment, contracts, construction procedures, maintenance and custodial services. Explores new dimensions in joint planning and multiple use of school facilities.
- EDA 7905 Directed Independent Study** FAU 3 cr
- EDA 7930 Seminar in School Administration** FAU 3 cr
Discussion of problems in school administration, patterns of curriculum organization and research projects.
- EDA 7943 Field Project I & II** FAU 3-6 cr
Field experience and projects for advanced graduate students. Participation in school plant surveys, accreditation visitation, curriculum studies, administrative analysis, field research. May be repeated for credit.
- EDA 7980 Dissertation** FAU 1-20 cr
- EDC 6345 Teaching Skills Development** 3 cr (3,0)
Development of interactive skills of teachers with large, small, and tutorial groups. To include non-verbal communicating lecture techniques and the dynamics of discussion and problem solving.
- EDE 5541 Individualizing Instruction in the Elementary School** 3 cr (3,0)
PR: Basic Teacher Certificate or C.I. Study of basic philosophy, organizational patterns, techniques, materials and activities related to individualizing instruction in the elementary school classroom.

- EDE 6205 Elementary School Curriculum** 3 cr (3,0)
PR: Basic Teacher Certificate or C.I. Analysis of the forces which shape and contribute to the vertical and horizontal curriculum designs of elementary schools.
- EDE 6225 Practices in Childhood Education** UF 3 cr
PR: Course background or teaching experience in the elementary curriculum. Elementary school practices in relation to fundamental principles of curriculum development; selection, organization and development of effective teaching-learning situations.
- EDE 6948 Practicum in Elementary Education** UF 3-6 cr
PR: C.I.
- EDE 7247 Problems in Childhood Education I** UF 3 cr
- EDE 7248 Problems in Childhood Education II** UF 3 cr
- EDE 7415 Evaluation in the Elementary School** UF 3 cr
Point of view, methods and techniques used in appraising behavioral growth of pupils; evaluation of the objectives of the total program.
- EDF 6155 Lifespan Human Development and Learning** 3 cr (3,0)
Research in childhood, adolescent and adult development relevant to contemporary American education. Emphasis on application of theory to educational practice.
- EDF 6232 Analysis of Learning Theories in Instruction** 3 cr (3,0)
PR: Advanced graduate standing or C.I. Analysis of theories and research relevant to understanding learning in educational settings.
- EDF 6233 Strategies of Classroom Management** 3 cr (3,0)
Study of strategies of classroom management that result in optimum learning and a minimum of behavior problems.
- EDF 6257 Analysis of Classroom Teaching** 3 cr (3,0)
PR: EDF 6481 or C.I. Analyses of verbal and non-verbal behaviors of teachers and their effect upon classroom instruction and learning.
- EDF 6401 Statistics for Educational Data** 3 cr (3,0)
PR: EDF 6481 or C.I. Design of educational evaluation; analysis of data, descriptive and influential statistics, interpretation of results.
- EDF 6403 Quantitative Foundations of Educational Research** 3 cr (3,0)
PR: EDF 6401 or C.I. Examination of appropriate methods in applied educational contexts. Consideration of analysis strategies for educational data, emphasis on identification and interpretation of findings.
- EDF 6432 Measurement and Evaluation in Education** 3 cr (3,0)
PR: EDF 6481 or C.I. Theory and rationale of testing instrument construction, application of test results in the educational setting, analysis of standardized tests.
- EDF 6463 Summative Analysis for Educational Research and Evaluation** 3 cr (3,0)
PR: EDF 6401. Applications of summative evaluation for education: interpretation of impact data, measurement scales, survey and record data.
- EDF 6481 Fundamentals of Graduate Research in Education** 3 cr (3,0)
PR: C.I. Computer applications to educational research, elementary design and data analysis, effective use of library, reading and interpreting research in education.
- EDF 6486 Research Design in Education** 3 cr (3,0)
PR: EDF 6403 or C.I. An examination of methodological techniques for specific educational problems. Intended for students in the process of designing independent research studies.
- EDF 6517 History and Philosophy of American Education** 3 cr (3,0)
PR: C.I. A critical analysis of the conceptual and operative educational systems developed in the United States of America.
- EDF 6608 Social Factors in American Education** 3 cr (3,0)
Analysis of general and specific aspects of American education as they relate to social and behavioral sciences.

- EDG 6285 Evaluation in the School Program** **UF 3 cr**
Procedures and techniques of evaluation in school programs with particular emphasis on needs assessment, school self-study, and course evaluation.
- EDG 6337 Techniques of Game Use in Education** **3 cr (3,0)**
Analysis, development, and use of educational games as an approach to classroom teaching.
- EDG 6940 Graduate Internship** **1-8 cr (0,1-8)**
PR: Approval of Student Internship Office. Internship in an appropriate educational setting under the direction of a qualified field supervisor and/or a university supervisor. (May be repeated for credit.)
- EDG 7222 Curriculum: Theory and Research** **UF 3 cr**
Theories of curriculum organization and a survey of curriculum research and patterns of curriculum.
- EDG 7361 Instruction: Theory and Research** **UF 3 cr**
Theories of instruction based upon research in the learning process, mental health, creativity, the thought process, human relations, group dynamics, communications.
- EDG 7391 Seminar on Instructional Leadership** **UF 3 cr**
Review of theories of change applicable to education. Discussion of roles of instructional leaders using alternative models of change.
- EDG 7665 Bases of Curriculum and Instruction Theory I** **UF 3 cr**
Application of theory and research in the behavioral sciences to the development of curriculum and instruction theory. Topics include social forces, human development, learning, knowledge and personality theories.
- EDG 7980 Dissertation** **FAU 1-20 cr**
- EDH 6065 History and Philosophy of Higher Education** **FAU 3 cr**
Early European and American universities, both state and private. Also considers small and private junior and senior colleges.
- EDH 6215 Community College Curriculum** **FAU 3 cr**
Examination of the background, development, function and goals of the curriculum of the community college.
- EDH 6216 Curriculum Development for the Disadvantaged Junior College Student** **FAU 3 cr**
Review and consideration of significant factors affecting development of curriculum for disadvantaged students in the junior colleges.
- EDH 6305 Improvement of Instruction in Colleges** **FAU 3 cr**
Purposes, trends, outcomes and special programs in the curriculum. Considers techniques for identifying, improving and rewarding good college teaching. Test construction, measurement and learning theories.
- EDS 5356 Supervision of Professional Laboratory Experiences** **3 cr (2,1)**
PR: C.I. Study of the undergraduate professional laboratory experiences program with emphasis on the role and responsibilities of the teacher education associate or supervising teacher.
- EDS 6050 Supervision of Instruction** **FAU 3 cr**
Effective supervisory principles and practices which can be used for instructional improvement.
- EDS 6053 Trends in Educational Supervision** **3 cr (3,0)**
PR: Basic supervision course or C.I. Examination and analysis of the trends, issues, and problems in educational supervision.
- EDS 6100 Leadership** **FAU 3 cr**
Analysis of the interactive process within and between groups, emphasizing the formation and functioning of groups; development of skills essential for effective leadership.
- EDS 6111 Administration and Supervision of Staff Development** **3 cr (2,1)**
PR: Basic Teacher Certificate or C.I. Role and procedures for the supervisor or administrator in staff development. Assessment of staff development needs and delivery systems are stressed.
- EDS 6123 Educational Supervisory Functions** **3 cr (3,0)**
PR: Basic Teacher Certificate or C.I. Analysis of school supervisory functions in human relations, leadership, personnel administration and in-service education for instructional improvement.

- EDS 6130 Educational Supervisory Techniques** 3 cr (3,0)
PR: Basic Teacher Certificate or C.I. and EDS 6123. Development of techniques in observation, group processes, communication and evaluation for assessment of school personnel and programs.
- EEC 5205 Programs and Trends in Early Childhood Education** 3 cr (3,0)
PR: Basic Teacher Certificate or C.I. Philosophy, content, facilities, instructional materials and activities appropriate for children 3 to 8 years of age; current research; issues and trends. Concurrent laboratory experiences.
- EEC 5206 Organization of Instruction in Early Childhood Education** 3 cr (3,0)
PR: Basic Teacher Certificate or C.I. Organization and techniques in instruction relating to language arts, social sciences, science, mathematics, health and physical education; problems relating to reading readiness perception and cognition (K-3). Concurrent laboratory experience.
- EEC 5208 Creative Activities in Early Childhood** 4 cr (4,0)
PR: Basic Teacher Certificate or C.I. Organization of instruction and methods for creative activities involving music, art, literature and educational toys. Integration of activities and basic skills curriculum (K-3). Concurrent laboratory experience.
- EED 6071 Behavior Disorders in Schools** 3 cr (3,0)
PR: Basic Teacher Certificate or C.I. Assessment/analysis of behavior disorders, cause and effects, identification and theories.
- EED 6215 Development of a Personalized Program for Children with Behavior Disorders** 3 cr (3,0)
PR: Basic Teacher Certificate or C.I. Study of various approaches to use in teaching children with behavior disorders including precision teaching, behavior management techniques and interpersonal communications skills.
- EED 6226 Theory and Application for EH** 3 cr (3,0)
PR: EEX 6883 or C.I. Study of various approaches to use in teaching Emotionally Handicapped children interpersonal and cognitive skills with special emphasis on the severe and moderate populations.
- EED 6247 Educational Programming for Children with Behavior Disorders** 3 cr (3,0)
PR: Basic Teacher Certificate or C.I. A study of existing models and theories of educational programs for children with behavior disorders.
- EEX 5051 Exceptional Children in the Schools** 3 cr (3,0)
PR: Senior Standing or C.I. Characteristics, definitions, educational problems and appropriate educational programs for the exceptional children in schools.
- EEX 6107 Teaching Spoken and Written Language** 3 cr (3,0)
Diagnosis and remediation of spoken and written language problems found in the exceptional populations. Overview of alternative methods of communication.
- EEX 6257 Exceptional Adolescents** 3 cr (3,0)
An examination of the problems, diagnosis, teaching strategies and materials peculiar to the exceptional adolescent.
- EEX 6266 Curriculum Prescriptions for the Exceptional Population** 3 cr (3,0)
Curriculum design, interpretation and communication of test results, and analysis of available software for the exceptional populations plus an examination of learning strategies.
- EEX 6342 Seminar—Critical Issues in Special Education**
An examination of research and current literature dealing with some of the critical issues in all areas of special education.
- EEX 6612 Methods of Behavioral Management** 3 cr (3,0)
Analysis of the principles of behavior management and precision teaching and application of these principles to the solving of classroom management problems.
- EEX 6863 Supervised Teaching Practicum with Exceptional Children** 2-7 cr (12-40)
PR: Bachelor's degree, approved program and C.I. Supervised observation and teaching of an exceptional student.

EEX 6883 Clinical Practice	3 cr (3,0)
PR: C.I. Application of class content in teaching experience with selected category of exceptional students.	
EGC 5005 Introduction to Guidance and Human Services	3 cr (3,0)
PR: Completion of Phase II of Education Professional Preparation or C.I. A basic course presenting an overview of the philosophy, organization, administration and operation of guidance and human services.	
EGC 5033 Guiding Human Relationships	3 cr (3,0)
PR: Senior Standing or Basic Teacher Certificate. Human relationship skills which will enhance intra- and inter-personal relating skills in classrooms.	
EGC 6045 Counseling with Children	FAU 3 cr
PR: EGC 6416, 6447, EDF 6113, or equivalent.	
EGC 6055 Student Personnel Services in Higher Education	FAU 3 cr
PR: EGC 6005, 6057.	
EGC 6057 The College Community and the Student	FAU 3 cr
PR or CR: EGC 6005.	
EGC 6215 Individual Psycho-Educational Testing I: Binet, WISC-R, WAIS	3 cr (3,1)
PR: C.I. Analysis of test theory and practice in administration, scoring, interpretation and case report writing.	
EGC 6225 Individual Psycho-Educational Testing II	3 cr (3,1)
PR: C.I. Analysis of test theory and practice in administration, scoring, and interpretation of tests assessing achievement, visual-motor and cognitive ability, adaptive behavior and self-concept.	
EGC 6235 Procedures for Group Testing	3 cr (1,2)
PR: EDF 6432 or C.I. Survey of various educational and psychological objective instruments used in schools to measure achievement, aptitude, interests, ability. Emphasis on administration and score interpretation.	
EGC 6317 Vocational and Career Development Procedures	3 cr (3,0)
PR: EGC 5005 or C.I. Forces which affect career choice and shape personal development; vocational counseling, career education and parent-student-school interrelationships.	
EGC 6409 Current Trends in Counseling	3 cr (3,0)
PR: C.I. Current trends in counseling including neurolinguistics, stress, counseling special populations and human sexuality. Themes in accordance with rapid changes in counseling field.	
EGC 6414 Family Counseling I	3 cr (1,2)
PR: EGC 6436 or C.I. Presentation of specific family counseling theories. An evolution and current state of the art.	
EGC 6415 Family Counseling II	3 cr (1,2)
PR: EGC 6414 or C.I. Presentation of techniques to work with entrenched, paradoxical, and "fixed" family systems which pose problems for the family and the Counselor.	
EGC 6426 Introduction to Community Counseling	3 cr (3,0)
PR: C.I. Examine the emergence of community counseling services and the involvement of current treatment trends within public and private community counseling settings.	
EGC 6435 Theories of Individual Counseling	3 cr (2,1)
PR: EGC 5005 or C.I. Major theories and approaches to school counseling, correlating them with counter-part theories of personality and learning.	
EGC 6436 Techniques of Counseling	3 cr (1,2)
PR: EGC 5005, EGC 6435 or C.I. The nature of the counseling and its relationships to theoretical concepts.	
EGC 6438 Play Counseling and Play Process with Children	FAU 3 cr
PR: EGC 6416, 6447, EDF 6113 or equivalent.	

- EGC 6446 Counseling Practicum** **3 cr (3,0)**
 PR: EGC 5005, 6435, 6436 or C.I. Supervised counseling emphasizing competence in (1) individual counseling; (2) working with groups; (3) tests in educational-vocational-personal counseling. May be repeated for credit.
- EGC 6461 Counseling Substance Use and Abuse** **3 cr (3,0)**
 PR: C.I. Examination within systematic, theoretical framework of the function that a substance, individual and the environment play in use and abuse of illicit and licit substances.
- EGC 6463 Counseling Special Populations and Their Families** **3 cr (3,0)**
 PR: EGC 6436 or C.I. An introduction to the application of counseling principles with various special populations and their families.
- EGC 6467 Counseling Older Persons and Their Families** **3 cr (3,0)**
 PR: EGC 6436, EDF 6155 or C.I. A basic course presenting an overview of the nature, process, and theory of counseling older persons and their families.
- EGC 6500 Guidance and Counseling of Gifted/Talented Individuals** **3 cr (3,0)**
 Guidance and counseling procedures and strategies for gifted/talented students; self-assessment; group dynamics; communication with parents; career goals; alternate educational opportunities.
- EGC 6505 Group Procedures in Counseling** **3 cr (3,0)**
 PR: EGC 6435 or C.I. Nature, theory, process of group counseling including study of dynamics related to change in values and behavior of children and adolescents; class demonstration and practice.
- EGC 6515 Group Counseling Theories** **3 cr (3,0)**
 PR: EGC 6436 or C.I. This course will be a study of the theoretical bases used in contemporary group counseling situations in various settings.
- EGC 6606 Organization and Administration of Guidance and Personnel Programs** **FAU 3 cr**
 PR: EGC 6416.
- EGC 6706 Consultation and Staffing** **3 cr (3,0)**
 PR: EGC 6436, C.I. A course to help the counselor understand their role as a consultant and to learn the benefit of case staffing.
- EGC 7056 Seminar in Higher Education Student Personnel** **UF 1-2 cr**
 Overview of the divisions, emphases, trends, and issues in student personnel services in higher education settings.
- EGC 7318 Laboratory in Career Development** **UF 4 cr**
 PR: EGC 7446 (2); EGC 6317. Field based experience with emphasis on career development counseling.
- EGC 7329 Seminar in Career Development** **UF 3 cr**
 PR: EGC 6317. Advanced course with in-depth coverage of various topics in career development.
- EGC 7446 Practicum in Counseling** **UF 4 cr**
 PR: EGC 6416, 6447 and written application to the practicum coordinator, at least six weeks in advance of registration.
- EGC 7485 Seminar in Counseling Research** **UF 2 cr**
 PR: Admission to candidacy for the doctorate in Counselor Education.
- EGC 7585 Practicum in Group Counseling** **UF 4 cr**
 PR: Eight credits in EGC 7446 and written application to the practicum coordinator at least six weeks in advance of registration.
- EGC 7616 Evaluative Research in Guidance, Counseling and Personnel Work** **UF 4 cr**
 PR: EGC 6225; statistics course. Overview of research procedures and techniques with specific applications to the counseling profession.
- EGC 7706 Consultation Procedures** **UF 3 cr**
 PR: Eight credits in EGC 7446. Admission limited to students in the advanced program.

EGC 7840 Practicum in Student Personnel Work	UF 4 cr
PR: Eight credits in EGC 7446 and written application to the practicum coordinator at least six weeks in advance of registration.	
EGC 7852 Practicum in Counseling Older Persons	UF 4 cr
PR: Written application to the practicum coordinator at least six weeks in advance of registration.	
EGC 7890 Internship in Personnel Work	UF 6 cr
PR: Completion of all practica required for the Ed.S., or Ed.D. degree and written application to the internship coordinator at least six weeks in advance of registration.	
EGC 7892 Practicum in Psychological Assessment	UF 4 cr
PR: EGC 6225, eight credits in EGC 7446 and written application to the practicum coordinator at least six weeks in advance of registration.	
EGC 7937 Seminar in Personnel Work	UF 4 cr
Limited to students who are near completion of their course work for a degree.	
EGC 7980 Doctoral Research for Doctoral Dissertation	UF 1-15 cr
EGI 6051 Understanding the Gifted/Talented Student	3 cr (3,0)
A study of characteristics of the gifted/talented students; theories and research; identification procedures; special problems; educational forces.	
EGI 6245 Program Planning and Methodology for Gifted/Talented Students	4 cr (4,0)
A study of organization, curriculum, strategies and activities for the gifted/talented student; diagnostic teaching; learning-teaching styles; instructional materials; individualized instruction.	
EGI 6941 Supervised Practicum with Gifted/Talented Students	2-6 cr (0,2-6)
PR: EGI 6051, EGI 6245 and C.I. Supervised observation and teaching of students identified as gifted/talented.	
ELD 6112 Foundation and Diagnosis of Learning Disabilities	4 cr (4,0)
PR: Basic Teacher Certificate or C.I. A study of the history, definition, causes, characteristics and current issues; consideration of diagnostic tests, materials and procedures.	
ELD 6304 Management and Teaching Strategies for the Learning Disabled Student	4 cr (4,0)
PR: ELD 6112 or C.I. Prescriptive programming of teaching and management techniques based on a diagnosis of basic skill areas of learning disabled child.	
ELD 6323 Theory and Application for SLD	3 cr (3,0)
PR: EEX 6883 or C.I. Systematic programming techniques for Specific Learning Disabilities based on research and diagnostic information with special emphasis on the moderate population.	
ELD 6944 Diagnostic Learning-Disabilities Laboratory	1 cr (0,1)
A laboratory designed for individual competence measurement of testing-evaluation skills. Must be scheduled concurrently with ELD 6112, Foundations and Diagnosis of LD.	
EME 5054 Instructional Technology: A Survey of Applications	3 cr
Applications of instructional technology in settings other than public schools. Survey of facilities, programs, and services in business, industry, religion, government, higher education and medical settings.	
EME 5208 Media and Methods in Teaching	3 cr (2,1)
PR: Basic Teacher Certificate or C.I. Practicum on various media in the classroom with emphasis on student film making and production.	
EME 6053 Current Trends in Instructional Technology	3 cr (3,0)
PR: EME 6613. Survey of current trends and issues in instructional technology. Research reviewed and the findings related to current practices.	
EME 6403 Computer Assisted Instruction	3 cr
PR: LIS 5262. Utilization of Basic, Pascal, Pilot, or Logo to product CAI ranging from drill and practice through simulation.	

- EME 6613 Instructional System Design** 3 cr (3,0)
Systematic design of instruction including task analysis, learner analysis, needs assessment, content analysis, specification of objectives, media selection, evaluation and revision; analysis of ID models.
- EMR 6205 Theory and Application for EMH** 3 cr (3,0)
PR: EEX 6883 or C.I. Study of various approaches to use in teaching the Educable Mentally Handicapped motor, interpersonal and cognitive skills with special emphasis on the severe and moderate applications.
- EMR 6261 Career Planning for the Mentally Handicapped** 2 cr (2,0)
PR: Basic Teacher Certificate. Instruction and practice in career planning with specific activities in home-making skills, industrial arts, and job exploration.
- EMR 6362 Classroom Organization and Curriculum for Teaching the Mentally Handicapped** 4 cr (4,0)
PR: Basic Teacher Certificate or C.I. Organization, scheduling, materials, equipment, instructional procedures, appropriate curriculum experiences and adjustments, media use, and development prevocational skills for EMH, TMH, and PMH.
- EPH 5335 Physical and Sociological Implications of Handicapping Conditions** 3 cr (3,0)
Overview of physical and sociological factors which may contribute to delayed learning or physical impairments in the exceptional populations. Physical interventions and first-aid practices are examined.
- ESE 5214 Secondary School Curriculum Improvement** 3 cr (3,0)
PR: Basic Teacher Certificate or C.I. Secondary school self-studies for curriculum projects, accreditation reports or staff development.
- ESE 5335 Teaching the Non-English Student** 3 cr (3,0)
PR: FLE 3063 or bilingual and non-linguistic instruction in curriculum areas and in English as a second language.
- ESE 6218 Curriculum Writing** 3 cr (3,0)
PR: Basic Teacher Certificate or C.I. Goal analysis, task analysis, needs assessment and writing performance objectives for developing courses of study.
- ESE 6325 Curriculum Design** 4 cr (4,0)
PR: Graduate standing or C.I. The foundations, design, constituent parts, development and implementation of change in public school curricula.
- ESE 6416 Curriculum Evaluation** 3 cr (3,0)
PR: Graduate standing or C.I. Application of curriculum evaluation techniques to instructional programs.
- EVT 5260 Cooperative Programs in Vocational Education** 2-4 cr (2-4,0)
PR: Basic Teacher Certificate or C.I. Study of cooperative vocational programs and achievement of competencies needed to establish, manage and coordinate co-op program activities in all vocational areas.
- EVT 5315 Applied Clinical Teaching Techniques in Vocational Education** 2-3 cr (2-3,0)
PR: Basic Teacher Certificate or C.I. Study and practice of clinical teaching methods, development of student performance assessment instruments, planning clinical learning experiences, and record-keeping.
- EVT 5316 Clinical Coordination for the Health Occupations Teacher** 2-3 cr (2-3,0)
PR: Basic Teacher Certificate or C.I. Development of clinical guidelines, resources, student schedules, and risk-management programs. Includes negotiating clinical contractual agreements and planning field supervision.
- EVT 5561 Student Guidance in the Vocational Program** 2-3 cr (2-3,0)
PR: Basic Teacher Certificate or C.I. Achievement of skills used by teachers as they gather student data, confer with students and help students plan for employment or further education.
- EVT 5564 Student Vocational Organizations** 2-3 cr (2-3,0)
PR: Basic Teacher Certificate or C.I. Competencies needed by vocational teachers as they establish and supervise student vocational organizations in secondary and post-secondary schools.

- EVT 5685 Competency-Based Vocational Education** 2-4 cr (2-4,0)
PR: Basic Teacher Certificate or C.I. Achievement of teacher competencies unique to the installation and management of competency-based vocational training programs in secondary and post-secondary schools and community colleges.
- EVT 5817 Management of Vocational Programs** 2-4 cr (2-4,0)
PR: Basic Teacher Certificate or C.I. Study and achievement of selected competencies needed by vocational teachers, supervisors and local administrators in the management of vocational education programs in the schools.
- EVT 6264 Administration in Vocational Education** 3 cr (3,0)
PR: Basic Teacher Certificate or C.I. Administrative responsibilities in a local program of Vocational Education which includes two or more fields of occupational education.
- EVT 6265 Supervision in Vocational Education** 3 cr (3,0)
PR: Basic Teacher Certificate or C.I. Supervisory techniques for planning and implementing improvement of staff, curriculum and personal relations in Vocational Education.
- EVT 6267 Vocational Program Planning, Development and Evaluation** 2-4 cr (2-4,0)
PR: Basic Teacher Certificate or C.I. Achievement of selected teacher competencies related to program objectives, courses of study, long range plans and techniques for evaluating vocational program effectiveness.
- EVT 6664 School/Community Relations for Vocational Education** 2-4 cr (2-4,0)
PR: Basic Teacher Certificate or C.I. Achievement of proficiency in the use of media techniques to promote the vocational program. Development and maintenance of productive relationships between school and community groups.
- EXP 5445 Psychology of Learning and Motivation** 3 cr (3,0)
PR: DEP 5057 or C.I. Examination of theories and research concerning the acquisition and retention of behavior as well as motivational factors which influence learning and behavior.
- HSC 6132 Health Care Finance** 3 cr (3,0)
PR: ACC 5004, FIN 5405, Graduate status. The identification of resources available to Health Care institutions, allocation of resources and control of resource expenditures.
- HSC 6153 Case Studies in Health Law** 3 cr (3,0)
PR: Graduate status or C.I. Health Law including patient care, liability, malpractice, workmen's compensation, and legal responsibilities of health personnel.
- HSC 6392 Issues and Trends in the Health Professions** 3 cr (3,0)
PR: Graduate status or C.I. Exploration of current status, issues, problems and future trends in the practice and education of health professions.
- HSC 6402 Environmental Health** 3 cr (3,0)
PR: Graduate status or C.I. Recognition and evaluation of control problems arising from environmental contamination, which includes safe water supply, waste disposal, and food resources.
- HSC 6412 Epidemiology** 3 cr (3,0)
PR: Graduate status or C.I. A study of the distribution and determinants of diseases and injuries in human populations.
- HSC 6513 Principles and Practice of Medicine** 3 cr (3,0)
PR: Graduate status or C.I. A comprehensive survey of medicine.
- HSC 6605 Health and Society** 3 cr (3,0)
PR: Graduate status or C.I. Understanding health and illness as defined by patients, providers, and other persons in the social system.
- HSC 6911 Scientific Inquiry in the Health Profession** 3 cr (3,0)
PR: Graduate status or C.I. Research design and evaluation in health professions.
- LAE 5464 Literature for Adolescents** 3 cr (3,0)
PR: Senior standing or C.I. Selecting and evaluating books for adolescents with emphasis on the use of literature in the development of young people.

- LAE 6616 Trends in Language Arts Education** 3 cr (3,0)
PR: Basic Teacher Certificate or C.I. Historical development and trends; English usage systems; materials; instructional strategies.
- LAE 6637 English Programs in the Secondary School** 3 cr (3,0)
PR: Basic Teacher Certificate or C.I. Concepts, problems and advanced topics.
- LAE 6714 Investigation in Children's Literature** 3 cr (3,0)
PR: Basic Teacher Certificate or C.I. Learning through the utilization of children's literature; literature analysis and evaluation; story telling skill development; visual and reference materials.
- LEI 6443 Recreation** 3 cr (2,1)
A comprehensive study of public, private and school recreation programs.
- LIS 5262 Computer Applications in Instructional Technology** 3 cr (3,0)
Emphasis on the applications of the computer for the media specialist and instructional technologist.
- LIS 5312 Advanced Production Techniques** 3 cr (3,0)
Advanced skills in graphic, photographic, and audio production. Integration of media into instructional packages.
- LIS 5454 Administrative Principles in Media Centers** 3 cr (3,0)
Planning, organizing, directing, supervising and budgeting in school media center. Personnel, public relations, facilities design, and evaluation.
- LIS 6313 Multi-Media Message Design** 3 cr (3,0)
Principles of communication, learning theory, and research in instructional technology applied to the design of mediated instructional messages.
- LIS 6509 Seminar in Educational Media** 3 cr (3,0)
Survey of current trends and issues in educational media. Research reviewed and the findings related to current practices.
- MAE 5318 Current Methods in Elementary School Mathematics** 3 cr (3,0)
Strategies of instruction of computation and concepts of number, geometry and measurement. Instructional materials. (Meets Elementary Education certification requirements.)
- MAE 5395 Teaching the Metric System** 3 cr (3,0)
Linear, area, volume, mass, force, and temperature measures from the metric system will be studied in relation to teaching aids, methods, and content, (K-12).
- MAE 5637 Laboratory Programs in Mathematics** 3 cr (2,1)
PR: Basic Teacher Certificate or C.I. Design and development of special materials and projects for mathematics independent study. Emphasis teaching and applying the metric system.
- MAE 6145 Mathematics Curriculum, K-12** 3 cr (3,0)
PR: At least 6 SH of graduate credit in mathematics education or C.I. Development of historical and current issues and forces in mathematics curriculum. New mathematics programs and contemporary curricular issues will be emphasized.
- MAE 6517 Diagnosis/Remediation of Difficulties in Mathematics for the Classroom Teacher** 3 cr (3,0)
PR: Basic Teacher Certificate or C.I. The study of techniques for diagnosis and remediation of difficulties in mathematics.
- MAE 6549 Practicum in Mathematics Instruction, K-12** 1-3 cr (0,1-3)
PR: MAE 6517; CR: MAE 6899. Supervised diagnostic instruction with children; selection of instructional materials and techniques. May be repeated for credit.
- MAE 6641 Problem Solving and Critical Thinking Skills** 3 cr (2,1)
PR: Regular Certificate or C.I. Development of procedures and practices necessary to implement critical thinking skills and problem solving techniques in the schools.
- MAE 6648 Designing Instructional Packages for Computer Applications** 3 cr (3,1)
PR: CAP 6613 or C.I. The applications of computer technology to mathematics instruction, K-12. Testing, drill programs, tutorials, problem solving, and simulations will be considered.

- MAE 6899 Seminar in Teaching Mathematics** 3 cr (3,0)
PR: Six semester hours of graduate credit in mathematics education. Development of historical and current issues, forces, and individuals and their impact on the teaching of mathematics K-12. Consideration of advanced instructional techniques. (May be repeated for credit.)
- MUE 5611 Trends in Elementary School Music Education** 3 cr (3,0)
PR: MUE 3401 or equivalent or C.I. Advanced study of instructional strategies and materials; integration of music education experiences with classroom activities; personal musical skill development; current research and new curricula.
- MUE 6155 Teaching Performing Organizations** 3 cr (3,0)
PR: Basic Teacher Certificate or C.I. Techniques and skills for the planning, administering and directing performing music organizations. Examination of historical and philosophical foundations of music education.
- MUE 6349 Advanced General Music** 3 cr (3,0)
PR: Basic Teacher Certificate or C.I. Analysis of current materials, new programs and teaching techniques in general music, K-12. Emphasis on practical applications. Examinations of psychological foundations of music education.
- MUE 6946 Practicum in Music Education** 3 cr (0,14)
PR: Basic Teacher Certificate. MUE 6349 and MUE 6155, MUE 6610 and MUE 6630 or C.I. Field experience in teaching music. (May be repeated for credit.)
- MUT, MVB, MVK, MVP, MVS, MVV, MVW — See College of Arts & Sciences, Department of Music**
- PET 5635C Therapeutic Exercise/Therapeutic Modalities** 3 cr (2,1)
This course will include specific rehabilitative exercises and the operation of rehabilitative equipment. Instruction will be given for therapeutic modalities.
- PET 6040C Analysis of Human Performance** 3 cr (2,1)
Analytical techniques of kinesiology and their methods of application to individual and team activities.
- PET 6146 Current Trends and Philosophical Foundations of Physical Education** 3 cr (3,0)
A comprehensive analysis of current trends, forces and events leading to the development of contemporary concepts in physical education.
- PET 6238C Perceptual Motor Development** 3 cr (2,1)
Theoretical and laboratory study of the relationship between perceptual motor development and learning. Special attention is given to identifying and remediating motor deficit.
- PET 6386C Environmental Exercise Physiology** 3 cr (3,2)
A study of physiological adaptation resulting from prescribed physical activity programs.
- PET 6405 Administration of Physical Education and Athletic Program** 3 cr (3,0)
Study of current problems in the administration of school physical education and athletic programs.
- PET 6425 Curriculum Design in Physical Education** 3 cr (3,0)
Study of physical education and its existing organization. Emphasis on ethics, values, principles and issues.
- PET 6477 Administration of Athletic Training** 3 cr (3,0)
Specific problems related to rehabilitation, nutrition of athletes. Budgeting and administration of athletic programs also to be examined.
- PET 6515C Measurement in Kinesiology and Physical Education** 3 cr (3,0)
Techniques of measurement and evaluation of human performance and their applications to physical education.
- PET 6616 Physical Education** 3 cr (3,0)
Advanced injury and illness evaluation incorporating anatomy and physiology as they relate. Internal injury and orthopedic problems are also covered.

- PET 6910 Problem Analysis — Review of Literature** **3 cr (3,0)**
 PR: EDF 6432 and C.I. Comprehensive review of literature related to a selected topic in physical education; identification, analysis and evaluation of developments, issues and research problems. (May be repeated for credit)
- RED 5147 Developmental Reading** **3 cr (3,0)**
 PR: Basic Teacher Certificate or C.I. Principles, procedures, organization and current practices in the elementary reading program. Materials and methods of instruction.
- RED 5337 Reading in the Secondary School** **3 cr (3,0)**
 PR: Basic Teacher Certification or C.I. Nature of the adolescent reader; organizational patterns, principles, and procedures; diagnostic and remediation materials.
- RED 5514 Diagnosis and Treatment of Reading Difficulties** **3 cr (3,1)**
 PR: RED 5147 or equivalent. Classroom diagnosis and corrective teaching in reading; instructional materials.
- RED 6116 Trends in Reading Education** **3 cr (3,0)**
 PR: Basic Teacher Certificate or C.I. Analysis of historical development and current trends; management systems; instructional strategies and investigation of research.
- RED 6335 Reading in the Content Areas** **3 cr (3,0)**
 PR: Basic Teacher Certificate or C.I. Identification and evaluation of reading skills, diagnosis of reading problems and development of methods and materials to increase student reading performance.
- RED 6515 Remedial Reading Practicum** **2-6 cr (1,2-6)**
 PR: RED 5514 or equivalent. A remedial reading practicum for classroom teachers and those preparing to become special reading teachers. Emphasis on diagnostic reading tests and corrective materials and strategies. (May be repeated for credit.)
- RED 6746 Management of Reading Programs** **3 cr (3,0)**
 Overview of K-12 reading instruction goals and program management models; role of reading supervisor and in-service needs assessment and delivery.
- RED 6845 Clinical Diagnosis and Remediation of Reading Difficulties** **3 cr (3,0)**
 PR: RED 5514 or C.I. Administration and interpretation of individual tests; factors contributing to reading difficulties; case studies; instructional techniques for the severely disabled reader.
- RED 6846 Clinical Reading Practicum** **2-3 cr (0,2-3)**
 PR: RED 6515 and RED 6845 or C.I. Clinical evaluation and remediation of severely disabled readers in a laboratory setting. Parent interview; case reports.
- SCE 5238 Inquiry in the Sciences** **3 cr (3,0)**
 PR: Basic Teacher Certificate or C.I. Teaching science by inquiry in the secondary school and development of inquiry lessons.
- SCE 6237 Science Programs in Secondary School** **3 cr (3,0)**
 PR: Basic Teacher Certificate or C.I. Study of historical development and current trends; analysis of science curricula, materials.
- SCE 6616 Trends in Elementary School Science Education** **3 cr (3,0)**
 PR: Basic Teacher Certification or C.I. Study of historical development and current trends; analysis of science curricula, materials.
- SPS 6606 School Consultation Techniques** **3 cr (3,0)**
 PR: C.I. Theories and models of school consultation and clinical practice in the consultative role. (Three hours required.)
- SPS 6608 Seminar in School Psychology** **3 cr (3,0)**
 PR: C.I. Diagnostic, instructional and prescriptive intervention techniques.
- SPS 6936 Problems in School Psychology** **3 cr (3,0)**
 PR: Graduate admission and C.I. An investigation of some of the major problems facing psychologists working in school systems.

SPS 6949 School Psychology Internship

2-6 cr (0,2-6)

PR: Graduate admission and C.I. Supervised placement in school setting.

SSE 5334 Inquiry in the Social Studies

3 cr (3,0)

PR: Basic Teacher Certificate or C.I. Teaching by inquiry in the new social studies with a development of inquiry episodes.

SSE 5440 Law Education Studies Materials

3 cr (3,0)

PR: Senior standing or C.I. Design organization and development of educational materials relating constitutional law concepts to citizenship for schools.

SSE 6441 Florida Law Education Studies

3 cr (3,0)

Creative planning and evaluation of law education programs for schools in Florida.

SSE 6617 Trends in Elementary School Social Studies Education

3 cr (3,0)

PR: Basic Teacher Certificate or C.I. Historical development and current trends, strategies for inquiry instruction, intellectual, social and personal dimensions of social studies.

SSE 6636 Contemporary Social Science Education

3 cr (3,0)

PR: Basic Teacher Certificate of C.I. A survey of recent developments and contemporary programs in all areas of the social sciences.

ARE, EDA, EDE, EEX, EGC, EME, ESE, EVT, MAE, MUE, PET, RED or SPS prefixes are used for the following:

6918 Research

EDG, EGC, EME, MAE, MUE, PET, or RED prefixes are used for the following:

6946 Internships, Practicums, Clinical Practice

PET 6908 Independent Study

PET 6938 Special Topics or Seminars

EDA or EDG prefixes are used for the following:

7980 Doctoral Dissertation



COLLEGE OF ENGINEERING

The College of Engineering offers the Master of Science, the Master of Science in Engineering, the Master of Civil Engineering, the Master of Science in Environmental Systems Management and the Doctor of Philosophy degrees.

The master's programs are designed to provide for advanced professional engineering education (M.S.E.) or specialized education in selected areas (M.S., M.C.E. or M.S.E.S.M.). It is the objective of the College of Engineering to produce well-qualified, competent graduates from outstanding accredited programs for the professional practice of engineering and to conduct research and service responsive to the needs of the State of Florida and the Nation.

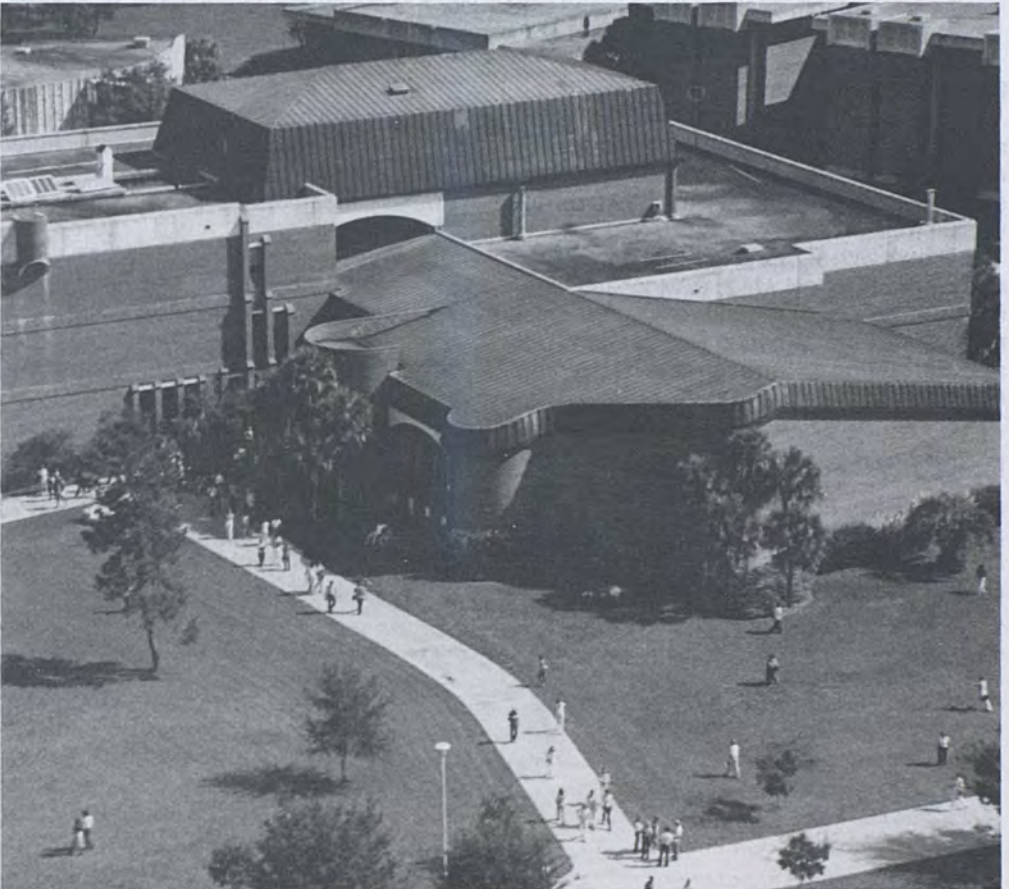
The Ph.D. programs provide the opportunity for advanced graduate preparation in the areas of electrical engineering, environmental engineering, industrial engineering, and mechanical engineering. These programs provide direct support for the emergence of the Central Florida area as one of the national centers of high technology industry. The program is especially accessible to the place-bound engineer who would otherwise have difficulties in fulfilling his professional career objectives.

COLLEGE ADMINISTRATION

<i>Robert K. Kersten</i>	Dean
<i>George F. Schrader</i>	Associate Dean
<i>Bruce E. Mathews</i>	Assistant Dean
<i>J. Paul Hartman</i>	Assistant Dean

<i>Bruce E. Mathews</i>	Graduate Program Coordinator
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Office: EN 211, Phone 275-2156



COLLEGE OF ENGINEERING DEPARTMENTS

CIVIL ENGINEERING AND ENVIRONMENTAL SCIENCES

<i>D. L. Block, Ph.D.; P.E.</i>	FSEC Director and Professor
<i>J. P. Hartman, Ph.D.; P.E.</i>	Assistant Dean and Professor
<i>R. K. Kersten, Ph.D.; P.E.</i>	Dean and Professor
<i>J. N. Seaman, Ph.D.; P.E.</i>	Professor
<i>M. P. Wanielista, Ph.D.; P.E.</i>	Chairman and Professor
<i>Y. A. Yousef, Ph.D.; P.E.</i>	Professor
<i>B. F. Beck, Ph.D., P.G.</i>	FSRI Director and Associate Professor
<i>W. E. Carroll, Ph.D.; P.E.</i>	Associate Professor
<i>C. D. Cooper, Ph.D.; P.E.</i>	Associate Professor
<i>R. Smith, P.E.</i>	Associate Professor
<i>J. S. Taylor, Ph.D.; P.E.</i>	Associate Professor
<i>J. D. Dietz, Ph.D.; P.E.</i>	Assistant Professor
<i>S. Kuo, Ph.D.; P.E.</i>	Assistant Professor
<i>D. S. Leftwich, Ph.D.; P.E.</i>	Assistant Professor
<i>W. E. Rodriguez-Ramos, Ph.D.; P.E.</i>	Assistant Professor

Civil Engineering

Research interests of the faculty are related to design and analysis of structures, foundations, and transportation systems. The need to reduce energy consumption and the need to develop cost-effective designs are recognized. Building-related technology and transportation alternatives are major areas of interest. The results of faculty research have been applied in governmental as well as the private sector of the economy. Students completing the program find job opportunities in consulting, county, and city government, industry, state and federal government, and construction activities. Thus, the educational program concerns itself with planning, analysis design, and construction of structures, foundations, transportation networks, urban centers, and other social needs.

Environmental Engineering

Strong faculty research interests have resulted in a program of distinction for the college and the university. Research monies support students in the general areas of water treatment, wastewater treatment, solid waste management, atmospheric pollution control, and stormwater management. The research results of faculty members have been applied to social problems; however, basic research is being done as well.

Students with strong science or engineering backgrounds have a variety of research areas and levels of interest which they can pursue. Those completing the program find job opportunities in federal, state and local governments, consulting, industry, and posteducational areas. The Environmental Engineering education program concerns itself with prevention and correction of undesirable technological effects on the natural and man-made environments.

ELECTRICAL ENGINEERING AND COMMUNICATION SCIENCES

<i>E. E. Erickson, Ph.D.; P.E.</i>	Professor
<i>R. C. Harden, Ph.D.; P.E.</i>	SOC Director and Professor
<i>B. E. Mathews, Ph.D.; P.E.</i>	Assistant Dean and Professor
<i>B. W. Patz, Ph.D.; P.E.</i>	Professor
<i>R. L. Phillips, Ph.D.</i>	Professor
<i>F. O. Simons, Jr., Ph.D.; P.E.</i>	Professor
<i>H. C. Towle, Ph.D.; P.E.</i>	Professor
<i>R. L. Walker, Ph.D.; P.E.</i>	Acting Chairman and Professor
<i>R. N. Miller, Ph.D.; P.E.</i>	Associate Professor
<i>B. E. Petrasko, D.ENG.</i>	Associate Professor
<i>R. A. Walters, Ph.D.</i>	Associate Professor
<i>M. G. Harris, D.Sc.; P.E.</i>	Assistant Professor
<i>D. C. Malocha, Ph.D.</i>	Assistant Professor
<i>R. Martin</i>	Assistant Professor

The major areas of research in the Electrical Engineering and Communication Sciences program are digital systems, electro-optics, optical communications and signal processing. Additional research opportunities exist in the areas of control systems, microwaves, and electronics. Current projects in digital systems include the development of algorithms and architectures for real-time computer image generations; LSI, VLSI and microprocessor based training hardware and systems for the Department of Defense; and fault tolerant electronic switching systems for NASA.

Research in electro-optics includes the study of fiber optic sensors for fiber optic gyro-rate sensing, hydrophones, temperature sensing, and pressure probes. The work on these systems has focused on use of optical phase locked loops, noise characteristics of different optical sensor configurations and environmentally induced optical noise. Work is also being conducted on the use of speckle interferometry for mechanical measurements. Research in optical communications has included the measurement and mathematical modelling of the statistical fading of a laser beam propagating through atmospheric turbulence and on communication techniques for reliable digital optical communication through the atmosphere.

In signal processing, work has been on the development of algorithms and computer software for the real time implementation of discrete mathematics models of continuous systems. Additional research in this area includes studies on the noise characteristics of cross-correlator signal processors.

INDUSTRIAL ENGINEERING AND MANAGEMENT SYSTEMS

<i>C. S. Bauer, Ph.D.; P.E.</i>	Acting Chairman and Professor
<i>J. E. Biegel, Ph.D.; P.E.</i>	Professor
<i>G. H. Brooks, Ph.D.; P.E.</i>	Professor
<i>R. S. Doering, Ph.D.; P.E.</i>	Professor
<i>G. E. Schrader, Ph.D.; P.E.</i>	Associate Dean and Professor
<i>G. E. Whitehouse, Ph.D.; P.E.</i>	Professor
<i>Y. A. Hosni, Ph.D.; P.E.</i>	Associate Professor
<i>H. I. Klee, Ph.D.; P.E.</i>	Associate Professor
<i>D. G. Linton, Ph.D.; P.E.</i>	Associate Professor
<i>J. A. Sepulveda, Ph.D.; P.E.</i>	Associate Professor
<i>A.J.G. Babu, Ph.D.</i>	Assistant Professor
<i>L. L. Smith, Ph.D.; P.E.</i>	Assistant Professor
<i>C. J. White, P.E.</i>	Assistant Professor

The current research interests of the faculty of the Department are concerned primarily with productivity, computer simulation, transportation systems, micro-computers, energy management, stochastic modeling, engineering for the blind, economic decision analysis, production planning, health operations research, robotics, and management information systems.

MECHANICAL ENGINEERING AND AEROSPACE SCIENCES

<i>B. E. Eno, Ph.D.; P.E.</i>	Professor
<i>D. R. Jenkins, Ph.D.; P.E.</i>	Professor
<i>S. L. Rice, Ph.D.; P.E.</i>	Chairman and Professor
<i>W. F. Smith, Sc.D.; P.E.</i>	Professor
<i>L. A. Anderson, Ph.D.; P.E.</i>	Associate Professor
<i>J. K. Beck, P.E.</i>	Associate Professor
<i>P. J. Bishop, Ph.D.; P.E.</i>	Associate Professor
<i>A. H. Hagedoorn, Ph.D.; P.E.</i>	Associate Professor
<i>E. R. Hosler, Ph.D.; P.E.</i>	Associate Professor
<i>S. M. Metwalli, Ph.D.</i>	Associate Professor
<i>C. E. Nuckolls, Ph.D.; P.E.</i>	Associate Professor
<i>G. G. Ventre, Ph.D.; P.E.</i>	Associate Professor
<i>K. K. Chang, Ph.D.; P.E.</i>	Assistant Professor
<i>F. S. Gunnerson, Ph.D.; P.E.</i>	Assistant Professor
<i>F. A. Moslehy, Ph.D.; P.E.</i>	Assistant Professor

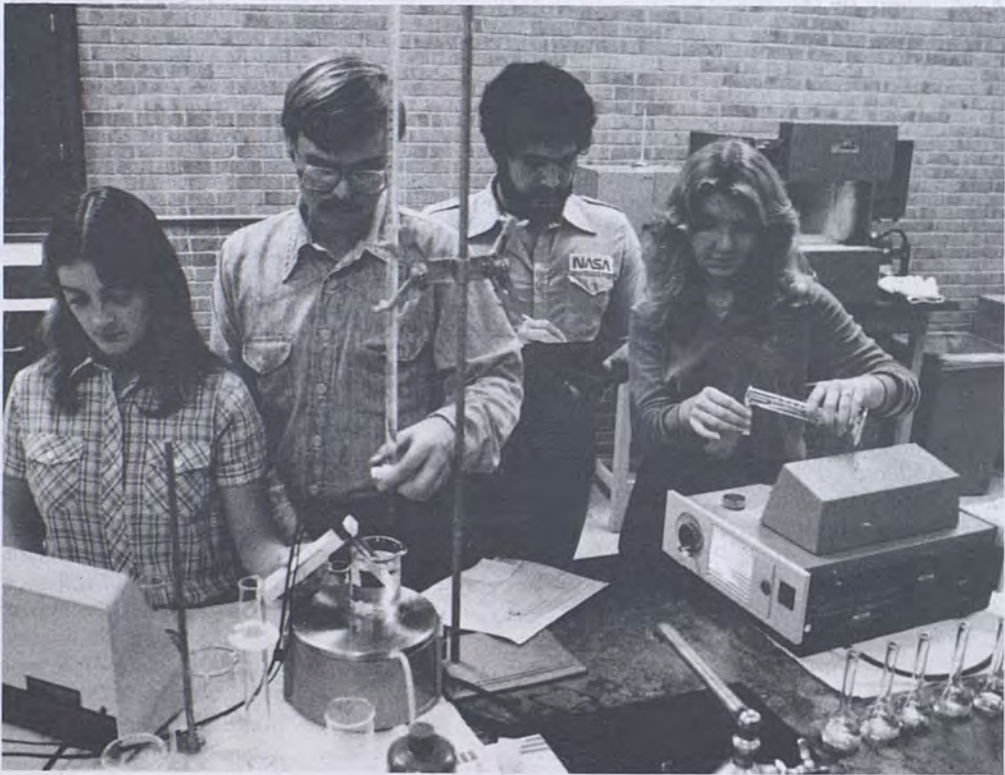
Major fields of emphasis in the Mechanical Engineering & Aerospace Sciences Department are mechanical systems and energy systems. The mechanical systems field includes study in the areas of solid mechanics, dynamic systems, mechanical measurements, machine design, and metallurgy. Research activities of the faculty include mechanical properties of fiber optic materials, interpretation of vibration signatures, advanced techniques in experimental mechanics, finite element methods of machine design analysis, and computer-aided design graphics. The energy systems field includes study in the areas of fluid mechanics, thermal sciences, propulsion systems, and energy conversion and utilization. Research activities of the faculty include energy conservation studies, development of simulation techniques for non-renewable energy resources exploration, passive and active solar heating and cooling, power plant combustion of biomass fuels, and heat transfer and thermal stress problems associated with nuclear reactors.

COMPUTER ENGINEERING

C. S. Bauer, Ph.D.; P.E.	Acting Chairman and Professor
B. W. Patz, Ph.D.; P.E.	Professor
F. O. Simons, Jr., Ph.D.; P.E.	Professor
G. E. Whitehouse, Ph.D., P.E.	Professor
W. E. Carroll, Ph.D.; P.E.	Associate Professor
H. I. Klee, Ph.D., P.E.	Associate Professor
F. A. Moslehy, Ph.D.	Assistant Professor

In contemporary professional engineering practice, and in research and development activities, there is an increasing need for engineers with a high degree of training and capability in the application of mathematics and computers in the modeling, simulation and solution of complex technical problems.

The current research interests of the program include computerized transportation systems, robotics, computer graphics, training simulators, software engineering, energy management, computer applications, stochastic modeling, simulation, and management information systems.



COLLEGE OF ENGINEERING — MASTER'S DEGREES

ADMISSION

University Admission Requirements

The Graduate Record Examination (GRE) is required of all graduate students. An applicant must meet the minimum graduate admission criteria of a GPA of 3.0 (4.0 = A) on the last two years of undergraduate degree work or score 1000 on the quantitative-verbal sections of the GRE.

College Admission Requirements

In addition to the above minimum criteria University admission requirements, College admissions require the following:

- Applicants for the M.S.E. program must have the B.S.E. or equivalent from an ABET accredited engineering curriculum in the appropriate discipline area.
- Applicants for the M.S. or M.S.E.S.M. programs must present baccalaureate credentials appropriate to the specialized area of study.
- Applicants from foreign countries whose native language is not English must score at least 550 on the Test of English as a Foreign Language (TOEFL).

UNIVERSITY GRADUATE REGULATIONS

See the University Graduate Regulations section of this catalog.

As of Fall 1977, it is the policy of the Professional College of Engineering that all graduates from the Engineering Curriculum who receive the Bachelor of Science in Engineering or Master of Science in Engineering degrees must have taken the Fundamentals of Engineering examination (Examination of the Florida State Board of Professional Engineers and Land Surveyors or equivalent) as a graduation requirement.

Course work more than five years old cannot be used to satisfy degree requirements unless waived by the Dean of Engineering.

Half of the course work must be at the 6000 level.

MASTER OF SCIENCE IN ENGINEERING — M.S.E.

Advanced professional engineering competencies are achieved through the Master of Science in Engineering program. This program is intended for those who have attained a bachelor's degree in the engineering discipline in which they wish to continue study at the graduate level. The M.S.E. degree program consists of a core requirement which maintains breadth in a discipline and also an in-depth specialization in a subdiscipline area.

M.S.E. options are offered by the following departments:

M.S.E. options

Civil Engineering:
Electrical Engineering:
Computer Engineering:
Environmental Engineering:
Industrial Engineering:
Manufacturing Engineering:
Mechanical Engineering:

Engineering Departments

Civil Engineering & Environmental Sciences
Electrical Engineering & Communications Sciences
Computer Engineering
Civil Engineering & Environmental Sciences
Industrial Engineering & Management Systems
Industrial Engineering & Management Systems
Mechanical Engineering & Aerospace Sciences

M.S.E. DEGREE REQUIREMENTS

REQUIRED OPTION CORE COURSES

12-20 Semester Hours

See Departmental Option Core course requirements in the following section.

RESTRICTED ELECTIVES

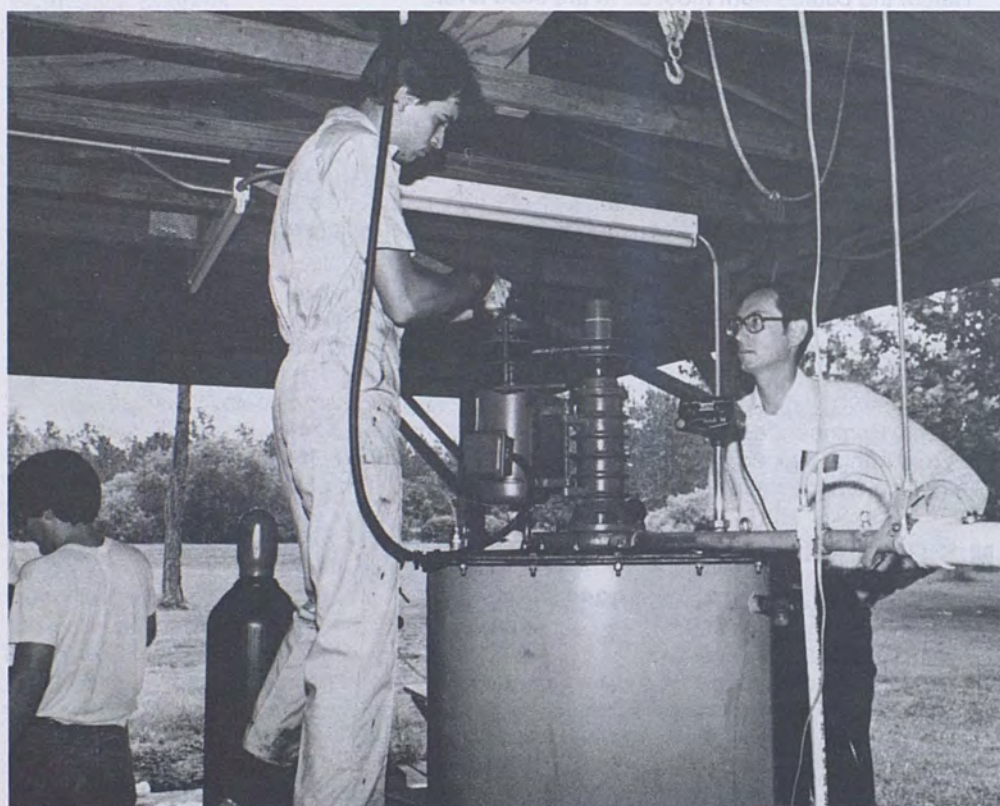
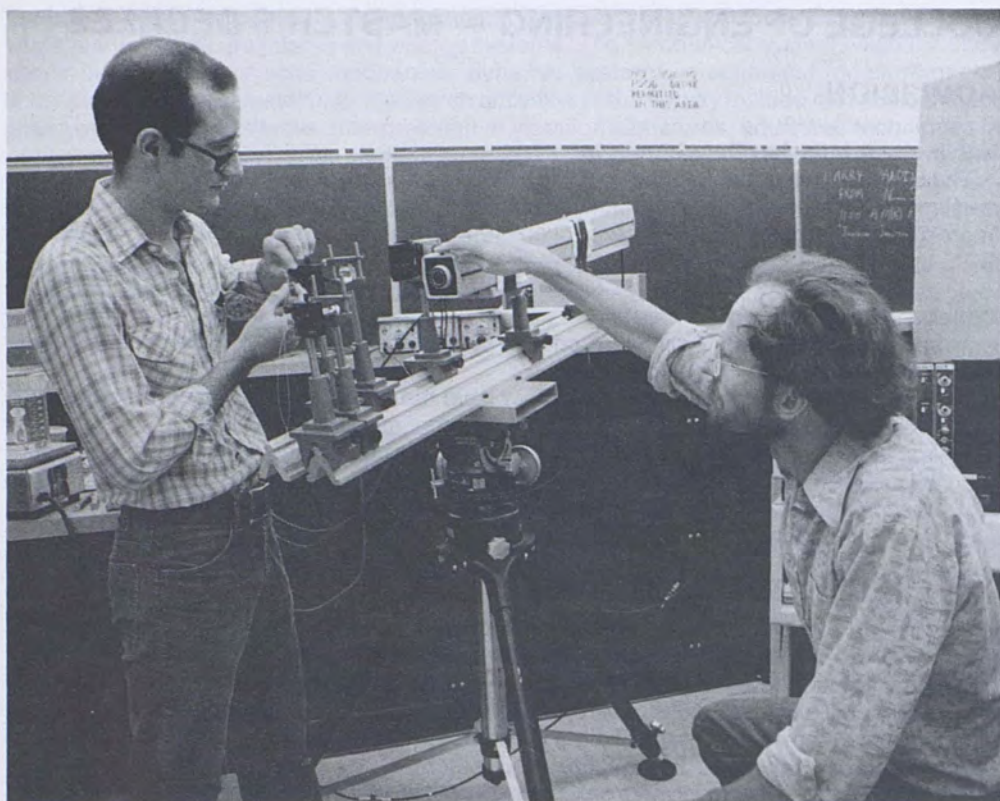
4-15 Semester Hours

Additional subdiscipline-specialty courses such as additional advanced mathematics, computer systems, natural sciences, engineering sciences, or appropriate supportive areas (beyond B.S.E. core requirement or equivalent).

RESEARCH REPORT OR THESIS

3-6 Semester Hours

Students must be registered in the semester in which application for graduation is filed.



EXAMINATION

Oral defense of research report or thesis is required. Satisfactory completion of comprehensive examination may be required.

Total Minimum Semester Hours Required:

30

M.S.E. OPTIONS

Departmental Core Course Requirements

Each student will select, with the approval of his graduate committee, departmental core courses as noted below for the professional options. Additional course work may be selected in one of the subdiscipline specialty areas to provide program depth. The student is referred to the course description section of the catalog for further information.

M.S.E. CIVIL ENGINEERING OPTION

15 Semester Hours

The core requirements will be met by the following courses offered by the Department of Civil Engineering and Environmental Sciences.

a.	CES 6606	Steel Design	3 hours
	or		
	CES 6707	Concrete Design	3 hours
b.	ECI 6235	Open Channel Hydraulics	3 hours
c.	ECI 5306	Geotechnical Engineering II	3 hours
d.	TTE 5204	Traffic Engineering	3 hours
	or		
	TTE 5720	Design Elements of Transportation Transportation Systems	3 hours
e.	ECI 6045	Mathematical Modeling in Civil Engineering	3 hours

M.S.E. COMPUTER ENGINEERING OPTION

18 Semester Hours

The core requirements for all students will be met by the following courses offered as an Interdisciplinary program.

ECM 5135	Engineering Math Analysis I	3 hours
ECM 5505	Micro Computer Systems	3 hours
ECM 5806	Software Engineering I	3 hours
ECM 6235	Engineering Math Analysis II	3 hours
EEL 5365	Introduction to Digital Systems	3 hours
EEL 6349	Computer Systems Design	3 hours

M.S.E. ELECTRICAL ENGINEERING OPTION

12-15 Semester Hours

Courses are offered by the Department of Electrical Engineering and Communication Science. At least *two courses* from one of the following specialization areas: communications systems, control systems, digital signal processing, digital systems, electronics, and electro-optics. In addition, each student will select courses from each of the three areas listed below:

a.	EEL 6371	Amplifier Design	3 hours
	or		
	EEL 6372	Operational Amplifiers	3 hours
b.	EEL 5173	Signal and System Analysis	3 hours
	or		
	EEL 5442	Random Processes	3 hours
	or		
	ECM 5806	Software Engineering I	3 hours
c.	EEL 5365	Introduction to Digital Systems	3 hours
	or		
	EEL 5441	Coherent Optics Applications	3 hours
	or		
	EEL 6530	Communication Systems Design	3 hours

M.S.E. ENVIRONMENTAL ENGINEERING OPTION

20 Semester Hours

The student will take the following Environmental Engineering core and specialty courses offered by the Department of Civil Engineering and Environmental Sciences.

ENV 6515	Environmental Impact Assessment	3 hours
ENV 5625	Water Resources Engineering	3 hours
ENV 6015	Physical/Chemical Treatment Systems	3 hours
ENV 6016	Biological Treatment Systems	3 hours
ENV 6017	Unit Operations and Processes Laboratory	2 hours
ENV 6106	Atmospheric Pollution Control	3 hours
ENV 6518	Industrial Waste Treatment	3 hours

M.S.E. INDUSTRIAL ENGINEERING OPTION

17 Semester Hours

The core requirements for all students will be met by the following courses.

EIN 6357	Engineering Economics Analysis	3 hours
STA 5156	Probability and Statistics for Engineers	4 hours
ESI 6316	Operations Research	4 hours
EIN 6140	Project Engineering	3 hours
ECM 6416	Discrete System Stimulation	3 hours

M.S.E. MANUFACTURING ENGINEERING OPTION

18 Semester Hours

This option is offered by the Industrial Engineering and Management Systems Department. Students who have not had the following courses or their equivalent must take them as prerequisites:

EIN 4391	Manufacturing Engineering
EIN 3315	Work Measurement and Design
EIN 4332	Industrial Control Systems

The core requirements for all students will be met by the following courses:

EIN 6605	Robotics in Industry	3 hours
EIN 6607C	Numerical Control	3 hours
EIN 6337	Production and Inventory Control	3 hours
EIN 6140	Project Engineering	3 hours
EIN 6357	Advanced Engineering Economics Analysis	3 hours
ECM 5506	Engineering Applications of Computer Graphics	3 hours

M.S.E. MECHANICAL ENGINEERING OPTION

15 Semester Hours

The core requirement for all students will be met by the courses listed:

a. EML 5237	Advanced Mechanics of Materials	3 hours
b. EML 5271	Advanced Dynamics	3 hours
c. EML 6154	Conduction Heat Transfer	3 hours
or		
EML 6155	Convection Heat Transfer	3 hours
or		
EML 6157	Radiation Heat Transfer	3 hours
d. EML 6530	Principles of Design	3 hours
e. EML 6710	Gas Dynamics	3 hours
or		
EML 6712	Mechanics of Viscous Flow	3 hours

MASTER OF SCIENCE — M.S.

The Master of Science graduate program is designed to provide the competent student in engineering or other selected fields an opportunity to specialize in a particular subject area within engineering. Normally this objective may be attained through the satisfactory completion of graduate-level course work and research endeavor. A grade point average of "B" must be maintained in all required articulation courses.

Each department and program in the college offers one or more Master of Science options as shown in the department listings below.

- Department of Civil Engineering & Environmental Sciences
 - Construction
 - Environmental Sciences
 - Structures & Foundations
 - Transportation Systems
- Department of Electrical Engineering & Communication Services
 - Electrical Systems and Sciences
- Department of Computer Engineering
 - Computer Systems
 - Engineering System Analysis
- Department of Industrial Engineering & Management Sciences
 - Computer Integrated Manufacturing
 - Engineering Administration
 - Operations Research
 - Simulation Systems
- Department of Mechanical Engineering & Aerospace Sciences
 - Energy Systems
 - Mechanical Systems

M.S. DEGREE REQUIREMENTS

REQUIRED PROGRAM OPTION COURSES

10-21 Semester Hours

See departmental option requirements in the following section. The M.S. options are arranged alphabetically.

RESTRICTED ELECTIVES

3-17 Semester Hours

Additional advanced mathematics (beyond MAC 3313 and MAP 3302), computer systems, natural sciences, engineering sciences or appropriate supportive areas.

RESEARCH REPORT OR THESIS

3-6 Semester Hours

Students must be registered in the semester in which application for graduation is filed.

EXAMINATION

Oral defense of research report or thesis is required. Satisfactory completion of a comprehensive examination may be required.

ARTICULATION COURSES

Specified on an individual basis depending on previous background.

Total Minimum Semester Hours Required:

30

M.S. OPTION REQUIREMENTS

M.S. COMPUTER INTEGRATED MANUFACTURING OPTION

30 Semester Hours

This option (offered by the Department of Industrial Engineering and Management Systems) is designed for students who have an undergraduate degree in Engineering, Mathematics, Computer Science, or allied field. An individual program of study is developed with a faculty advisor but must conform to the following guidelines:

Prerequisites

- Mathematics through Differential Equations (MAP 3302)
- Engineering Economics (EGN 3613)
- Operations Research (EGN 4634)
- Probability and Statistics (STA 3032)
- Higher Level Programming Language Ability
- Mechanics of Materials (EGN 3331)
- Manufacturing Engineering (EIN 4391)

Required Courses

12 Semester Hours

- | | | |
|-----------|----------------------------------|---------|
| EIN 6605 | Robotics in Industry | 3 hours |
| EIN 6607C | Numerical Control | 3 hours |
| EIN 6337 | Production and Inventory Control | 3 hours |
| EIN 6140 | Project Engineering | 3 hours |

Restricted Electives		12-15 Semester Hours
EIN 6258	Man-Computer Interaction	3 hours
EIN 6357	Advanced Engineering Economics	3 hours
EIN 6215	Systems Safety	3 hours
EIN 6361	Energy Management	3 hours
ECM 5506	Computer Graphics	3 hours
EML 6311	Systems Control	3 hours
EML 5237	Advanced Mechanics of Materials	3 hours
EML 6532	Computer-Aided Design	3 hours
ECM 5505	Microcomputer Control	3 hours

Research Report or Thesis 3-6 Semester Hours
 Additional subdiscipline-specialty courses and appropriate support courses may be selected to meet the individual professional needs for each student.

M.S. COMPUTER SYSTEMS OPTION 30 Semester Hours

This option (offered by the Department of Computer Engineering) is designed for students with an undergraduate degree in engineering, mathematics, computer science, or a basic science. An individual program of study is developed with a faculty advisor and is required to conform to the following guidelines:

Prerequisites

Mathematics through Differential Equations (MAP 3302)
 Assembly Language Programming
 Probability and Statistics (STA 3032)
 FORTRAN Programming (COP 3215)
 Digital Logic Circuits (EEL 3341)

Required Courses		12 Semester Hours
EEL 5365	Introduction to Digital Systems	3 hours
EEL 6349	Computer Systems Design	3 hours
ECM 5505	Micro Computer Systems	3 hours
ECM 5806	Software Engineering I	3 hours

Restricted Electives		Select 3 courses from the following:	9 Semester Hours
ECM 5506	Engineering Applications of Computer Graphics		3 hours
ECM 6706	Engineering Data Reduction		3 hours
ECM 6805	Microcomputer Applications Design		3 hours
ECM 6807	Software Engineering II		3 hours
EEL 6717	Digital Computer Systems		3 hours
EIN 6258	Man-Computer Interaction		3 hours

Electives 3-6 Semester Hours

Research Report or Thesis 3-6 Semester Hours

M.S. CONSTRUCTION OPTION 30 Semester Hours

This option (offered by the Department of Civil Engineering and Environmental Sciences) integrates construction management science theory with construction engineering principles and practices. The program is designed to provide the student with the necessary knowledge to form a construction company, manage a complete project at a profit and to plan and supervise construction operations and research. Emphasis is given to macro construction engineering and international projects. Students are motivated to develop new optimization and cost reduction techniques.

Prerequisites

The student in this program should have background or coursework in the following areas:

Mathematics through Differential Equations (MAP 3302)
Probability and Statistics (STA 3032)
FORTRAN Programming (COP 3215)
Engineering Economics (EGN 3613)
Mechanics of Materials (EGN 3331)
Operations Research (EGN 4634)
Transportation Engineering (TTE 4004)
Structural Engineering Analysis (CES 4124)
Structural Steel or Concrete Design (CES 4605 or CES 4704)

Required Courses

16 Semester Hours

ECI 5147	Construction Project Management	3 hours
ECI 5135	Construction Cost Engineering	3 hours
ECI 6148	Construction Networking Techniques	3 hours
ECI 6146	Analytical Design and Construction	3 hours
ESI 6316	Operations Research	4 hours

Restricted Electives (Choose at least two courses)

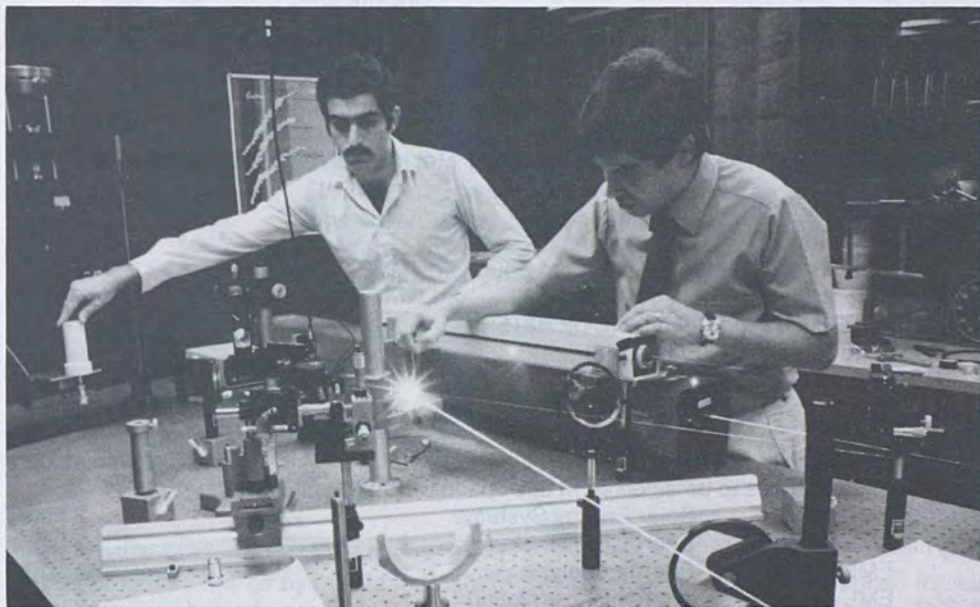
6-10 Semester Hours

STA 5156	Probability and Statistics for Engineers	4 hours
EIN 6357	Engineering Economic Analysis	3 hours
ECI 6917	Public Works Engineering	3 hours

Research Report or Thesis

3-6 Semester Hours

Additional subdiscipline-specialty courses and appropriate support courses are selected to meet the individual professional needs for each student.



M.S. ELECTRICAL SYSTEMS AND SCIENCES OPTION

30 Semester Hours

This option (offered by the Department of Electrical Engineering and Communication Sciences) is available for individuals with undergraduate degrees in areas related to electrical engineering such as physics, mathematics, and computer science. The student, with the approval of the graduate committee, will select courses in electrical engineering or related fields with the objective of specializing in a particular subject area within Electrical Engineering.

Prerequisites

Mathematics through Differential Equations (MAP 3302)
Physics with Calculus (EGN 2382, EGN 3303)
Electronics (EEL 3307)
Circuits (EEL 3122)
Communication (EEL 3552)
Advanced undergraduate engineering courses in area of graduate studies specialization.

One example of an option which takes advantage of the extensive laser, defense, and space-industry base in the Orlando area, is the interdisciplinary program in Electro-Optics and Optical Communications. The emphasis of this area of specialization is optical systems design and electro-optics. Students will study optical electronics, lasers, detectors, and communications. Also, a strong emphasis is placed on the study of advanced applied mathematics.

Required Courses

15 Semester Hours

EEL 5441	Coherent Optics Applications	3 hours
EEL 6488	Electromagnetic Fields	3 hours
EEL 6530	Communication Theory	3 hours
EEL 6560	Optical Electronics	3 hours
EEL 6561	Fourier Optics	3 hours

Electives

9-12 Semester Hours

Other courses will be selected, with the approval of the graduate advisor, to round out the student's program. All students are expected to take 9 hours of applied mathematics.

Research Report or Thesis

3-6 Semester Hours

Another example, particularly appropriate for those with a physics background, is the Micro-Electronics option. The students should take EEL 4308, Semi-conductor Devices, in addition to other senior-level electrical courses, and then proceed to EEL 5355, Fabrication of Solid-state Devices.

M.S. ENERGY SYSTEMS OPTION

30 Semester Hours

This option is offered by the Department of Mechanical Engineering and Aerospace Sciences.

Prerequisites

Mathematics through Differential Equations (MAP 3302)
Probability and Statistics (STA 3032)
FORTRAN Programming (COP 3215)
Fluid Mechanics (EML 4142)
Vibration Analysis (EML 4222)
Machine Design (EML 3502)

Required Courses

21 Semester Hours

Required courses to be selected in this option include the following:

EML 5416	Solar Energy Systems	3 hours
EML 5451	Energy Conversion	3 hours
EML 5453	Energy Analysis	3 hours
EML 5455	Energy Conservation	3 hours
EML 5609	Environmental Thermodynamics	3 hours
EML 6154	Conduction Heat Transfer	3 hours
EML 6155	Convection Heat Transfer	3 hours
EML 6157	Radiation Heat Transfer	3 hours
EML 6710	Advanced Gas Dynamics	3 hours
EML 6712	Mechanics of Viscous Flow	3 hours

Electives

3-6 Semester Hours

A typical program might consist of 21 hours selected from the above, as well as 3-6 hours of advanced mathematics, scientific subjects, or engineering electives.

Research Report or Thesis

3-6 Semester Hours

M.S. ENGINEERING ADMINISTRATION OPTION

30 Semester Hours

This program (offered by the Department of Industrial Engineering and Management Sciences) is designed for students who have an engineering or scientific undergraduate degree and are considering graduate work in the management field. An individual program of study is developed with a faculty advisor and is required to conform to the following guidelines:

Prerequisites

Engineering Economics (EGN 3613)
 Operations Research (EGN 4634)
 Mathematics through Differential Equations (MAP 3302)
 Probability and Statistics (STA 3032)
 FORTRAN Programming (COP 3215)

Required Courses

10 Semester Hours

STA 5156	Probability and Statistics for Engineers	4 hours
EIN 6357	Advanced Engineering Economic Analysis	3 hours
EIN 6140	Project Engineering	3 hours

Restricted Electives (at least 4 courses)

11-14 Semester Hours

ESI 6316	Operations Research	4 hours
ACC 5004	Financial Accounting Concepts	3 hours
EIN 6305	Engineering Administration II	3 hours
ECM 6416	Discrete System Simulation	4 hours
EIN 5117	Management Information Systems	3 hours
ESI 6525	Systems Dynamics	3 hours
ESI 4234	Engineering Reliability & Quality Assurance	3 hours
EIN 6215	Systems Safety	3 hours
EIN 4251	Automation	3 hours
ECP 6205	Labor Economics	3 hours
ECP 6405	Industrial Organization & Performance	3 hours
MAN 5051	Management Concepts	2 hours
MAN 6055	Planning & Control Analysis	3 hours
MAN 6121	Group Decisions & Analysis	3 hours
MAN 6206	Organizational Behavior & Development	3 hours
FIN 5405	Financial Concepts	3 hours
FIN 6406	Financial Analysis & Management	3 hours
ECO 5055	Economic Concepts	3 hours
ACC 6734	Accounting Analysis	3 hours
ECP 6704	Managerial Economics	3 hours
ECO 6111	Economic Analysis of the Firm	3 hours

Electives

3-6 Semester Hours

Additional subdiscipline-specialty courses and appropriate support courses may be selected to meet the individual professional needs for each student.

Research Report or Thesis

3-6 Semester Hours

M.S. ENGINEERING SYSTEMS ANALYSIS OPTION

30 Semester Hours

This program (offered by the Department of Computer Engineering) is designed for students who have an undergraduate degree in engineering, mathematics, or science. An individual program of study is developed with a faculty advisor and is required to conform to the following guidelines:

Prerequisites

Operations Research (EGN 4634)
 Mathematics through Differential Equations (MAP 3302)
 Probability and Statistics (STA 3032)
 FORTRAN Programming (COP 3215)
 Systems Analysis (EGN 3703)

Required Courses		14 Semester Hours
ECM 5135	Engineering Math Analysis I	3 hours
ECM 6235	Engineering Math Analysis II	3 hours
ECM 6416	Discrete Systems Simulation	4 hours
ESI 6316	Operations Research	4 hours

Restricted Technical Electives — Choose at least two courses		6-7 Semester Hours
ESI 6525	Systems Dynamics	3 hours
ESI 5575	Mathematical Systems Theory	3 hours
EIN 5117	Management Information Systems	3 hours
ECM 6426	Continuous System Simulation	3 hours
ECM 6417	Advanced Systems Simulation	3 hours
STA 5156	Probability and Statistics for Engineers	4 hours

Electives 3-7 Semester Hours
Additional subdiscipline-specialty courses are selected and often include appropriate support courses to meet the individual professional needs for each student.

Research Report or Thesis 3-6 Semester Hours

M.S. ENVIRONMENTAL SCIENCES OPTION 3-6 Semester Hours

This option (offered by the Department of Civil Engineering and Environmental Sciences) is offered to students with appropriate science baccalaureate degrees. The student entering this program should have background (or articulation course work) in the following areas:

Prerequisites

Mathematics through Differential Equations (MAP 3302)
Fluid Mechanics (EGN 3353)
Engineering and Environment (EGN 3704)
FORTRAN Programming (COP 3215)
Engineering Economics (EGN 3613)
Probability and Statistics (STA 3032)
Hydrology and Hydraulics (ENV 4404)
Environmental Engineering — Process Design (ENV 4504)
Chemical Process Control — (EES 4202)
Biological Process Control — (EES 4204)
Atmospheric Pollution Control — (ENV 4119)

Required Courses		18 Semester Hours
ENV 5625	Water Resources Engineering	3 hours
EES 5210	Potable Water Treatment	3 hours
ENV 6518	Industrial Waste Treatment	3 hours
ECI 6235	Open Channel Hydraulics	3 hours
ENV 6106	Atmosphere Pollution Control	3 hours
ENV 6015	Physical/Chemical Treatment Systems	3 hours
	or	
ENV 6016	Biological Treatment Systems	3 hours

Electives 6-9 Semester Hours
The remaining course work is selected from subdiscipline courses.

Research Report or Thesis 3-6 Semester Hours

M.S. MECHANICAL SYSTEMS OPTION 30 Semester Hours

This program is offered by the Department of Mechanical Engineering and Aerospace Sciences.

Prerequisites

Mathematics Through Differential Equations (MAP 3302)
Probability and Statistics (STA 3032)
FORTRAN Programming (COP 3215)
Fluid Mechanics (EGN 3353)
Heat Transfer (EML 4142)
Vibration Analysis (EML 4222)
Machine Design (EML 3502)

Required Courses**21 Semester Hours**

EML 5237	Advanced Mechanics of Materials	3 hours
EML 5271	Advanced Dynamics	3 hours
EML 6223	Synthesis of Vibrating Systems	3 hours
EML 6279	Synthesis of Planar Mechanisms	3 hours
EML 6311	System Control	3 hours
EML 6402	Turbomachinery	3 hours
EML 6530	Principles of Design	3 hours
EML 6532	Computer-Aided Design	3 hours

Electives**3-6 Semester Hours**

A typical program might consist of 21 hours selected from the above, as well as 3-6 hours of advanced mathematics, scientific subjects, or engineering electives.

M.S. OPERATIONS RESEARCH OPTION**30 Semester Hours**

This program (offered by the Department of Industrial Engineering and Management Sciences) is designed for students who have an undergraduate degree in engineering, mathematics, or science. An individual program of study is developed with a faculty advisor but must conform to the following guidelines:

Prerequisites

Engineering Economy (EGN 3613)
 Operations Research (EGN 4634)
 Mathematics through Differential Equations (MAP 3302)
 Probability and Statistics (STA 3032)
 FORTRAN Programming (COP 3215)

Required Courses**10 Semester Hours**

STA 5156	Probability & Statistics for Engineers	4 hours
ECM 6416	Discrete Systems Simulation	3 hours
ECM 5135	Engineering Math Analysis I	3 hours

Restricted Electives At least three must be taken.)**9-11 Semester Hours**

ECM 6235	Engineering Math Analysis II	3 hours
ESI 6336	Queuing Systems	3 hours
ESI 6427	Mathematical Programming I	4 hours
ESI 6437	Mathematical Programming II	4 hours
EIN 6337	Production & Inventory Control	3 hours
ECM 6417	Advanced Systems Simulation	3 hours

Electives**3-8 Semester Hours****Research Report or Thesis****3-6 Semester Hours**

Additional subdiscipline-specialty courses and appropriate support courses may be selected to meet the individual needs of each student.

M.S. SIMULATION SYSTEMS OPTION**30 Semester Hours**

This option (offered by the Department of Industrial Engineering and Management Systems) is offered in support of the mission of the University's Institute for Simulation and Training. Central Florida is continually developing as a center for high technology research, development, and manufacturing for government, military, and industrial organizations. The design and management of appropriate training for these activities requires a comprehensive background in modern technology and computer-based methodologies such as that provided in this degree program.

This program is designed for students who have earned an undergraduate degree in Engineering, Mathematics or Science, although other majors can be accommodated with additional prerequisite courses (see below). A program of study which conforms to the following guidelines is developed for each student with the assistance of a faculty advisor and graduate committee.

Prerequisites

Mathematics through Differential Equations (MAP 3302)
Probability and Statistics (STA 3032)
FORTRAN or other high-order language programming ability.
Digital Logic Circuits (EEL 3341)

Required Courses

21 Semester Hours

EIN 6140	Project Engineering	3 hours
INP 6605	Training and Performance Appraisal	3 hours
EME 6613	Instructional Systems Design	3 hours
ECM 6416	Discrete Systems Simulation	3 hours
ECM 6426	Continuous Systems Simulation	3 hours
ESI 5170	Microcomputer Practicum	3 hours
ESI 6525	Systems Dynamics	3 hours

Electives

6-9 Semester Hours

These courses are selected with the approval of the student's committee to reflect special interests; representative packages (a through e) include the following examples:

a.	ECM 5806	Software Engineering I	3 hours
	ECM 6807	Software Engineering II	3 hours
b.	EIN 4243	Human Engineering I	3 hours
	EIN 6248	Human Engineering II	3 hours
	EIN 6258	Man-Computer Interaction	3 hours
c.	ECM 5506	Engineering Applications of Computer Graphics	3 hours
	ECM 6441	Computer Image Processing	3 hours
d.	EEL 5365	Introduction to Digital Systems	3 hours
	EEL 6349	Computer Systems Design	3 hours
	EEL 6717	Digital Computer Systems	3 hours
e.	ECM 5505C	Microcomputer-Based Monitoring and Control Systems	3 hours
	ECM 6805C	Microcomputer Applications Design	3 hours

The program requires a minimum of 30 semester hours of graduate credit, including either a 3-hour Research Report or 6-hour Thesis prepared under the supervision of the student's graduate committee.

M.S. STRUCTURES & FOUNDATIONS OPTION

30 Semester Hours

This option (offered by the Department of Civil Engineering and Environmental Sciences) is offered to students with appropriate baccalaureate backgrounds. Students should have background (or articulation course work) in the following areas:

Matrix Methods (CES 4144)
Steel Design (CES 4605)
Concrete Design (CES 4704)
Mathematics through Differential Equations (MAP 3302)
Geotechnical Engineering (ECI 4305)

Required Courses

15 Semester Hours

CES 6606	Steel Design	3 hours
CES 6707	Concrete Design	3 hours
CES 5107	Matrix Methods	3 hours
ECI 6324	Foundation Analysis	3 hours
ECI 5306	Geotechnical Engineering II	3 hours

Remaining course work from subdiscipline

6 to 9 Semester Hours

M.S. TRANSPORTATION SYSTEMS OPTION

30 Semester Hours

This option (offered by the Department of Civil Engineering and Environmental Sciences) is open to students with appropriate baccalaureate backgrounds. Students should have background (or articulation course work) in the following areas:

- Probability and Statistics (STA 3032)
- Operations Research (EGN 4634)
- Transportation Engineering (TTE 4004)
- Urban Systems Engineering (ENV 4651)
- Mathematics through Differential Equations (MAP 3302)

Required Courses

15 Semester Hours

TTE 5204	Traffic Engineering	3 hours
TTE 5720	Design Elements of Transportation Systems	3 hours
ECI 6197	Public Works Engineering	3 hours
TTE 6620	Mass Transportation Systems	3 hours
TTE 6526	Planning and Design of Airports	3 hours

Remaining course work from subdiscipline

9-12 Semester Hours

MASTER OF SCIENCE IN ENVIRONMENTAL SYSTEMS MANAGEMENT — M.S.E.S.M.

The College of Engineering offers graduate work leading to the Master of Science in Environmental Systems Management. The program is designed to provide for advanced professional and specialized education in selected areas of engineering and science related to the management and control of our natural and man-made environment.

The program provides for the preparation of engineering specialists for service in environment-related occupations by allowing concentrated study in a limited number of subdisciplines. The program is open to those with previous experience or course work which is closely related to the environmental sciences and environmental or systems engineering.

M.S.E.S.M. DEGREE REQUIREMENTS

Degree requirements vary depending upon student interests and background. Interested students should consult the chairman of the Civil Engineering and Environmental Sciences Department.

REQUIRED CORE COURSES

22 Semester Hours

a. ECM 5506	Engineering Applications of Computer Graphics	3 hours
b. EIN 6357	Engineering Economic Analysis	3 hours
c. ESI 6427	Mathematical Programming I	4 hours
d. ENV 5625	Water Resources Engineering	3 hours
e. ENV 6106	Atmospheric Pollution Control	3 hours
f. ENV 6015	Physical/Chemical Treatment Systems	3 hours
	or	
ENV 6016	Biological Treatment Systems	3 hours
g. ENV 5615	Environmental Impact Assessment	3 hours

RESEARCH REPORT

3 Semester Hours

OPTION AREAS

5 Semester Hours

Hours from appropriate areas such as Environmental Engineering, Civil Engineering, Mechanical Engineering, Electrical Engineering, Industrial Engineering, and Engineering Mathematics and Computer Systems. See option areas listed below:

Group I — Public Systems

TTE 6620	Mass Transportation Systems	3 hours
ECI 6198	Regional Planning, Design, and Development	3 hours
ECI 6197	Public Works Engineering	3 hours

Group II — Instrumentation

EEL	6621	Nonlinear Control Systems	3 hours
EEL	5630	Digital Control Systems I	3 hours
ECI	6197	Public Works Engineering	3 hours

Group III — Atmospheric

EML	5228	Acoustics	3 hours
EML	5451	Energy Conversions	3 hours
MET	5710	Metereology for Engineers	3 hours

Group IV — Water Resources

ECI	6235	Open Channel Hydraulics	3 hours
ECI	6617	Groundwater Hydrology	3 hours
EES	5210	Potable Water Treatment	3 hours

Total Minimum Semester Hours Required: 30

MASTER OF CIVIL ENGINEERING — M.C.E.

This is a professional practice oriented education program with an enhanced design element, nonengineering professional practice courses, and a six-month internship prior to graduation. The curriculum provides support for professional practice and, as such, the graduating student is required to take the Engineering Intern Examination. The program builds directly upon an approved undergraduate engineering degree, typically on an EAC/ABET accredited baccalaureate degree in Civil Engineering. Course work more than five years old cannot be used to satisfy degree requirements unless waived by the Dean of Engineering.

M.C.E. DEGREE REQUIREMENTS**REQUIRED COURSES**

12 Semester Hours

Design courses at the graduate level are required.

ELECTIVES

6 Semester Hours

Engineering science, science, and mathematics courses will be selected with advisor's approval.

PROFESSIONAL EMPHASIS

8 Semester Hours

A coordinated, planned sequence of courses covering nontechnical subject matter pertinent to professional practice in the following subjects. (Some may have been taken in the undergraduate program.)

- Engineering professional and ethics
- Economics
- Finance or Business Management
- Law, contracts and specifications
- Natural resources

INTERNSHIP

1 Semester Hour

Six months full-time internship

RESEARCH REPORT OR THESIS

3 or 6 Semester Hours

A thesis or research report is required.

EXAMINATION

Students must take the Fundamentals of Engineering Examination (Engineering-in-Training Test)

Total Minimum Semester Hours Required: 30

DOCTORAL PROGRAM

DOCTOR OF PHILOSOPHY DEGREE — PH.D.

The Ph.D. program is primarily intended for those with a master's degree in engineering; but, with appropriate articulation courses, master's degree holders in related disciplines will be able to use the program to study selected engineering disciplines in depth. The graduates of the program are able to meet the highest standards of preparation for leadership in the profession of engineering including research, teaching, and leadership in high technology industry and governmental agencies.

ADMISSION

In addition to satisfying regular University admissions criteria, students must have a master's degree in engineering or a related discipline awarded by a recognized institution. The student must successfully complete a Ph.D. Qualifying Examination conducted by the option department. A student is given two opportunities to pass the qualifying examination, but the second attempt must be approved by the department.

DEGREE REQUIREMENTS

The student's program will consist of a minimum of 84 semester hours of graduate credit.

CORE REQUIREMENT

All three areas listed below must be represented with a minimum of eight hours taken from outside the College of Engineering. The actual courses taken are worked out by the student and his advisory committee and specified in the student's program of study.

- Physical Sciences and Mathematics
- Engineering Sciences
- Management Sciences

OPTION REQUIREMENT

36 Semester Hours

Option courses, normally taken within one discipline, are selected by the student and his advisory committee. The options are:

- Computer Engineering
- Electrical Engineering
- Environmental Engineering
- Industrial Engineering
- Mechanical Engineering
- Civil Engineering (Planned for implementation in 1984)

DISSERTATION

24 Semester Hours

EXAMINATIONS

The candidacy examination will be taken when the student has finished most of his course work and has identified an area of research for the doctoral dissertation. The examination consists of two parts: (1) a written examination and (2) presentation of a written doctoral research prospectus to the committee and an oral review of the proposal. Upon completion of the dissertation, a successful oral defense of the dissertation must be conducted.

Total Semester Hours for the Ph.D. Degree:

84

COLLEGE OF ENGINEERING COURSES

CES 5107 Matrix Structural Analysis

3 cr (3,0)

PR: CES 4144 or equivalent. Optimization and matrix methods applied to the design of real structures.

CES 6116 Finite Elements in Structures

3 cr (3,0)

Applications of the finite element method to the analysis and design of linear and non-linear structural components and systems.

- CES 6129 Analysis of Plates and Shells** 3 cr (3,0)
PR: CES 5102 or C.I. Theory of bending of thin plates. Energy and approximation techniques. Non-linear behavior of plates. Theory of thin shells with small deformations.
- CES 6144 Matrix Methods of Structural Analysis** 3 cr (3,0)
PR: CES 5107 or C.I. Structural analysis of beams, frames, and plates using matrix methods and current computer programs.
- CES 6209 Dynamics of Structures** 3 cr (3,0)
PR: C.I. Dynamic behavior of linear structures. Natural vibrations of structural systems. Damping in structures. Response to periodic and non-periodic excitations. Emphasis on matrix methods.
- CES 6218 Structural Stability** 3 cr (3,0)
PR: CES 5102 or C.I. Analysis of structural elements, Columns, Frameworks, Lateral stability. Introduction to the stability of plates. Energy and approximate methods.
- CES 6606 Steel Design** 3 cr (3,0)
PR: CES 4605 or equivalent. Design of complete steel structures to include economics, plastic design and real building examples.
- CES 6707 Concrete Design** 3 cr (3,0)
PR: CES 4704 or equivalent. Design of concrete structures to include economics, slabs, prestressed concrete, and real building examples.
- EAS 6123 Advanced Aerodynamics** 3 cr (3,0)
PR: EAS 4101 or equivalent. Theoretical methods useful for predicting performance and stability of thin lifting surfaces and slender vehicles at subsonic, supersonic and hypersonic speeds.
- EAS 6400 Aeromechanics** 3 cr (3,0)
PR: EAS 4101 or equivalent. Aerodynamic principles as applied to stability and control of aerospace vehicles. Generalized vehicle performance. Small disturbance dynamic stability and control response.
- ECI 5135 Construction Cost Engineering** 3 cr (3,0)
PR: C.I. Construction cost planning, equipment productivity and methods. Heavy construction, building construction techniques, estimating production, operation analysis, material take off.
- ECI 5147 Construction Project Management** 3 cr (3,0)
PR: C.I. Strategic planning, management, development, design, and production of complex construction projects. Total building process, value engineering, project funding and cash flow.
- ECI 5215C Hydraulic Engineering** 3 cr (2,3)
PR: EGN 3353. Environmental and civil engineering hydraulics application. Pipe and open channel flow, fittings, flow measurements, etc.
- ECI 5306 Geotechnical Engineering II** 3 cr (3,0)
PR: ECI 4305. Continuation of ECI 4305 with emphasis on shear strength and design factors for earth pressures bearing capacity, and slope stability.
- ECI 5315 Pavement Design** 3 cr (3,0)
PR: ECI 4305. Pavement types, wheel loads, stresses in pavement components, design factors such as traffic configurations, environmental, economic, drainage, and materials.
- ECI 5433 Geotechnical Engineering Design** 1 cr (0,2)
PR: ECI 4305 and ECI 5306. Project course on design of foundations and other soil structures using geotechnical design methodologies.
- ECI 6045 Mathematical Modeling in Civil Engineering** 3 cr (3,0)
PR: C.I. Development of modeling techniques applied to the analysis of contemporary Civil Engineering problems including transportation, fluid flow, and two-dimensional continuum analysis.
- ECI 6146 Analytical Design and Construction** 3 cr (3,0)
PR: C.I. Research, analytical design and development of buildings and civil engineering projects. Computer-aided graphics and design applications in construction.
- ECI 6148 Construction Networking Techniques** 3 cr (3,0)
PR: C.I. Critical path planning leveling, time-cost trade-offs using precedence networks, network cost analysis, computerized CPM and PERT systems. Competitive bid analysis.

- ECI 6197 Public Works Engineering** 3 cr (3,0)
PR: C.I. Principles and practices, operation and maintenance, equipment, utilities, planning and design, etc.
- ECI 6198 Regional Planning, Design, and Development** 3 cr (3,0)
PR: ENV 4651. Project course dealing with planning, design, and development of regional systems, including projections, case studies, design alternatives, environmental impact, etc.
- ECI 6235 Open Channel Hydraulics** 3 cr (3,0)
PR: ENV 4404 or C.I. Free surface flow studies by empirical and theoretical methods for the design, operation, and management of open channels.
- ECI 6324 Foundation Engineering** 3 cr (3,0)
PR: ECI 5306. Analysis and design of spread footings, mat foundations, retaining walls, sheeting and bracing systems and pile foundations.
- ECI 6346 Soil Dynamics** 3 cr (3,0)
PR: ECI 4305. Comprehensive coverage in calculating the dynamic response of foundations, presenting a variety of contemporary techniques for fields and laboratory.
- ECI 6617 Groundwater Hydrology** 3 cr (3,0)
PR: ENV 4404 or equivalent. Theories of groundwater movement, geological factors, analysis and design techniques, etc. Emphasis on practical considerations.
- ECM 5135 Engineering Math Analysis I** 3 cr (3,0)
PR: MAP 3302. Topics in advanced engineering mathematics including systems of differential equations, phase plane, linear algebra and vector differential calculus.
- ECM 5505C Microcomputer-based Monitoring and Control Systems** 3 cr (2,3)
PR: EEL 4342 or equivalent, COP 3215 or equivalent. Machine language programming; software development aids; interfacing considerations.
- ECM 5506C Engineering Applications of Computer Graphics** 3 cr (2,3)
PR: COP 3215. Introduction to the use of computer graphics, with engineering applications. Laboratory program assignments.
- ECM 5806 Software Engineering I** 3 cr (3,0)
PR: COP 3215, ECM 4504 or equivalent. Design reliability, testing, and implementation of engineering software.
- ECM 6235 Engineering Math Analysis II** 3 cr (3,0)
PR: ECM 5135. Advanced engineering math topics including Fourier series, partial differential equations, and complex variables.
- ECM 6416 Discrete Systems Simulation** 3 cr (3,0)
PR: STA 3032, COP 3215. Methods for performing discrete systems simulation, including network modeling, will be treated.
- ECM 6417 Advanced Systems Simulation** 3 cr (3,0)
PR: ECM 6416. Combined networks discrete and continuous simulation, applications, statistics of analysis and comparison of simulation language.
- ECM 6426 Continuous System Simulation** 3 cr (3,0)
PR: EGN 3703 or equivalent. Use of state-space techniques, numerical integration, and CSSL programs. Laboratory assignments.
- ECM 6436 Automata Theory** 3 cr (3,0)
PR: EEL 4342 or equivalent. Structural theory and performance characteristics of the finite-state machines.
- ECM 6441 Computer Image Processing** 3 cr (3,0)
PR: ECM 5506, ECM 4504, EMCS 4411 or equiv. Advanced topics in digital image processing and computer generated imagery systems. Algorithms for image enhancement and display. Advanced hardware systems.

- ECM 6706 Engineering Data Reduction** 3 cr (3,0)
Digital analysis of multidimensional data. Applications of multidimensional orthogonal transforms.
- ECM 6805C Microcomputer Applications Design** 3 cr (2,3)
PR: ECM 5505C or C.I. Advanced applications of microcomputer systems. Design of systems and software to implement a case study in microcomputer usage.
- ECM 6807 Software Engineering II** 3 cr (3,0)
PR: ECM 5806 or equivalent; C.I. Continuation of ECM 5806. Emphasis on term projects and case studies.
- EEL 5173 Signal and System Analysis** 3 cr (3,0)
PR: EEL 3122 and EEL 4714. Continuous and Discrete Dynamic Models; emphasis on state variable models. Laplace, Z-transform and time domain solutions of dynamic model behavior. Real-time digital simulation. Sampling theory.
- EEL 5260 Electric Power Generation and Distribution** 3 cr (3,0)
PR: EGN 3375 or equivalent. Concept of complex power in single and three phase systems. Synchronous machines, power transformer, and transmission lines system design.
- EEL 5355C Fabrication of Solid-State Devices** 4 cr (3,3)
PR: EEL 4308. Fabrication of microelectronic devices, processing technology, ion implantation and diffusion, device design and layout. Laboratory includes device processing technology.
- EEL 5365 Introduction to Digital Systems** 3 cr (3,0)
PR: EEL 3342C or equivalent. Analysis and synthesis of combinational, synchronous and asynchronous sequential logic circuits. Introduction to controller design using a digital design language.
- EEL 5441 Coherent Optics Applications** 3 cr (3,0)
PR: PHY 3421 and EEL 3470 or C.I. Coherent optical radiation and propagation. Design and analysis of optical components and systems.
- EEL 5499L Electro-Optics Lab Techniques** 2 cr (0,4)
PR: EEL 3470 and EEL 3552. Laboratory experiments in holography, optical data processing, laser characteristics, fiber optics, and optical communications.
- EEL 5542 Random Processes** 3 cr (3,0)
PR: EEL 3552 and STA 3032. Elements of probability theory; random variables, and stochastic processes.
- EEL 5563 Fiber Optics Communication** 3 cr (3,0)
PR: EEL 3552, EEL 3470. Use of fiber optics as a communication channel. Principles of fiber optics. Mode theory, transmitters, modulators, sensors, detectors and demodulators.
- EEL 5630 Digital Control Systems I** 3 cr (3,0)
PR: EEL 5173 and EEL 3342C. Real time digital control system analysis and synthesis. Digital compensation of control systems such as high accuracy positional control systems with encoder feedback sensors.
- EEL 6144 Synthesis of Electric Filters** 3 cr (3,0)
PR: Analysis and design of electric filters.
- EEL 6595 VLSI Design of Digital Signal Processors** 3 cr (3,0)
PR: EEL 5173 and EEL 6502 (or C.I.) Signal Processing techniques and algorithms as applied to digital filters, detection, and estimation. VLSI Design Methodology and components are applied to signal processors.
- EEL 6349 Computer System Design** 3 cr (3,0)
PR: EEL 5365 or C.I. Study of digital systems and computer architecture using digital design language. Specification and design of computer systems. Comparison of software and hardware solutions.
- EEL 6371 Amplifier Design** 3 cr (3,0)
PR: Small signal device models; analysis and synthesis of electronic amplifier circuits in frequency and time domains.
- EEL 6372 Operational Amplifiers** 3 cr (3,0)
PR: The design of the differential amplifier stage, multi-staging, linear circuit applications, uses in non-linear circuits, active filters.

- EEL 6488 Electromagnetic Fields** 3 cr (3,0)
PR: EEL 3470 or C.I. Maxwell's equations. Boundary conditions. Propagation, reflection, and refraction of waves. Guided Waves. Radiation.
- EEL 6502 Digital Signal Processing I** 3 cr (3,0)
PR: EEL 5173 or C.I. Treatment of digital signal and system characteristics in time and frequency domain with emphasis on conversion, Z-transform, FFT theory. Real-time processing, correlation functions; system identification.
- EEL 6504 Communications Systems Design** 3 cr (3,0)
PR: EEL 6530 or C.I. Signal detection, linear estimation (including Weiner-Kalman Filtering); and application topics such as Spread Spectrum and diversity techniques, computer communication, data communication via fading channels.
- EEL 6506 Digital Signal Processing II** 3 cr (3,0)
PR: EEL 6502. Programmable real-time signal processors (digital filters), multi-dimensional signal processing, image processing, computer generated imagery, and other related current topics — all with hardware implementation considerations.
- EEL 6530 Communication Theory** 3 cr (3,0)
PR: EEL 5542 or C.I. Communication in the presence of noise, modulation and demodulation; use of phase lock loop; digital data transmission, optimum receivers, introduction to information theory.
- EEL 6560 Optical Electronics** 3 cr (3,0)
PR: EEL 5441 or C.I. Introduction to optical electronic systems design, such as both gas and solid state laser systems, optical detectors, modulators, and frequency converters. Optical communication systems.
- EEL 6561 Fourier Optics** 3 cr (3,0)
PR: Application of Fourier Transform theory to optical systems design. Development of optical correlation techniques. Holographic techniques and applications.
- EEL 6565 Infrared Technology** 3 cr (3,0)
PR: C.I. Analysis of infrared systems radiation theory, sources, atmospheric transmission, detection, noise, materials, optical design, system design.
- EEL 6621 Nonlinear Control Systems** 3 cr (3,0)
PR: EEL 5173. Phase plane descriptions of non-linear phenomena, limit cycles, jump conditions, stability, describing functions, Liapunov and Popov theory, time and frequency domain analysis for non-linear systems.
- EEL 6633 Digital Control Systems II** 3 cr (3,0)
PR: EEL 5630. A study of Digital Control Systems with emphasis on advanced large-scale optimal and/or adaptive applications such as "on board" real-time Kalman Filter Guidance systems.
- EEL 6671 Modern and Optimal Control Systems** 3 cr (3,0)
PR: EEL 5173. The Optimal Control Problem. Necessary conditions for constrained minimums in finite dimensional space. Application to discrete time control problems. Pontryagin conditions and Hamilton-Jacobi Equations. Computational Considerations.
- EEL 6717 Digital Computer Systems** 3 cr (3,0)
PR: EEL 6349 or C.I. Analysis of special purpose computer elements, computers, and computer systems. Microprocessor based systems, systems with one or more central or I/O processors, networks of computers.
- EES 5210 Potable Water Treatment** 3 cr (2,3)
PR: EES 4202 and 4204. Engineering application of potable water chemistry involving coagulation, softening, filtration, corrosion, disinfection quality and drinking water.
- EGM 6611 Continuum Mechanics** 3 cr (3,0)
PR: EML 5237, EML 4709 or equivalent. Tensors; deformation and strain; stress; field equations, constitutive equations, applications in fluid dynamics and linear elasticity.
- EGM 6653C Theory of Elasticity** 3 cr (3,0)
PR: EML 5237. Review of stress and strain; solution by tensor stress and potential functions, Axisymmetric problems; wave propagation.

- EGN 5034 Engineering and Public Works** 3 cr (3,0)
PR: C.I. The purposes, function, and role of engineering within public works.
- EGN 5035 Topics in Technological Development** 2 cr (2,0)
PR: C.I. Case studies of selected topics in the engineering and technological development of western civilization. The weight-driven clock, steam engine, electric power, radar, electronics, etc.
- EGN 5036 Engineering Codes and Standards** 2 cr (2,0)
PR: C.I. Development, history, and function of engineering codes and standards and their use in protecting public health and safety.
- EIN 5117 Management Information Systems I** 3 cr (3,0)
PR: C.I. Design and implementation of computer-based Management Information Systems. Organizational, managerial and economic aspects of MIS.
- EIN 6140 Project Engineering** 3 cr (3,0)
PR: C.I. Role of engineer in project management, emphasis on qualitative and quantitative techniques in planning, organization supervision, control of projects from conceptual design to field installation; applications via term project.
- EIN 6215 System Safety** 3 cr (3,0)
PR: EIN 4214 or C.I. Concepts of system safety as applied to the recognition, evaluation and prevention or control of hazards in industry. Fault free analysis and risk management.
- EIN 6247C Human Engineering Design** 3 cr (2,2)
PR: Permission of Instructor. Fundamentals of human factors job design. Functional Flow Diagrams. Operational Sequence Diagrams. Design and research project.
- EIN 6248 Human Engineering II** 3 cr (3,0)
A continuation of EIN 4243 with emphasis on special projects and physiological factors appropriate to the industrial setting.
- EIN 6241C Human Engineering Design of Communications** 3 cr (2,2)
PR: EIN 6248 (or permission of instructor). Human factors considerations in design of visual and auditory communicative material. Design and research project.
- EIN 6249C Ergonomics** 3 cr (2,2)
PR: EIN 6348. Fundamentals of human factors applications to work place and consumer use. Research project and formal report.
- EIN 6270 Biomechanics and Work Physiology** 3 cr (3,0)
PR: EIN 4243 (or permission of instructor). Basics of biomechanics relating to the physiological cost to perform work tasks.
- EIN 6258 Man-Computer Interaction** 3 cr (3,0)
PR: EIN 4243 or C.I. The elements of man-computer interactive systems; hardware and software considerations; requirements of CIA, CAD, and MIS applications; design difficulties found in these systems.
- EIN 6305 Engineering Administration II** 3 cr (3,0)
PR: EGN 4624. A continuation of EGN 4624 with emphasis on the manufacturing and industrial enterprise.
- EIN 6316 Advanced Work Measurement** 3 cr (3,0)
PR: EIN 3315 or C.I. A continuation of EIN 3315 consideration of work measurement. Systems and the appropriateness of their use. History and evaluation. Case studies.
- EIN 6337 Production & Inventory Control** 3 cr (3,0)
PR: EIN 4332 or equivalent. Review of models and techniques used in forecasting, production control and inventory control. Includes aggregate planning, production scheduling, inventory management, models, etc.
- EIN 6351 Mathematical Programming Models for Engineering Economic Analysis** 3 cr (3,0)
PR: EIN 6357; ESI 6316. Extension of EIN 6357 to explore the development and application of mathematical programming in the related area of capital and resource allocation.
- EIN 6357 Advanced Engineering Economic Analysis** 3 cr (3,0)
PR: EGN 3613; STA 3032 or equivalent. Topics include measuring economic worth, economic optimization under constraints. Analysis of economic risk and uncertainty, foundations of utility functions.

- EIN 6361 Energy Management in Industrial Operations** 3 cr (3,0)
Review of Federal, State and local energy code requirements, performing an energy audit, analysis of process energy requirements and application of conservation techniques, LCC Models.
- EIN 6392C Manufacturing Systems** 3 cr (2,2)
The integration of new technologies and information processing concepts into a system for controlling the manufacturing enterprise.
- EIN 6416 Public Works Economics** 3 cr (3,0)
PR: EGN 3613 or equivalent. Economic considerations in public works planning. The nature and objective functions of public works projects; cost estimating, cost allocation and pricing. Cost/benefit analysis on primary and secondary benefits from public works projects.
- EIN 6605 Robotics in Industry** 3 cr (3,2)
PR: EIN 4391C. Robots and their use in industrial operations, on-line and off-line programming.
- EIN 6607C Numerical Control** 3 cr (2,2)
PR: EIN 4391. Numerical control (NC) systems. The geometry of solid parts, cutter line paths, programming NC systems. The APT Language.
- EIN 6608 Surface Design and Manufacture** 3 cr (3,0)
PR: EIN 6607. Techniques for designing surfaces and determining the cutter path necessary for part manufacture.
- EIN 6942 Industrial Design Practicum** 2 cr (2,0)
Analysis of real world operational problems using IEMS techniques via selected field studies.
- EMA 5126 Physical Metallurgy** 3 cr (3,0)
PR: EML 3236 or C.I. Study of strengthening mechanisms and phase transformations in metals and alloys.
- EMA 5626 Mechanical Metallurgy** 3 cr (3,0)
PR: EML 3234 or C.I. Study of the microscopic mechanical behavior of metals and alloys with emphasis on fracture, fatigue and creep.
- EML 5105 Statistical Thermodynamics** 3 cr (3,0)
PR: PR: EGN 3343, PHY 3421. Statistical approach to thermodynamic concepts, laws, and methods of analysis. Generalized p-v-T data. Special systems.
- EML 5228 Acoustics** 3 cr (3,0)
PR: MAP 3302, PHY 3421. Elements of vibration theory and wave motion; radiation, reflection, absorption, and transmission of acoustic waves; architectural acoustics; control and abatement of environmental noise pollution; transducers.
- EML 5237 Advanced Mechanics of Materials** 3 cr (3,0)
PR: EGN 3331. Elements of plane elasticity; failure theories; curved beams, columns; bending and torsion of thin-walled structures; theory of thin plates; applications to design.
- EML 5245 Tribology** 3 cr (3,0)
Principles of fluid film lubrication; bearing design and application; friction and wear of materials.
- EML 5271 Advanced Dynamics** 3 cr (3,0)
PR: EGN 3321, 3331. Dynamics of particles, distributed mass systems, and rigid bodies from an advanced viewpoint. Virtual work. Lagrange's and Euler's equations. Hamilton's principle.
- EM 5416 Solar Energy Systems** 3 cr (3,0)
PR: EML 4142. Principles of solar energy thermal processes. Analysis and design of solar collectors and solar heating and cooling systems.
- EML 5451 Energy Conversion** 3 cr (3,0)
PR: EML 3106 and PHY 3421. Unconventional methods of energy conversion; particular emphasis on fuel cells, thermoelectrics, thermionics, solar energy, photovoltaics and magnetohydrodynamics.
- EML 5453 Energy Analysis** 3 cr (3,0)
PR: Consent of instructor. Examination of energy demands and potential supply, computer simulation of resource depletion, alternate energy resources, transportation systems, economic and environmental constraints.

- EML 5454 Photovoltaics** 3 cr (3,0)
PR: EGN 3383, MAP 3302, or C.I. Basic operational principles, design, and current developments in solar cells.
- EML 5444 Energy Conservation** 3 cr (3,0)
PR: EML 4142. Analysis of energy use in economic sectors and design of conservation methodologies to reduce energy use. Heating and cooling loads, passive building designs will be presented.
- EML 5609 Environmental Thermodynamics** 3 cr (3,0)
PR: EML 3106. Thermodynamics of the environment emphasizing analysis and design of thermal systems. Building heating and cooling load calculations and energy conservation technologies analyzed.
- EML 6065 Variational Mechanics** 3 cr (3,0)
PR: EML 5271. Calculus of variations; Euler's equations; Rayleigh-Ritz method; Galerkin method. Weighted residual; finite element approximation. Applications in solid mechanics.
- EML 6104 Classical Thermodynamics** 3 cr (3,0)
PR: EML 3106 or C.I. A general postulative approach to classical macroscopic thermodynamics featuring states as fundamental constructs. Conditions of equilibrium, stability criteria, thermodynamic potentials. Maxwell relations and phase transitions.
- EML 6124 Two Phase Flow** 3 cr (3,0)
PR: EGN 3353. General transport equations for multiphase systems including gas-liquid, gas-solid and liquid-solid systems. Computational models for analyzing two-phase flow systems.
- EML 6131 Combustion Phenomena** 3 cr (3,0)
PR: EML 4142, EML 3106. Physical and chemical aspects of combustion phenomena. Rate processes, chemical kinetics, structure, propagation, aerodynamics and stability of premixed and diffusion flames.
- EL 6154 Conduction Heat Transfer** 3 cr (3,0)
PR: EML 4142. Classical and numerical techniques applied to the solution of steady and transient conduction problems. Applications to the design of thermal systems.
- EML 6155 Convection Heat Transfer** 3 cr (3,0)
PR: EML 4142. Convection heat, mass and momentum transfer in laminar and turbulent flows. Applications to the design of thermal systems.
- EML 6157 Radiation Heat Transfer** 3 cr (3,0)
PR: EML 4142. Radiation properties and analysis of radiation heat transfer problems. Applications to the design of thermal systems.
- EML 6223 Advanced Vibrational Systems** 3 cr (3,0)
PR: EML 5271 or C.I. Mechanical systems with multi-degrees-of-freedom. Introduction to non-linear and random vibrations. Concepts of modern dynamic analysis.
- EML 6226 Analytical Dynamics** 3 cr (3,0)
PR: EML 5271. Variational principles and Lagranges equations; systems with constraints; canonical transformations; Hamilton-Jacobi theory.
- EML 6279 Synthesis of Mechanisms** 3 cr (3,0)
PR: EML 6271 or C.I. Advanced synthesis, analysis, and design of planar and spatial mechanisms. Inversion techniques; computer applications; design of robotic manipulators.
- EML 6306 Advanced Engineering Instrumentation** 3 cr (3,0)
PR: EML 3303 or equivalent. Theoretical and experimental study of principles of operation, analysis and design techniques for systems of a mechanical and electromechanical nature.
- EML 6311 System Control** 3 cr (3,0)
PR: EGN 4714 or equivalent. Theoretical, experimental and computer methods involved in the design of control systems. Emphasis on non-linear system and advanced methods for control system analysis and optimization.

- EML 6402 Turbomachinery** 3 cr (3,0)
PR: EAS 4300 or EML 4411 or equivalent. Application of the principles of fluid mechanics, thermodynamics and aerodynamics to the design and analysis of pumps, compressors, and turbines.
- EML 6506C Experimental Mechanics** 3 cr (2,2)
PR: EML 3303, PHY 3421C. Selected topics in strain measurements, photoelasticity, holographic interferometry; laser speckle measurement; acoustic emission, measurement of correlation and coherence functions.
- EML 6530 Principles of Design** 3 cr (3,0)
PR: EML 5237, EML 5271 or C.I. Morphology of design, introductory decision theory, reliability analysis and safety factors, strength optimization, probabilistic aspects and advanced topics in machine design.
- EML 6531 Mechanical Behavior of Materials** 3 cr (3,0)
PR: EML 5237 or C.I. Emphasis on design applications. Macroscopic concepts of fracture mechanics, fatigue. Introduction to plasticity, limit analysis. Composite materials.
- EL 6532 Computer-Aided Design** 3 cr (3,0)
PR: EML 5237 or C.I. Theory, application and implementation of digital computer oriented algorithms for the synthesis, simulation, analysis and design of mechanical systems.
- EML 6533 Advanced Analytical Techniques in Mechanical Engineering** 3 cr (3,0)
PR: ECM 6235 or equivalent. Heat transfer, fluid mechanics and mechanical systems problems. Solutions by complex analysis, transforms, integral equations, and singular perturbation.
- EML 6710 Advanced Gas Dynamics** 3 cr (3,0)
PR: EML 4709 or C.I. Analysis of steady and subsonic, supersonic and hypersonic flows. Aerodynamic applications to the design of nozzles, diffusers, and high speed wind tunnels.
- EML 6712 Mechanics of Viscous Flow** 3 cr (3,0)
PR: EGN 3353, ECM 4114 or C.I. Principal concepts and methods for viscous fluid motion. Incompressible and compressible boundary layer analysis for laminar and turbulent flows.
- EML 6715C Computational Fluid Mechanics** 3 cr (2,3)
PR: EML 4709 or C.I. plus knowledge of FORTRAN. Computer studies of dynamics of a body moving through a fluid medium; inviscid and viscous flows; introduction to secondary flows and flow instabilities.
- ENU 5005 Nuclear Reactor Engineering** 3 cr (3,0)
PR: ENU 4103. Application of thermodynamics, fluid mechanics, heat transfer and materials to nuclear reactor design. Emphasis placed on reactors for electric power production.
- ENV 5045L Research Methods in Environmental Engineering** 1 cr (0,2)
PR: STA 3032, ENV 4504 or C.I. Experimental design and modeling of environmental engineering systems using fundamental concepts of computer programming, probability and statistics.
- ENV 5615 Environmental Impact Assessment** 3 cr (3,0)
PR: C.I. Evaluation, estimating, and predicting the effects of structures, processes, and systems upon the environmental and the effects of environmental changes upon human populations.
- ENV 5625 Water Resources Engineering** 3 cr (3,0)
PR: ENV 4404. Systems identification and solution to complex water allocation problems, and other hydraulic engineering designs and operations using economic analysis and operations research techniques.
- ENV 6015 Physical/Chemical Treatment Systems in Environmental Engineering** 3 cr (3,0)
PR: ENV 4504 and EES 4202 or C.I. Theory and design of physical and chemical operations and processes in environmental engineering using latest technologies.
- ENV 6016 Biological Treatment Systems in Environmental Engineering** 3 cr (3,0)
PR: EES 4204 and ENV 4504 or C.I. Theory and design of biological operations and processes in environmental engineering using the latest technologies.
- ENV 6017L Unit Operations and Processes Laboratory** 2 cr (0,6)
PR: ENV 6015 or 6016. Laboratory exercises in physical, chemical, and biological processes applicable to design.

- ENV 6018 Environmental Engineering Process Control** 3 cr (3,0)
PR: EGN 3703, EGN 4504. Environmental systems using feedback and feedforward real-time Laplace or Frequency Domain Dynamics.
- ENV 6106 Atmospheric Dispersion Modeling** 3 cr (3,0)
PR: ENV 4119 or C.I. Atmospheric composition, dynamics, sources, nature of contaminants, engineering methods, and mathematical modeling. Current computer models will be used.
- ENV 6116 Design of Air Pollution Controls** 3 cr (3,0)
PR: ENV 4119. Current methods for design and performance analysis to include scrubbers, baghouses, precipitators, and VOC incinerators.
- ENV 6356 Solid Wastes Management** 3 cr (3,0)
Study of the extent and characteristics of the solid waste problem, collection and disposal systems, environmental modeling and selected designs.
- ENV 6436 Water and Wastewater Systems Design** 2 cr (2,0)
PR: ENV 4504 and 4119 or C.I. Project course on design of water and wastewater systems.
- ENV 6505 Sludge Management Operations in Environmental Engineering** 3 cr (3,0)
PR: ENV 4504. Theory and design of sludge management operations and processes in environmental engineering, including stabilization dewatering and ultimate disposal.
- ENV 6515 Receiving Water Impacts** 3 cr (3,0)
PR: EES 4202 and 4204 or C.I. Study of fate and transport of pollutant loadings into receiving waters, based upon physical, chemical and biological interactions in natural systems.
- ENV 6518 Industrial Water Treatment** 3 cr (2,3)
PR: ENV 4504 and ENV 4119 or C.I. Theories and methods of management, reduction, treatment, and case studies of major industrial waste problems will be studied.
- ENV 6519 Aquatic Chemical Processes** 3 cr (3,0)
PR: EES 4202 and EES 4404 or C.I. The applicability of water chemistry and physical chemistry on natural waters and waste-water with emphasis on environmental engineering problems.
- ESI 5170 Microcomputer Practicum** 3 cr (2,3)
PR: Graduate Standing or C.I. Survey of personal computer programming and use in decision support applications in engineering.
- ESI 5575 Mathematical Systems Theory II** 3 cr (3,0)
PR: C.I. Introduction to nonlinear analysis. Approximation methods of numerical solutions. Stability of nonlinear systems. Systems examples to be taken from engineering, environmental science, and economics.
- ESI 6217 Statistical Aspects of Digital Simulation** 3 cr (3,0)
PR: STA 5156 or C.I. Statistical issues in digital simulation including input data analysis pseudorandom number generation, experimental design, and simulation output analysis.
- ESI 6316 Operations Research** 3 cr (3,0)
PR: EGN 4634. Methods of operations research including formulation for models and derivation of solutions; linear programming, network models queuing theory, simulation and nonlinear optimization techniques.
- ESI 6336 Queuing Systems** 3 cr (3,0)
PR: STA 5156. Analysis of queuing systems and waiting line problems using analytical and Monte Carlo methods. Laboratory assignments.
- ESI 6427 Mathematical Programming I** 4 cr (4,0)
PR: ENG 4634. Theory and applications of linear, non-linear, dynamic and goal programming techniques.
- ESI 6437 Mathematical Programming II** 4 cr (4,0)
PR: ESI 6427. Continuation of ESI 6427.
- ESI 6525 Systems Dynamics** 3 cr (3,0)
PR: COP 3215 or equivalent. Study of industrial dynamics and use of computerized dynamo models. Urban dynamics models will also be addressed.

MET 5710 Meteorology for Engineers

3 cr (3,0)

PR: MAC 3313. Studies of the atmospheric processes from physical thermodynamics and synoptic viewpoints.

STA 5156 Probability and Statistics for Engineers

4 cr (4,0)

PR: STA 3032 or equivalent. Theory and applications of discrete and continuous random variables, hypothesis tests, confidence intervals, regression analysis and correlation.

TTE 5204 Traffic Engineering

3 cr (3,0)

PR: STA 3032. Study of operator and vehicle characteristics, and design for street capacity, signals, signs and markings.

TTE 5720 Geometric Designs of Transportation Systems

3 cr (3,0)

PR: TTE 4004. Study of geometric and construction design elements in the engineering of transportation systems.

TTE 6526 Planning and Design of Airports

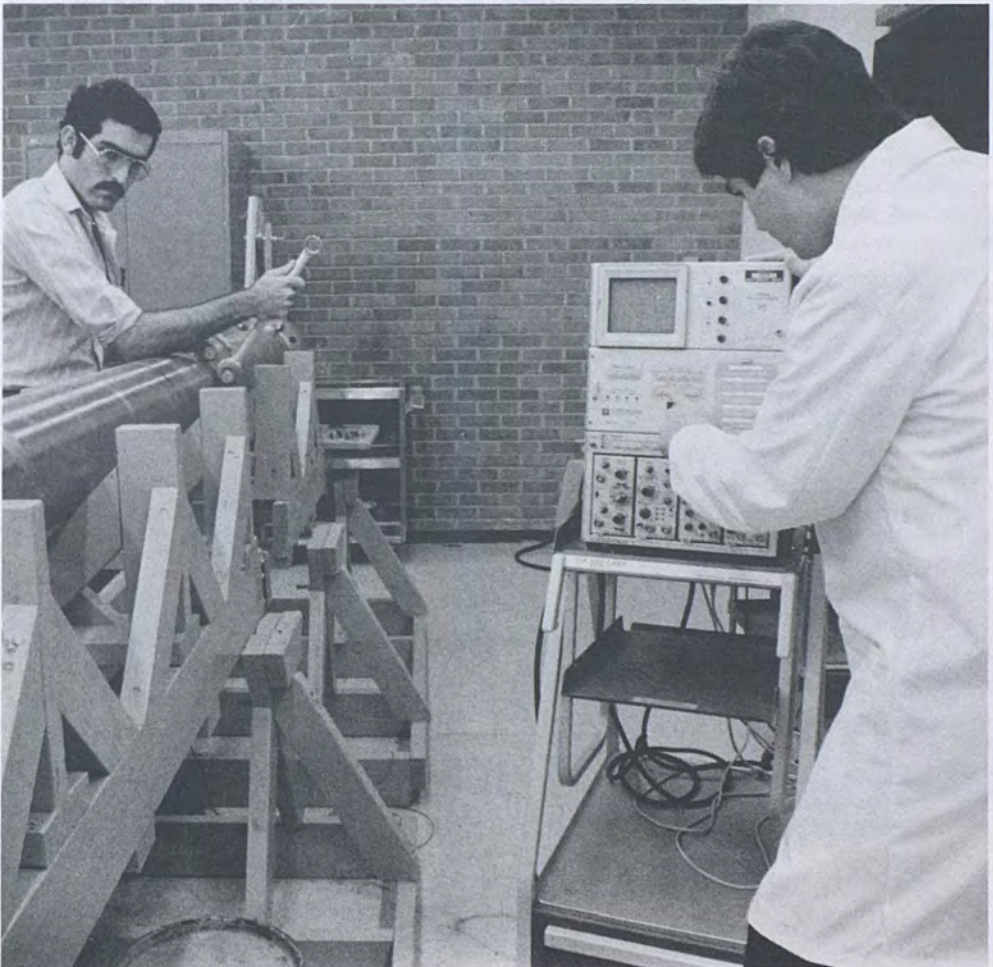
3 cr (3,0)

PR: C.I. Background of aviation and airport development, aircraft characteristics. Planning and design of airport components. Heliport and STOL ports and pavement and drainage design.

TTE 6620 Mass Transportation Systems

3 cr (3,0)

PR: C.I. Planning, design, construction, operation and administration of mass transportation systems.





COLLEGE OF HEALTH

To meet the needs of students and the community, the College of Health was established in 1978. Three graduate programs are presently offered: the Master of Arts in Communicative Disorders, a Master of Science in Health Sciences, and the Master of Public Health degree (in cooperation with the University of South Florida). The College believes that through advanced education and an intensive study in a health related area, a graduate will be a valuable asset to health and health care in the nation as well as Florida.

COLLEGE ADMINISTRATION

O. C. Elder, Jr. Dean
T. S. Mendenhall Assistant Dean

Faculty

Communicative Disorders

D. L. Hedrick, Ph.D. Professor
D. B. Ingram, Ph.D. Associate Professor
T. A. Mullin, Ph.D. Associate Professor
H. A. Utt, Ph.D. Assistant Professor

Health Science

J. F. Bergner, Ph.D. Professor
O. C. Elder, Jr., Ph.D. Dean and Professor
M. Sweeney, Ph.D. Professor
L. J. Acierno, M.D. Associate Professor
D. J. Crittenden, Ph.D. Associate Professor
M. J. Edwards, Ed.D. Associate Professor
T. S. Mendenhall, Ph.D. Assistant Dean, Director and Associate Professor

Public Health

J. F. Bergner, Ph.D., M.S.P.H. Professor
O. C. Elder, Jr., Ph.D. Dean and Professor
L. J. Acierno, M.D. Associate Professor
G. Costello, Ed.D. Clinical Associate Dean and Adjunct Associate Professor
M. J. Edwards, Ed.D. Associate Professor

COMMUNICATIVE DISORDERS

Dona L. Hedrick Graduate Program Coordinator
Office: PH 103E, Phone 275-2121

ADMISSION

A baccalaureate degree is required with either a grade point average (GPA) of 3.0 (4.0 = A) for the last 60 semester hours credited towards the earned baccalaureate degree from a regionally accredited institution, or a quantitative-verbal Graduate Record Examination (GRE) score of 1000 or higher. This score must have been obtained within the seven-year period prior to admission to the program. NOTE: The Board of Regents requires that all entering graduate students must have taken the GRE examination even if the student is admissible on the GPA.

In addition to the above University requirements, three letters of recommendation from undergraduate professors and a letter of intent must be submitted to the program. Whenever possible a personal interview will also be recommended.

Applicants whose native language is not English must have a score of 500 or better on the Test of English as a Foreign Language (TOEFL).

PROGRAMS IN COMMUNICATIVE DISORDERS

Professional education is offered in Communicative Disorders leading to the Master of Arts degree in either Speech-Language Pathology or Audiology. The program requires the equivalent of two years full-time attendance to complete and is designed to meet the certificate requirements of the American Speech-Language-Hearing Association.

The faculty is keenly aware of the need for combining clinical skills with theoretical foundations. Supervised student practica are offered in the Communicative Disorders Clinic on campus as well as in external settings. Selected outstanding professionals in Central Florida (physicians, speech/language pathologists, audiologists) make up the clinical faculty which supplements the clinical expertise of the regular faculty.

All students will enroll in SPA 6506 or 6506, Clinical Practicums, or equivalents, each semester in attendance, with the exception of the semester they are enrolled in SPA 5553L, Differential Diagnosis in Speech and Language Laboratory, and the semester they are completing the thesis/nonthesis option. Students must complete 300 clock hours of practicum experience before graduation.

MASTER OF ARTS IN COMMUNICATIVE DISORDERS — DEGREE REQUIREMENTS

PREREQUISITES

B.A. in Speech and Hearing (Communicative Disorders) or special prerequisite courses to be arranged with the program coordinator.

REQUIRED COURSES

20 Semester Hours

All Communicative Disorders students are required to take the following:

SPA 5307	Differential Diagnosis in Audiology	3 hours
SPA 5458	Therapeutic Communication	3 hours
SPA 5553	Differential Diagnosis in Speech and Language	3 hours
SPA 5553L	Differential Diagnosis in Speech and Language Laboratory	1 hour
SPA 5600	Administration and Management of Communicative Disorders Programs	3 hours
SPA 5805	Research in Communicative Disorders	3 hours
SPA 6410	Language Problems in Adults	4 hours

Speech-Language Pathology Specialization

19 Semester Hours

Students in this specialization are required to take these additional courses:

SPA 5225	Fluency Disorders	3 hours
SPA 5225L	Fluency Disorders Laboratory	1 hour
SPA 6131	Measurements in Speech Science	3 hours
SPA 6204	Advanced Studies in Communicative Disorders: Articulation	3 hours
SPA 6204L	Articulation Laboratory	1 hour
SPA 6211	Voice Disorders	3 hours
SPA 6211L	Voice Disorders Laboratory	1 hour
SPA 6403	Advanced Studies in Communicative Disorders: Language	4 hours

Audiology Specialization

20 Semester Hours

Students in the Audiology Specialization are required to take these additional courses:

SPA 5132	Physiological Acoustics	4 hours
SPA 5358	Aural Habilitation/Rehabilitation	4 hours
SPA 6308	Auditory Evaluation and Assessment Procedures for Special Populations	4 hours
SPA 6345	Amplification	4 hours
SPA 6353	Hearing Conservation	4 hours

PRACTICUM

2-3 Semester Hours

THESIS/NON-THESIS OPTIONS

6-7 Semester Hours

Each student will complete a thesis or nonthesis option.

Thesis Option

6 Semester Hours

Students selecting the thesis option will complete a research study in the area of speech/language pathology or audiology for six semester hours of credit. An advisory committee of three faculty members, chaired by a department faculty member, will be selected to guide the student through the thesis requirements. An oral defense of the thesis is required.

Non-Thesis Option

7 Semester Hours

Students completing the nonthesis option may select research study from three areas: clinical research project, case study, or clinical internship. All non-thesis options will be with faculty approval. A committee consisting of a chairperson and an advisor will guide the student through the appropriate six-semester hour non-thesis option and oral presentation. In addition, students in the non-thesis option will take one hour of research. Audiology students opting for the non-thesis option will require a minimum of 49 semester hours for the degree.

EXAMINATIONS

A final comprehensive examination on course work is required. This examination must be passed before a student can be considered a degree candidate.

Total Minimum Semester Hours Required:

48



HEALTH SCIENCES

Thomas S. Mendenhall Assistant Dean and Program Coordinator
Office: BIO 306, Phone 275-2972

ADMISSION

Admission to graduate status in the Master of Science in Health Sciences (MSHS) degree program is based on the following:

- a. A baccalaureate degree from a regionally accredited college or university and a grade point average (GPA) of 3.0 (4.0 = A) for the last 60 semester hours of credit earned for the baccalaureate degree, or submission of a quantitative-verbal GRE score of 1000 or higher not over 7 years old
or
A graduate degree from a regionally accredited institution.
A GRE test is required of all graduate students whether accepted on the GPA, GRE or previous degree.
- b. Submission of three letters of recommendation from individuals capable of assessing the applicant's ability to undertake graduate work.
- c. Licensure, certification, or registration in a health profession.
- d. Completion of undergraduate course work comprising a knowledge of the United States health care system, basic statistics, and human disease.

In accordance with SUS and UCF policy, a limited number of students who do not meet all the requirements for regular admission to the MSHS program but who show promise of success may be admitted in a provisional status.

PROGRAMS IN HEALTH SCIENCES

The Master of Science is divided into three sections. The first section is a core of courses to provide an in-depth foundation in scientific investigation, the fundamentals of human pathophysiology, and a broad understanding of the health care systems in the United States in comparison to systems in other nations.

The second section involves courses in the specialization areas of management, education, or advanced clinical training. The advanced clinical training areas include cardiopulmonary sciences, clinical laboratory sciences, health information sciences, and radiation sciences. Other advanced clinical training areas will be added as resources permit.

The third section involves courses from other colleges that are cognate to the student's discipline. These courses, in keeping with particular needs, interests, and backgrounds, will be primarily in biochemistry, biology, computer sciences, management or education. Practica will be offered which will enable the student to apply the knowledge gained through the course work to teaching in a health discipline, management of a health educational program, management of a clinical department, or advanced clinical research.

DEGREE REQUIREMENTS

All students must complete the core courses. In addition students, with the assistance of an advisor, will complete a program of study consistent with career objectives. Following satisfactory completion of course work, each student must pass a comprehensive examination and complete a thesis or research project.

REQUIRED CORE

		12 Semester Hours
HSC 6911	Scientific Inquiry in the Health Professions	3 hours
HSC 6392	Issues and Trends in the Health Professions	3 hours
HSC 6412	Epidemiology	3 hours
HSC 6513	Principles and Practice of Medicine	3 hours

AREAS OF EMPHASIS — Students must select one of the following three options:

23-26 Semester Hours

Management Option

Students must select a minimum of 12 hours from Group A and 11 hours from Group B.

Group A — 12 semester hours

HSC 6425	Health Care Organization and Management I	3 hours
HSC 6426	Health Care Organization and Management II	3 hours
HSC 6153	Case Studies in Health Law	3 hours
HSC 6940	Practicum in Health Care Management	3 hours

Group B — 11 semester hours (See College of Business Administration)

ACC 5004	Financial Accounting	3 hours
ECO 5055	Economic Concepts	3 hours
FIN 5405	Financial Concepts	3 hours
MAN 5051	Management Organization	2 hours

Education Option

Students must select a minimum of 12 hours from Group A and 11 hours from Group B.

Group A — 12 semester hours

HSC 6056	Health Science Education	3 hours
HSC 6058	Health Science Program Development and Operation	3 hours
HSC 6941	Practicum in Health Science Education	3 hours
Elective to be selected with advisor's consent		3 hours

Group B — 11 semester hours (See College of Education)

EDF 6257	Analysis of Classroom Teaching	3 hours
EDF 6401	Statistics for Educational Data	3 hours
EDF 6432	Measurement and Evaluation in Education	3 hours
EME 5202	Media and Methods in Teaching	3 hours
ESE 6218	Curriculum Writing	3 hours
EVT 5315	Applied Clinical Teaching Techniques	3 hours
EVT 5316	Clinical Coordination for the Health Occupations Teacher	3 hours
EVT 5685	Competency Based Vocational Education	3 hours
EVT 6264	Administration Vocational Education	3 hours
EVT 6265	Supervision in Vocational Education	3 hours

Advanced Clinical Skills Option

Students must select a minimum of 12 hours from Group A and 11 hours from Group B with approval of advisor.

Group A — Clinical Specialty Courses

Group B — Specialty, Cognate Courses

THESIS OR RESEARCH REPORT

Thesis	6 Semester Hours
or	
Research Report	3 Semester Hours
Total Minimum Semester Hours Required:	
	38

PUBLIC HEALTH

Owen C. Elder, Jr. Dean and Graduate Program Coordinator
Office: BIO 330, Phone 275-2352

ADMISSION

Admission to the Master of Public Health (M.P.H.) degree program is based on the following:

- a. A baccalaureate degree from a regionally accredited college or university and a grade point average (GPA) of 3.0 (4.0 = A) for the last 60 semester hours of credit earned for the baccalaureate degree, or a quantitative-verbal GRE score of 1000 or higher not over five years old.

A graduate degree from a regionally accredited institution may be substituted for the GPA score on the undergraduate degree.

Even though an applicant may qualify on the above criteria, a General Graduate Record Examination score must be on file before consideration for admission to graduate status.

- b. A degree and, where required, the appropriate licensure, certification, or registry in a health profession, medicine, osteopathy, dentistry, veterinary medicine, optometry, podiatry, nursing (B.S.N.), health administration (graduates of AUPHA approved program), allied health (graduate of a baccalaureate program or higher), or pharmacy, and a minimum of three years of relevant experience in the profession.

As a substitution for the above may be a baccalaureate or graduate degree from a regionally accredited institution in any major with experience or aptitude and interest in health and health care, and completion of appropriate prerequisite or corequisite courses in human anatomy, physiology, and pathophysiology as determined to be needed by the admissions committee.

- c. Completion of an undergraduate course in basic statistics.

In accordance with SUS and UCF policy, a limited number of students who do not meet all of the requirements for regular admission to the M.P.H. program but who show promise of success may be admitted in a provisional status.

PROGRAMS IN PUBLIC HEALTH

Specializations in either Health Administration or Environmental Health will be offered. The program requires a minimum of 36 semester hours. The curriculum is designed for credentialed health professionals as well as nonhealth professionals. In addition, individuals holding doctoral level professional degrees in health, such as M.D., D.D.S., O.D., D.V.M., etc., or with extensive experience in public health, may take an individually tailored, interdisciplinary program of study.

The degree will be awarded by the institution at which the majority of the course work (51%) in the specialization and the thesis/research project have been completed. Although the required core curriculum may not be identical at both institutions, there will be a high degree of commonality. A student who completes the core at one institution and transfers to the other will be considered to have fulfilled the core course requirements of the other.

Credentialed health professionals who do not have the minimum of three years of appropriate public health experience will be required to complete additional semester hours in HSC 6946, Practicum (in addition to the 3 hours required of all students). This could result in a minimum total of 48 semester hours for the degree.

Persons admitted without a degree and credentials in a health profession must complete a minimum of 48 semester hours for the degree. Additional courses such as the following will be required:

HSC 6513	Principles and Practices of Medicine, 3 hours
HSC 6515	Principles of Preventive Medicine, 3 hours
HSC 6946	Practicum, 6 hours (in addition to the 3 hours required of all students)

MASTER OF PUBLIC HEALTH — DEGREE REQUIREMENTS

All students must complete the core courses with at least a "B" average. As soon as possible after enrollment, each student will choose or be assigned a faculty advisor. The student and advisor outline a program of study directed toward the student's career objectives. Following satisfactory completion of the course work and before beginning the required thesis, each student must pass a comprehensive examination. This examination will be offered each term. An oral examination in defense of the thesis or research project also is required. The student may choose from two specializations.

HEALTH ADMINISTRATION SPECIALIZATION

REQUIRED CORE

		15 Semester Hours
HSC 6911	Scientific Inquiry in Health Professions	3 hours
HSC 6412	Epidemiology	3 hours
HSC 6402	Environmental Health	3 hours
HSC 6605	Health and Society	3 hours
HSC 6425	Health Care Organization and Management I	3 hours

OTHER REQUIRED COURSES

		6 Semester Hours
HSC 6426	Health Care Organization and Management II	3 hours
HSC 6946	Practicum in Health Administration	3 hours

RESTRICTED ELECTIVES

9 Semester Hours

These electives, which are selected with the approval of an advisor, are designed to orient the student toward management and administrative concepts.

Electives in the College of Health

HSC 6175	Health Planning and Policy	3 hours
HSC 6132	Health Care Finance	3 hours
HSC 6153	Case Studies in Health Law	3 hours

Electives in Other UCF Programs

Management

MAN 5051	Management Concepts	2 hours
MAN 6075	History of Management Thought	3 hours
MAN 6055	Planning and Control Analysis	3 hours
MAN 6840	Research and Development Management	3 hours
COM 6121	Communication Management	3 hours
PAD 6417	Human Resources Management	4 hours
PAD 5807	Administrative Practice in the Public Sector	4 hours

Organization

PAD 6037	Public Organization	4 hours
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Organizational Behavior

MAN 6206	Organizational Behavior and Development	3 hours
MAN 6121	Group Decisions and Analysis	3 hours
INP 6317	Organizational Psychology and Motivation	2 hours
EIN 4243	Human Engineering	3 hours
EIN 6248	Human Engineering II	3 hours
SYA 6656	Social Organizational and Human Resources	3 hours

Finance and Economics

PAD 6227	Public Budgeting	4 hours
ECO 6505	Public Finance and Fiscal Policy	3 hours
ECO 5055	Economic Concepts	3 hours
ECP 6426	Economics of Regulated Industries	3 hours

Planning and Policy

ECI	6198	Regional Planning, Design and Development	3 hours
PAD	6307	Policy Implementation	4 hours
PUP	6057	Issues in National Public Policy	3 hours
PUP	6058	Issues in International Public Policy	3 hours

Management Information Systems and Operations Research

MAN	5830	Introduction to Management Information Systems	2 hours
CIS	5234	Computational Techniques in Management Information Systems	3 hours
EGN	4634	Operations Research	2 hours
ESI	6316	Operations Research	4 hours
MAN	6814	Quantitative Models for Business Decisions	3 hours

THESIS OR RESEARCH PROJECT

6 Semester Hours

HSC	6971	Thesis	6 hours
		or	
HSC	6918	Research Report	6 hours

Total Minimum Semester Hours Required: 36

ENVIRONMENTAL HEALTH SPECIALIZATION**REQUIRED CORE**

15 Semester Hours

HSC	6911	Scientific Inquiry in the Health Profession	3 hours
HSC	6412	Epidemiology	3 hours
HSC	6402	Environmental Health	3 hours
HSC	6605	Health and Society	3 hours
HSC	6425	Health Care Organization and Management I	3 hours

OTHER REQUIRED COURSE

HSC	6946	Practicum in Environmental Health	3 hours
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RESTRICTED ELECTIVES

12 Semester Hours

These electives which are selected with the approval of an advisor are designed to provide a specialized expertise in environmental health.

Environmental Control Electives

APB	5581	Applied Microbiology	3 hours
EES	4202	Chemical Process Control	3 hours
EES	4204	Biological Process Control	3 hours
EES	5210	Potable Water Treatment	3 hours
EGN	4825	Environment and Society	3 hours
ENV	4119	Air Pollution	3 hours
ENV	4355	Solid and Hazardous Wastes	3 hours
ENV	4362	Air Pollution Control	3 hours
ENV	5615	Environmental Impact Assessment	3 hours
ENV	6015	Physical/Chemical Treatment Systems in Environmental Engineering	3 hours
ENV	6106	Atmosphere Pollution Control	3 hours
ENV	6356	Solid Wastes Management	3 hours
ENV	6518	Industrial Waste Treatment	3 hours
EVS	4682	Solid Waste Management	3 hours
MCB	4603C	Environmental Microbiology	4 hours
MCB	6417	Microbial Metabolism	3 hours

Occupational Health

EIN 4214	Safety Engineering and Administration	3 hours
EIN 4264	Industrial Hygiene and Occupational Health	3 hours
EIN 6215	Systems Safety	3 hours
EML 5228	Acoustics	3 hours
ETI 4700	Occupational Safety	3 hours
SPA 5132	Instrumentation in Psychoacoustics	3 hours
SPA 6353	Hearing Conservation	3 hours

THESIS OR RESEARCH PROJECT

6 Semester Hours

HSC 6971	Thesis	6 hours
	or	
HSC 6918	Research Report	6 hours

Total Minimum Semester Hours Required: 36

INTERDISCIPLINARY PROGRAM OF STUDY

Persons whose future professional goals cannot be met effectively by completion of one of the two areas of specialization, may take an individually-tailored, interdisciplinary program of study in lieu of a specialization. Prior approval by the advisor is required.

REQUIRED CORE

15 Semester Hours

HSC 6402	Environmental Health	3 hours
HSC 6412	Epidemiology	3 hours
HSC 6425	Health Care Organization and Management I	3 hours
HSC 6606	Health and Society	3 hours
HSC 6911	Scientific Inquiry in the Health Profession	3 hours

OTHER REQUIRED COURSE

3 Semester Hours

HSC 6946	Practicum in Public Health	3 hours
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RESTRICTED ELECTIVES

12 Semester Hours

These electives, which are selected with the approval of the advisor, allow an opportunity for individually tailored, interdisciplinary program of study.

Health

HSC 6392	Issues and Trends in the Health Professions	3 hours
HSC 6513	Principles and Practice of Medicine	3 hours
HSC 6515	Principles of Preventive Medicine	3 hours
HSC 6566	Prevention of Cardio-vascular Disease	3 hours
HSC 6635	Issues in Geriatric Health Care	3 hours

Statistics

STA 5206	Statistical Analysis	3 hours
STA 6236	Regression Analysis	3 hours
STA 6246	Linear Models	3 hours
STA 6447	Applied Probability	3 hours
STA 6707	Multivariate Statistical Methods	3 hours

Biological Sciences

MCB 5205	Infectious Process	3 hours
MCB 5505C	Virology	3 hours
PCB 6235C	Immunochemistry	3 hours
PCB 6585C	Advanced Genetics	5 hours

Education

COM 6426	Informational and Educational Systems	3 hours
EDF 6432	Measurement and Evaluation in Education	3 hours
EDG 7665	Bases of Curriculum and Instruction Theory I	3 hours
EME 6613	Instructional Systems Design	3 hours
LIS 6313	Multi-Media Message Design	3 hours
PET 6378C	Environmental Exercise Physiology	3 hours
PET 6616	Physical Evaluation	3 hours
PET 6625C	Therapeutic Exercise/Therapeutic Modalities	3 hours

Social Sciences

ANT 4075	Applied Anthropology	3 hours
SYO 4100	The Family	3 hours
SYO 4400	Medical Sociology	3 hours
SYP 4550	Sociology of Drug Abuse	3 hours

Gerontology

HSC 4024	Health Care Needs of the Elderly	3 hours
SOW 4644	Social Services for the Elderly	3 hours
SYP 4730	Sociology of Aging	3 hours

Health Administration — See Health Administration Specialization

Environment Health — See Environmental Health Specialization

THESIS OR RESEARCH PROJECT

6 Semester Hours

HSC 6971	Thesis	6 hours
	or	

HSC 6918	Research Report	6 hours
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Total Minimum Semester Hours Required: 36

COLLEGE OF HEALTH COURSES**HSC 6056 Health Science Education**

3 cr (3,0)

PR: Graduate status or C.I. The study and development of educational programs within the health care institution or agency.

HSC 6058 Health Science Program Development and Operation

3 cr (3,0)

PR: Graduate status or C.I. A study of the educational and health programs in the education institution setting.

HSC 6115 Practicum in Health Care Management

2-6 cr (0,20)

PR: Graduate status or C.I. Supervised practicum in health care institution management.

HSC 6132 Health Care Finance

3 cr (3,0)

The identification of resources available to health care institutions, allocation of resources, and control of resource expenditures.

HSC 6153 Case Studies in Health Law

3 cr (3,0)

Health law including patient care, liability, malpractice, workmen's compensation, and legal responsibilities of health personnel.

HSC 6175 Health Planning and Policy

3 cr (3,0)

Review of the determinants of the revolution of the health care system in the U.S.; analysis of public health, preventive medicine, and therapeutic medicine in terms of quality, access, and cost; methodologies and issues in comprehensive health planning; and trends in health policy development.

HSC 6305 Practicum in Health Science Education

2-6 cr (0,20)

PR: Graduate status or C.I. Supervised practicum in academic, clinical, or community instructional program.

HSC 6392 Issues and Trends in the Health Professions

3 cr (3,0)

Exploration of current status, issues, problems, and future trends in the practice and education of health professions.

HSC 6402 Environmental Health

3 cr (3,0)

Recognition and evaluation of control problems arising from environmental contamination, which includes safe water supply, waste disposal, and food resources.

HSC 6412 Epidemiology

3 cr (3,0)

PR: HSC 6911 or equivalent. A study of the distribution and determination of diseases and injuries in human populations.

HSC 6425 Health Care Organization and Management I

3 cr (3,0)

Definition, scope, and determinants of health and illness; organization for assuring health and preventing, treating, or coping with illness; general principles of planning and organization of health and health care organizations and agencies.

- HSC 6426 Health Care Organization and Management II** 3 cr (3,0)
 PR: HSC 6425 or equivalent. (Continuation of HSC 6425 Health Care Organization and Management I.) Principles of management of nonprofit organizations. Laws and agencies governing public and therapeutic health systems; health services administration (therapeutic); organization and administration of state and local public health systems.
- HSC 6513 Principles and Practice of Medicine** 3 cr (3,0)
 A comprehensive survey of medicine.
- HSC 6515 Principles of Preventive Medicine** 3 cr (3,0)
 Total concept of health care including methods of screening, diagnosis, treatment, rehabilitation, and promotion of health in diverse populations.
- HSC 6566 Prevention of Cardio-vascular Disease** 3 cr (3,0)
 Current methods of prevention and management of major cardio-vascular disturbances. Diagnostic measures, intervention techniques for prevention, and rehabilitation and management methods.
- HSC 6605 Health and Society** 3 cr (3,0)
 Understanding health and illness as defined by patients, providers, and other persons in the social system.
- HSC 6635 Issues in Geriatric Health Care** 3 cr (3,0)
 Identification of the health care needs of the elderly and the services required to meet them. Analysis of the current issues, problems, and trends in geriatric health.
- HSC 6911 Scientific Inquiry in the Health Professions** 3 cr (3,0)
 Research design and evaluation in the health professions. (Covers principles of biostatistics.)
- HSC 6946 Practicum (in Environmental Health)** 3 cr (3,0)
 Preceptorship with a practicing environmental health professional under the supervision of a member of the faculty.
- HSC 6946 Practicum (in Health Administration)** 3 cr (3,0)
 Preceptorship with a practicing health administrator under the supervision of a member of the faculty.
- LIN 5705 Psycholinguistics** 3 cr (3,0)
 PR: Graduate status or C.I. Foundations of language in affective consciousness and the human nervous system. Pragmatic analysis of word meaning and its precise scientific measurement. Implications for communicative disorders.
- SPA 5005 Survey of Communicative Disorders** 3 cr (3,0)
 PR: Graduate status or C.I. A survey of speech, language, and hearing disorders for habilitative personnel and other interested professionals.
- SPA 5132 Physiological Acoustics** 4 cr (4,3)
 PR: Graduate status or C.I. Lectures, readings and experiments pertaining to the subjective reception of sound.
- SPA 5225 Fluency Disorders** 3 cr (3,0)
 PR: Graduate status or C.I. Identification and evaluation of disorders of rhythm. Emphasis will be on methods of intervention in disorders of fluency.
- SPA 5225L Fluency Disorders Laboratory** 1 cr (0,2)
 PR: Graduate status or C.I. Practical application of clinical skills in fluency disorders.
- SPA 5307 Differential Diagnosis of Auditory Disorders** 3 cr (3,0)
 PR: Graduate status or C.I. Clinical techniques in pure tone speech, acoustic impedance and electrophysiologic response audiometry.
- SPA 5358 Aural Habilitation/Rehabilitation** 4 cr (4,0)
 PR: Graduate status or C.I. Principles and procedures involved in speech and language acquisition, management, utilization of residual hearing, speech reading and the use of hearing aids.
- SPA 5458 Therapeutic Communication** 3 cr (3,0)
 PR: Graduate status or C.I. Practical interviewing and counseling in the area of Communicative Disorders. Emphasis is on facilitating clinician-client interactions.

- SPA 5553 Differential Diagnosis in Speech and Language** 3 cr (3,0)
PR: Graduate status or C.I. Administration and interpretation of evaluation techniques, including standardized tests, will be presented. Emphasis will be on those techniques which allow for differential diagnosis of speech and language disorders.
- SPA 5553L Differential Diagnosis in Speech and Language Laboratory** 1 cr (0,4)
PR: Graduate status or C.I. Students will be assigned to diagnostic teams in which they will apply the techniques presented in SPA 5553. Experiences will include test administration, interviewing, writing of diagnostic reports and oral presentation with staffings.
- SPA 5600 Administration and Management of Communicative Disorders Programs** 3 cr (3,0)
PR: Graduate status or C.I. Methods and techniques for organization and administration of Speech/Language and Hearing Disorders in public school, hospital, rehabilitation center and private practice facilities.
- SPA 5805 Research in Communicative Disorders** 3 cr (3,0)
PR: STA 4163, Graduate status or C.I. This course is designed to introduce the student to empirical research in the area of communication disorders. Emphasis is on hypothesis testing, methodology, analysis and interpretation of results.
- SPA 6131 Measurements in Speech Science** 3 cr (1,4)
PR: Graduate status or C.I. The application of instrumentation to research in normal speech and language behaviors. Measurements include use of electronic instruments, such as the oscilloscope.
- SPA 6204 Advanced Studies in Communicative Disorders: Articulation** 3 cr (3,0)
PR: Graduate status or C.I. Advanced theory, diagnostic techniques and therapeutic procedures for articulation disorders. May be repeated for credit.
- SPA 6204L Advanced Studies in Communicative Disorders: Articulation Laboratory** 1 cr (0,2)
PR: Graduate status or C.I. Practical application of clinical skills in articulation disorders. May be repeated for credit.
- SPA 6211 Voice Disorders** 3 cr (3,0)
PR: Graduate status or C.I. Basic principles and practices in the treatment of organic voice pathologies including laryngectomy, cleft palate and other disorders of the vocal mechanisms.
- SPA 6211L Voice Disorders Laboratory** 1 cr (0,2)
PR: Graduate status or C.I. Practical application of clinical skills in voice disorders.
- SPA 6308 Auditory Evaluation and Assessment Procedures for Special Populations** 4 cr (4,0)
PR: Graduate status or C.I. Audiometric testing and functional communicative assessment procedures for geriatric, pediatric, and other special populations.
- SPA 6345 Amplification** 4 cr (4,0)
PR: Graduate status or C.I. Hearing aids, selective evaluation procedures, electroacoustic measurements, coupling techniques, and orientation and counseling.
- SPA 6353 Hearing Conservation** 4 cr (4,0)
PR: Graduate status or C.I. Industrial audiometry, community noise abatement and public school hearing conservation.
- SPA 6403 Advanced Studies in Communicative Disorders: Language** 4 cr (4,0)
PR: Graduate status or C.I. Presentation of the syntactic, semantic and pragmatic nature of children's language disorders. Emphasis will be on techniques and methods of diagnosis and intervention with children from birth through adolescence. May be repeated for credit.
- SPA 6410 Language Problems in Adults** 4 cr (4,0)
PR: Graduate status or C.I. A study of the language disorders in adults associated with neurological problems, brain injury, systemic disease and aging.
- SPA 6505 Clinical Practicum in Speech Pathology-Language** 1 cr (0,8)
PR: Graduate status or C.I. Advanced clinical practice in communicative disorders. May be repeated with change of content.
- SPA 6506 Clinical Practicum in Audiology** 1 cr (0,8)
PR: Graduate status or C.I. Advanced clinical practice in communicative disorders. May be repeated with change of content.

SPA 6908* Directed Independent Studies	1-6 cr
SPA 6918* Directed Independent Research	1-6 cr
SPA 6938* Special Topics/Seminars — May be repeated for credit.	1-6 cr
SPA 6946* Internship, Practicums, Clinical Practice	1-6 cr
SPA 6971* Thesis	1-6 cr

*Must present at registration an authorization form which is obtained from the department office.

INDEX

Academic		Colleges	
Calendar	12-13	Arts and Sciences	39
Load—Graduate	27	Business Administration	81
Policies	29	Education	95
Provisional	29	Engineering	145
Standards	29	Health	175
Accounting	85	Communication	46
Accreditation, University	6	Comprehensive Exams (See also College)	
Business Administration	6 & 81	Computer Engineering	148
Education	6	Computer Science	49
Add/Drop Policy	20	Cooperative Doctoral Degrees—(See College of Education)	
Admissions	17	Continuous Attendance	19
Foreign Student	18	Counseling and Testing Center	33
Graduate	20	Course Classification	37
Postbaccalaureate	21	Course Descriptions (See each College Program)	
Provisional	21	Course Levels	29
Reactivation	19	Course Loads	27
Readmission	19	Course Numbering	37
Appeal, Graduate	20	Creative School for Children	34
Application for Graduate Degree	30	Credits	28
Deadline (See Calendar)	12 & 13	Recency of	28
Arts and Sciences, College of	39	Transfer	28
Biological Sciences	40	By Exam	28
Chemistry	44	Residence	28
Communication	46	Degrees Offered (See inside cover)	
Computer Science	49	Degree Requirements (See individual College)	
English	57	Dismissal from Graduate Status	22
History	59	Dissertation	32
Mathematical Science	62	Doctoral Program Requirements	31
Microbiology	40	Computer Science	52
Physics	65	Cooperative Education	98
Political Science	66	Engineering	163
Psychology	69	Dormitory	33
Clinical	70	Drop Policy	20
Industrial/Organizational	71	Economics	86
Public Administration	74	Education, College of, Programs	95
Sociology, Applied	76	Doctoral and Specialist Programs	98
Statistical Computing	78	Master's Programs	102
Average	29	Educational Services Specialties	
Overall, UCF	29	Administration and Supervision	103
Program of Study	29	Counselor Education	105
Biological Sciences	40	Educational Media	107
Business Administration, College of, Programs	81	Instructional Technology	108
Accounting	85	Exceptional Student Education	
Business Administration	83	Specialization	116
Economics, Applied	86	School Psychology	122
Business Administration	83	Physical Education	118
Calendar, Academic	12	Exercise Physiology	119
Campuses	7	Exercise Science	120
Area Campuses	36	Perceptual Motor Development	121
Map, Campus	15	Sports Medicine	121
Central Florida Research Park	10	Elementary Education	109
Change of Major or College	22	Art (Visual Arts) Education	109
Chemistry	44	Early Childhood	109
Children, Creative School for	34		
Clinical Psychology	70		

Mathematics	111	Graduate Studies	17
Music	112	Admission to	20
Reading	113	Dismissal from	22
Secondary Education — M.Ed. or M.A. .	123	Provisional Status	21
Business-Vocational	123	Regular Status	20
English Language Arts	124	Handicapped Student Services	34
Mathematics	124	Health, College of	175
Science	125	Communicative Disorders	176
Social Science	125	Health Sciences	178
Vocational Education	127	Public Health	180
Employment, UCF	27	Health Service, Student	33
Assistantships	10	History	59
Engineering, College of	145	Hours	38
Master's Programs		Coding for Course Description	38
Civil Engineering	146 & 162	Minimum for Degree	28
Computer Engineering	148	Semester, Maximum	27
Computer Integrated Manufacturing .	153	Housing Policy	33
Computer Systems	154	Incomplete Grades (also see Calendar) .	30
Construction	154	Independent Study	28
Electrical Engineering	155	Industrial	
Electrical Systems & Sciences	155	Chemistry	44
Energy Systems	156	Psychology	69
Engineering Administration	157	Instructional Resources	36
Engineering Systems Analysis	157	Intent to Graduate Form	30
Environmental Engineering	152	International Students	18
Environmental Sciences	158	International Students Services	33
Environmental Systems Management .	161	Journals, Sponsored	8
Industrial Engineering	152	Language Requirement	28
Manufacturing	152	Late Fees	23
Mechanical Engineering	152	Library	7
Mechanical Systems	158	Management	81
Operations Research	159	Maps, Campus	15
Structures & Foundations	160	Orlando Area	14
Transportation Systems	161	Master's Degree Requirements	
Doctoral Programs	163	(See individual Program)	
Computer Engineering	163	Accounting	85
Electrical Engineering	163	Biological Sciences	40
Environmental Engineering	163	Business Administration	83
Industrial Engineering	163	Chemistry, Industrial	44
Mechanical Engineering	163	Communication	46
English	57	Communicative Disorders	176
Evening Student Services	34	Computer Science	49
Examinations	29	Economics	86
Faculty (See each College)		Education	95
Fees	23	Engineering	145
Financial Aid	10	Civil Engineering	146 & 162
Florida Resident—Defined	24	Computer Integrated Manufacturing .	153
Foreign Students (See International Students)		Computer Systems	154
Foundation, UCF	10	Construction	154
Full-time Student	27	Electrical Engineering	155
Grades, Unsatisfactory Graduate	29	Electrical Systems & Sciences	155
Grade Point Average	29	Energy Systems	156
Graduate Council	25	Engineering Administration	157
Graduate Management Admission		Engineering Mathematics and Computer	
Test (GMAT)	17	Systems	154
Graduate Record Examination (GRE)	17	Engineering Systems Analysis	157
Graduate Studies, Office of	25	Environmental Engineering	152

Environmental Sciences	158	Second Graduate Degree.	22
Environmental Systems Management . .	161	Sociology.	76
Industrial Engineering	152	Specialist Degree	98
Manufacturing	152	Speech	
Mechanical Engineering	152	Communicative Disorders.	176
Mechanical Systems	158	Speech, Communication	46
Operations Research	159	Statistical Computing	78
Simulation Systems.	159	Student	
Structures & Foundations	160	Affairs	33
Transportation Systems.	161	Activities	33
English.	57	Area Campuses Services	34
History	59	Center/Student Union	34
Mathematical Science	62	Conduct	34
Microbiology	40	Counseling	33
Physics	65	Employment	27
Political Science	66	Fees	23
Psychology	69	Financial Aid	10
Clinical	70	Government.	33
Industrial/Organizational.	71	Health Record	19
Public Administration	74	Health Services.	33
Public Health.	180	Housing	33
Sociology, Applied.	76	International	33
Statistical Computing	78	Loans.	10
Medical History Report	19	Non-Degree	21
Minority Student Services	33	Records	19
Non-Degree Student.	21	Responsibility	27
Office of Graduate Studies.	25	Testing	33
Orlando Vicinity Map	14	Table of Contents	3
Petition for Waivers.	27	Testing and Counseling	33
Philosophy, UCF Statement of.	6	Tests	
Political Science	66	TOEFL (Test of English as a	
Postbaccalaureate Status.	21	Foreign Language)	18
Program of Study	27	GMAT (Graduate Management	
Psychology	69	Admission Test)	17
Public Administration	74	GRE (Graduate Record Examination)	17
Public Health.	180	Thesis Requirement (See individual Programs)	
Readmission	19	Transfer	28
Recreational Services.	36	Credits, Graduate	28
Reactivation	19	Credits, Doctoral	31
Records.	19	Grades.	28
Confidentiality	35	Traveling Scholar Program	10
Deadline	19	Tuition	23
Validity of Documents	19	Non-Florida Waiver	10
Refund of Fees (Also see Calendar)	24	Unsatisfactory Grades	29
Registration Date (See Calendar)		Vehicle Registration	23
During Term of Graduation	30	Veterans Affairs.	35
Fees	23	Withdrawal Policy	20
Research, Central Florida Research Park . . .	10		
Residence Requirement.	24		
Residency, Florida (defined).	24		

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