Graduate Information Directory

Office of Graduate Studies
Administration Building, Room 144
P.O. Box 160112
Orlando, FL 32816-0112
407/823-2766
Graduate@mail.ucf.edu
www.graduate.ucf.edu

Office of the University Registrar
Administration Building, Room 161
407/823-3100

UCF Brevard Campus
1519 Clearlake Road
Cocoa, FL 32922
407/632-1111

UCF Daytona Beach Campus
1200 International Speedway Blvd.
P.O. Box 2811
Daytona Beach, FL 32120-2811
904/255-7423

UCF Downtown Academic Center
36 West Pine Street
Orlando, FL 32801
407/317-7700

UCF South Orlando Center
Orlando Central Park
7300 Lake Ellenor Drive
Orlando, FL 32809
407/856-6585

University Counseling and Testing Center
Student Resource Center, Room 203
407/823-2811

Student Disability Services
Administration Building, Room 149
P.O. Box 160161
Orlando, FL 32816-0161
407/823-2371

International Student Services
Ying Center Building
Orlando, FL 32816-0130
407/823-2337

Multicultural Student Services
Administration Building, Room 145
407/823-2716

Student Accounts
Administration Building, Room 112
407/823-2433

Office of Financial Assistance
Administration Building, Room 120
407/823-2827

College of Arts & Sciences
Arts & Sciences Building, Room 190
407/823-5167

College of Business Administration
Business Administration Building, Room 240
407/823-2184

College of Education
Education Building, Room 109
407/823-2021

College of Engineering
Engineering Building, Room 281
407/823-2796

College of Health & Public Affairs
Health and Public Affairs Building, Room 201
407/823-2211

School of Optics
CREOL Building, Room 209
407/823-6986

University Library
407/823-2564

Parking Services
407/823-5518

Student Health Services
407/823-2701

UCF Bookstore
407/823-2665

Campus ID Card
407/823-3072
Pegasus was the winged horse of the muses in Greek Mythology. He carried their hopes, their aspirations, and their poetry into the skies. Pegasus is as futuristic as tomorrow's space exploration in our solar system and into the universe beyond. The seal also bridges the gap between the humanities and space technology.

Accent on the Individual—Accent on Excellence

Recent program changes may not be reflected in this catalog. Students should check with the appropriate graduate program coordinator for current information. Rules, policies, fees, and courses described in the catalog are subject to change without notice. Reader comments and suggestions for improving the usefulness of this catalog may be sent to the Editor.
For directions to the University of Central Florida main campus and area campuses, see the directions and maps on pages 279-80 and the inside back cover.

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A current catalog is issued to each student free of charge at the time of first enrollment. Additional copies of this catalog may be purchased for $3.00 in the UCF Bookstore or requested by mail for $6.00 (make check payable to UCF Bookstore). Mail the catalog request to:

Catalog
UCF Bookstore
Orlando FL 32816-2444

Administrative Procedures Act Policy Statement

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 published once a year and cannot always reflect new and modified regulations. Statements in this catalog may not be regarded in the nature of binding obligations on the institution or the State of Florida. While every effort will be made to accommodate the curricular needs of students, limited resources may prevent the university from offering all required courses in each semester or in day and evening sections.

Students will be held accountable for the requirements, policies, and procedures described in this catalog. Additional information or clarification of any policy or procedure may be obtained from the specified office.

The University of Central Florida values diversity in the campus community. Accordingly, discrimination on the basis of race, sex, national origin, religion, age, handicap or disability, marital status, parental status, or veteran’s status is prohibited.

Sexual harassment, a form of sex discrimination, is defined as unwelcome sexual advances, requests for sexual favors, or verbal or physical conduct of a sexual nature when:

1. Submission to such conduct is made either explicitly or implicitly a term or condition of an individual’s employment or enrollment;
2. Submission to or rejection of such conduct by an individual is used as the basis for employment or enrollment decisions affecting such individual, or
3. Such conduct has the purpose or effect of substantially interfering with an individual’s work performance or enrollment, or creating an intimidating, hostile, or offensive working or academic environment.

Sexual harassment is strictly prohibited and will be dealt with in accordance with university rule.

Employees, students, or applicants for employment or admission may obtain further information on this policy, including grievance procedures, from the Equity Coordinator. The Director of the Office of Equal Opportunity and Affirmative Action Programs is the campus Equity Coordinator responsible for concerns in all areas of discrimination. The office is located on the main campus, in Administration 330, Orlando, Florida 32816-0030. The phone number is (407) UCF-1EEO.

Drug-Free Workplace/Drug-Free Schools Policy Statement

The University of Central Florida, in accordance with legislation passed by the federal government as part of the war on drugs program, has adopted the policy statement DRUG-FREE WORKPLACE/DRUG-FREE SCHOOLS. Information regarding this policy may be obtained in Human Resources (AD 230) or the Student Development and Enrollment Services (AD 282).
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Graduate Degree and Certificate Programs

College of Arts and Sciences

Certificate
- Domestic Violence
- Gender Studies
- Maya Studies
- Professional Writing

Master of Arts
- Communication
- English
  - Creative Writing Track
  - Literature Track
  - Technical Writing Track
- History
- Political Science
  - Political Analysis Track
  - Public Policy Track
- Psychology, Clinical
- Sociology, Applied
- Spanish
- Teaching English to Speakers of Other Languages (TESOL)

Master of Science
- Biology
- Chemistry, Industrial
  - Forensic Science Track
- Computer Science
- Mathematical Science
- Physics
  - Optical Physics Track
- Psychology, Clinical
- Psychology, Industrial/Organizational
- Statistical Computing

Doctor of Philosophy
- Computer Science
- Mathematics
- Physics
  - Optical Physics Track
- Psychology, Clinical Track
- Psychology, Human Factors Track

College of Business Administration

Master of Arts in Applied Economics (M.A.A.E.)

Master of Business Administration (M.B.A.)
- Executive M.B.A.

Master of Science in Accounting (M.S.A.)

College of Education

Master of Education and/or Master of Arts
- Art Education
- Counselor Education
  - Mental Health Counseling Track
  - School Counseling Track
- Educational Leadership
  - Curriculum and Instruction Track
  - Student Personnel Administration in Higher Education Track
- Elementary Education
  - Mathematics Education Track
  - Primary Track
- English Language Arts Education
- Exceptional Child Education
  - Varying Exceptionalities Track
- Instructional Technology
  - Educational Media Track
  - Educational Technology Track
  - Instructional Systems Track
- Mathematics Education
- Music Education
- Physical Education
- Reading Education
- Science Education
  - Biology Track
  - Chemistry Track
  - Physics Track
- Social Science Education
- Vocational Education

Education Specialist
- Curriculum and Instruction
- Educational Leadership
- School Psychology

Doctor of Education
- Curriculum and Instruction
- Educational Leadership

Doctor of Philosophy in Curriculum and Instruction

College of Engineering

Certificate
- Civil Engineering
  - Geotechnical Engineering and Construction Materials
  - Structural Engineering
  - Surface Water Modeling
  - Transportation Engineering
- Computer Engineering
  - Software Engineering
  - Software-Intensive Systems
- Electrical Engineering
  - Antennas and Propagation
  - Communications Systems
  - Digital Signal Processing
  - Electronic Circuits
Environmental Engineering
Air Pollution Control
Drinking Water Treatment
Hazardous Waste Management
Hazardous Waste Site Remediation
Wastewater Treatment
Industrial Engineering and Management Systems
Applied Operations Research
Design for Usability
Industrial Ergonomics and Safety
Project Engineering
Quality Assurance
Systems Simulation for Engineers
Training Simulation
Mechanical, Materials, and Aerospace Engineering
CAD/CAM Technology
Computational Methods in Mechanics
HVAC Engineering
Launch/Spacecraft Vehicle Processing
Materials Characterization
Materials Failure Analysis

Master of Science
Engineering Management Track
Environmental Engineering Sciences Track
Human Engineering/Ergonomics Track
Interactive Simulation and Training Systems Track
Manufacturing Systems Track
Operations Research Track
Precision Engineering and Manufacturing Track
Product Assurance Engineering Track
Simulation Modeling and Analysis Track
Structures and Foundations Track
Transportation Systems Engineering Track
Water Resources Engineering Track

Master of Science in Civil Engineering (M.S.C.E.)
Structural and Geotechnical Engineering Track
Transportation Engineering Track
Water Resources Engineering Track

Master of Science in Computer Engineering (M.S.Cp.E.)
Computer Architecture Track
Digital Systems Track
Knowledge-based Systems Track
Software Engineering Track

Master of Science in Electrical Engineering (M.S.E.E.)
Communications Track
Controls/Power Track
Digital Signal Processing Track
Electromagnetics Track
Electronics Track
Electro-optics Track
Solid State and Microelectronics Track

Master of Science in Environmental Engineering (M.S.Env.E.)
Master of Science in Industrial Engineering (M.S.I.E.)

Master of Science in Mechanical Engineering (M.S.M.E.)
Aerospace Systems Track
Computer-aided Mechanical Engineering Track
Materials Science and Engineering Track
Mechanical Systems Track
Professional Track
Thermo-fluids Track

Doctor of Philosophy
Civil Engineering
Computer Engineering
Electrical Engineering
Environmental Engineering
Industrial Engineering
Mechanical Engineering

College of Health and Public Affairs
Certificate
Adult Nurse Practitioner
Crime Analysis
Family Nurse Practitioner
Gerontology
Public Administration

Master of Arts in Communicative Disorders

Master of Science
Criminal Justice
Health Sciences: Health Services Administration
Molecular Biology and Microbiology
Physical Therapy

Master of Science in Nursing (M.S.N.)
Nursing Leadership and Management Track
Adult or Family Nurse Practitioner Track
RN to MSN Track

Master of Public Administration (M.P.A.)
Master of Social Work (M.S.W., clinical)

Doctor of Philosophy in Public Affairs
Specializations: Criminal Justice, Health Sciences: Health Services Administration, Public Administration, and Social Work

School of Optics
Master of Science in Optics
Doctor of Philosophy in Optics
Application for Admission

The Office of Graduate Studies will assist you in applying for a program. Our website can answer many of your questions and has the applications for admission available for downloading. You can also request information on-line, or you may call (407-823-2766) or fax (407-823-6442) a request. UCF uses a managed application for the admissions process. The applicant must complete all required documents and submit them as one packet to the university.

University Requirements
The minimum university requirements for admission into a graduate program are: a 3.0 grade point average (last 60 attempted semester hours of baccalaureate degree) on a 4.0 scale or 1000 on the combined verbal-quantitative portions of the Graduate Record Examination or 450 on the Graduate Management Admission Test (for programs that require it). The Test of English as a Foreign Language (TOEFL) is required when an applicant is from a country where English is not the primary language or when an applicant’s bachelor’s degree is not from an accredited U.S. institution. A TOEFL score of 213 (computer-based test) or 550 (paper-based test) is required unless otherwise specified by the program.

Specific Program Requirements
Programs may have other requirements in addition to or different from the minimum university requirements. Check the admission requirements in the program description.

Applications for Admission
Be sure you obtain and complete the appropriate application for admission:

U.S. or Resident Alien Application—For degree-seeking applicants who are U.S. citizens or resident aliens in the United States

International Application—For degree-seeking applicants who are not U.S. citizens or resident aliens in the United States

Nondegree/Certification/Transient Application—For non-degree-seeking applicants who have completed at least a baccalaureate degree from a regionally accredited institution. For education certification students and for graduate certificate program applicants. For students who are enrolled in a graduate degree program at another university and want to take course work at UCF and transfer it to their home institution.

Reactivation/Readmission Application—For applicants who applied to UCF within the past year but were not accepted into a graduate program or were accepted into a graduate program but never attended. Also for previously admitted and enrolled graduate students who have been absent for two or more consecutive major semesters (Fall, Spring) and wish to apply for readmission to the same graduate program.

Description of Application
The Graduate Application for Admission includes these forms:

- Application for Admission form (signed by the applicant)
- $20 application fee in U.S. dollars made payable to the University of Central Florida (if you have not previously attended UCF)
- Residency Classification form
- Two official transcripts (in sealed envelopes) from each college/university attended. Request transcripts electronically if you graduated from a Florida public institution.
- GRE (or GMAT, if required by the program) scores sent directly to UCF
- TOEFL scores sent directly to UCF, if an applicant is from a country where English is not the primary language or when an applicant’s bachelor’s degree is not from an accredited U.S. institution
- Request for Assistantship Information (optional)
- Recommendations, if required by the program
- Essay/Goal Statement/Research Statement/Personal Statement, if required by the program
- Professional resume, if required by the program
- Student Health Services - Health Form, including immunization record and health history (Distance learners do not need to fill out the Health Form.)

International Applicants: The University of Central Florida accepts only international students in good status with the U.S. Immigration and Naturalization Service (INS). Proof of good immigration status can be a valid passport, valid immigration documents, or an acceptance letter from the appropriate graduate program. In addition to the materials listed above, international applicants must submit:

- Financial Statement with a letter indicating commitment (from parents, government, etc.) to financially support the applicant’s education
- Transcript Evaluation from an approved agency

Nondegree/Certification/Transient Application
A complete application includes:

- Nondegree/Certification/Transient Application
- $20 application fee, if you have not attended UCF previously
- Residency Classification Form
- Student Health Services - Health Form (required unless you are taking courses exclusively off-campus or if you are not a State University System [SUS] transient student)
- Official transcript showing an earned bachelor’s degree from a regionally accredited institution. Transient students may submit a letter from their home institution in place of an official transcript; the letter should state that they are in good academic standing and that the institution will accept the transfer of hours.

Reactivation Application
When a student applies for reactivation, the program will determine if the student will be continued in graduate status or be reverted to nondegree status. See “Continuous Attendance” on page 34 in this catalog. Readmission applicants must submit:

- Readmission Application
- Residency Classification Form
- Health History section of Student Health Services - Health Form

Reactivation Application
When a student applies for reactivation, the program determines if the student is accepted. Admission is not guaranteed by completing a Reactivation Application. Reactivation applicants must submit:

- Reactivation Application
- Residency Classification Form
# Application Deadlines

## U.S. and Resident Alien Application

Complete applications (all required documents) must be received by the date listed below to be considered for admission. Failure to meet these deadlines may prevent admission as a regular graduate student for the term.

<table>
<thead>
<tr>
<th>College of Arts and Sciences</th>
<th>FALL</th>
<th>SPRING</th>
<th>SUMMER</th>
</tr>
</thead>
<tbody>
<tr>
<td>Biology (priority)¹</td>
<td>March 1</td>
<td>Oct. 15</td>
<td>—</td>
</tr>
<tr>
<td>Computer Science (priority)¹</td>
<td>March 1</td>
<td>Dec. 1</td>
<td>April 15</td>
</tr>
<tr>
<td>English</td>
<td>June 15</td>
<td>Dec. 1</td>
<td>May 1</td>
</tr>
<tr>
<td>Physics (priority)²</td>
<td>Feb. 15</td>
<td>—</td>
<td>—</td>
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<tr>
<td>Psychology</td>
<td>Feb. 1</td>
<td>—</td>
<td>—</td>
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<tr>
<td>Psychology, Clinical (M.A.)</td>
<td>Feb. 15</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>Psychology, Clinical (Ph.D.)</td>
<td>Jan. 15</td>
<td>—</td>
<td>—</td>
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<tr>
<td>Spanish</td>
<td>June 1</td>
<td>Dec. 1</td>
<td>March 1</td>
</tr>
<tr>
<td>TESOL</td>
<td>June 15</td>
<td>Nov. 1</td>
<td>March 15</td>
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<tr>
<td>All other programs in this college</td>
<td>July 15</td>
<td>Dec. 1</td>
<td>April 15</td>
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<th>SPRING</th>
<th>SUMMER</th>
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<td>Nov. 1</td>
<td>March 15</td>
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<tr>
<td>Doctoral program</td>
<td>May 15</td>
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</tr>
<tr>
<td>Doctoral program (priority)²</td>
<td>Feb. 1</td>
<td>—</td>
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<th>SPRING</th>
<th>SUMMER</th>
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</thead>
<tbody>
<tr>
<td>Curriculum and Instruction (Specialist, EdD, and PhD)</td>
<td>Feb. 20</td>
<td>Sept. 20</td>
<td>—</td>
</tr>
<tr>
<td>Counselor Education (Master)</td>
<td>Feb. 1</td>
<td>Sept. 1</td>
<td>—</td>
</tr>
<tr>
<td>Educational Leadership (Specialist and EdD)</td>
<td>Feb. 20</td>
<td>Sept. 20</td>
<td>—</td>
</tr>
<tr>
<td>Educational Technology (Master)⁴</td>
<td>March 30</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>School Psychology (Specialist)</td>
<td>March 1</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>All other programs in this college</td>
<td>July 15</td>
<td>Dec. 1</td>
<td>April 15</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>College of Engineering</th>
<th>FALL</th>
<th>SPRING</th>
<th>SUMMER</th>
</tr>
</thead>
<tbody>
<tr>
<td>All programs in this college</td>
<td>July 15</td>
<td>Dec. 1</td>
<td>April 15</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>College of Health and Public Affairs</th>
<th>FALL</th>
<th>SPRING</th>
<th>SUMMER</th>
</tr>
</thead>
<tbody>
<tr>
<td>Communicative Disorders</td>
<td>April 1</td>
<td>Nov. 1</td>
<td>—</td>
</tr>
<tr>
<td>Criminal Justice</td>
<td>July 15</td>
<td>Dec. 1</td>
<td>April 15</td>
</tr>
<tr>
<td>Health Sciences: Health Services Administration</td>
<td>July 15</td>
<td>Dec. 1</td>
<td>April 15</td>
</tr>
<tr>
<td>Molecular Biology/Microbiology (priority)¹</td>
<td>March 15</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>Nursing</td>
<td>March 15</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>Nursing (RN to MSN)</td>
<td>—</td>
<td>Sept. 15</td>
<td>—</td>
</tr>
<tr>
<td>Nursing (Daytona Bch campus)</td>
<td>Feb. 15</td>
<td>Sept. 15</td>
<td>—</td>
</tr>
<tr>
<td>Nursing (Post-baccalaureate)</td>
<td>June 1</td>
<td>Oct. 15</td>
<td>—</td>
</tr>
<tr>
<td>Physical Therapy</td>
<td>See program description</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>Public Administration (Master)</td>
<td>July 1</td>
<td>Dec. 1</td>
<td>April 15</td>
</tr>
<tr>
<td>Public Affairs (PhD)</td>
<td>March 1</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>Public Affairs (PhD) (priority)⁵</td>
<td>Feb. 7</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>Social Work</td>
<td>March 1</td>
<td>—</td>
<td>—</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>School of Optics</th>
<th>FALL</th>
<th>SPRING</th>
<th>SUMMER</th>
</tr>
</thead>
<tbody>
<tr>
<td>All programs</td>
<td>July 15</td>
<td>Dec. 1</td>
<td>April 15</td>
</tr>
<tr>
<td>All programs (priority)²</td>
<td>Feb. 1</td>
<td>—</td>
<td>—</td>
</tr>
</tbody>
</table>

1. These programs admit students all three semesters, but students applying for fellowships or assistantships must apply for the fall semester by the priority date.
2. This deadline applies to the Industrial/Organizational (M.S.), Clinical (MS), and Human Factors (PhD) programs.
3. Applicants for the PhD program in Business Administration must apply for the fall semester by the priority date to be considered for fellowships or assistantships.
4. This deadline applies to all applicants for this program and ensures adequate time for providing funding and for making decisions about cohort groups.
5. This program admits students only in fall semester. Students applying for fellowships or assistantships must apply for the fall semester by the priority date.

## International Application

Complete applications (all required documents) for graduate programs must be received by the date listed below to be considered for admission. Failure to meet these deadlines may prevent admission as a regular graduate student for the term.

<table>
<thead>
<tr>
<th>International applicants</th>
<th>FALL</th>
<th>SPRING</th>
<th>SUMMER</th>
</tr>
</thead>
<tbody>
<tr>
<td>Curriculum and Instruction (Specialist, EdD, and PhD)</td>
<td>March 1</td>
<td>Aug. 1</td>
<td>Dec. 1</td>
</tr>
<tr>
<td>Counselor Education (Master)</td>
<td>Feb. 1</td>
<td>—</td>
<td>April 15</td>
</tr>
<tr>
<td>Educational Leadership (Specialist and EdD)</td>
<td>Feb. 15</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>Molecular Biology and Microbiology (priority)¹</td>
<td>March 15</td>
<td>—</td>
<td>April 15</td>
</tr>
<tr>
<td>Nursing</td>
<td>Feb. 15</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>Physics</td>
<td>Feb. 15</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>Psychology</td>
<td>Feb. 1</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>Psychology, Clinical (M.A.)</td>
<td>Feb. 15</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>Psychology, Clinical (Ph.D.)</td>
<td>Jan. 15</td>
<td>—</td>
<td>—</td>
</tr>
</tbody>
</table>

1. This program admits students all three semesters, but students applying for fellowships or assistantships must apply for the fall semester by the priority date.
2. The application deadline for this program is April 15 of the year following the December 1 deadline.
3. This deadline applies to the Industrial/Organizational (MS), Clinical (MS), and Human Factors (PhD) programs.

## Nondegree, Certification, Transient, and Readmission Applications

Complete applications (all required documents) must be received by the date listed below, unless otherwise specified by the program, to be considered for admission.

<table>
<thead>
<tr>
<th>Nondegree, Certification, Transient, and Readmission Applications</th>
<th>FALL</th>
<th>SPRING</th>
<th>SUMMER</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fall admission</td>
<td>July 15</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>Spring admission</td>
<td>December 15</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td>Summer admission</td>
<td>April 15</td>
<td>—</td>
<td>—</td>
</tr>
</tbody>
</table>

## Reactivation Application

The program deadline. See the U.S./Resident Alien Application or International Application deadlines listed above.
# Academic Calendar, 1999-2000

<table>
<thead>
<tr>
<th></th>
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<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Early Registration</td>
<td>March 29- Oct. 25-</td>
<td>Mar. 27- March 27-</td>
<td>March 27- May 27-</td>
<td>May 27- August 27-</td>
<td>August 27- November 27-</td>
</tr>
<tr>
<td>Regular Registration</td>
<td>July 30- Dec. 3</td>
<td>April 28- June 28-</td>
<td>April 28- August 28-</td>
<td>August 28- November 28-</td>
<td>November 28- January 28-</td>
</tr>
<tr>
<td>Classes begin</td>
<td>Aug. 16-18 Jan. 3-4</td>
<td>May 8- June 8-</td>
<td>June 8- July 8-</td>
<td>July 8- August 8-</td>
<td>August 8- September 8-</td>
</tr>
<tr>
<td>Late registration</td>
<td>Aug. 19 Jan. 5</td>
<td>May 9- June 9-</td>
<td>June 9- July 9-</td>
<td>July 9- August 9-</td>
<td>August 9- September 9-</td>
</tr>
<tr>
<td>Add/Drop*</td>
<td>Aug. 20-26 Jan. 6-11</td>
<td>May 11-12 June 11-</td>
<td>June 11-12 July 11-</td>
<td>July 11-12 August 11-</td>
<td>August 11- September 11-</td>
</tr>
<tr>
<td>Last day for refund of fees</td>
<td>Aug. 27 Jan. 11 Feb. 25</td>
<td>May 12 April 24 May 26</td>
<td>June 26 July 26</td>
<td>July 26 August 26</td>
<td>August 26 September 26</td>
</tr>
<tr>
<td>Last day to apply for graduation**</td>
<td>Aug. 3 Dec. 3 April 3</td>
<td>May 12 April 24 May 26</td>
<td>June 26 July 26</td>
<td>July 26 August 26</td>
<td>August 26 September 26</td>
</tr>
<tr>
<td>Deadline for withdrawal</td>
<td>Dec. 4 Feb. 25 April 24</td>
<td>May 30 June 30</td>
<td>June 30 July 30</td>
<td>July 30 August 30</td>
<td>August 30 September 30</td>
</tr>
<tr>
<td>Classes end</td>
<td>Dec. 4 April 4 May 4</td>
<td>June 4 July 4</td>
<td>July 4 August 4</td>
<td>August 4 September 4</td>
<td>September 4 October 4</td>
</tr>
<tr>
<td>Final exams and special exams</td>
<td>Dec. 6-11 April 25-May 1</td>
<td>June 19 July 19</td>
<td>July 19 August 19</td>
<td>August 19 September 19</td>
<td>September 19 October 19</td>
</tr>
<tr>
<td>Grades due</td>
<td>Dec. 14 May 3 June 3</td>
<td>June 21 July 21</td>
<td>July 21 August 21</td>
<td>August 21 September 21</td>
<td>September 21 October 21</td>
</tr>
<tr>
<td>Commencement</td>
<td>Dec. 18 May 6 August 6</td>
<td>Aug. 5 September 5</td>
<td>August 5 September 5</td>
<td>September 5 October 5</td>
<td>October 5 November 5</td>
</tr>
</tbody>
</table>

* If class meets after the Add/Drop date, then the Add/Drop period can be adjusted. Colleges may have earlier deadlines. See individual colleges for information.
** Students applying after the deadline cannot assume that their name will appear in the commencement program and may not receive information regarding graduation.

## Graduate Studies Deadlines
- Deadline for thesis/dissertation defense: December 3, 2000

## Holidays
- Labor Day: September 6, 1999
- Homecoming Week: October 25-30, 1999
- Veterans' Day: November 11, 1999
- Thanksgiving: November 25-28, 1999
- M. L. King Jr. Day: January 17, 2000
- Spring Holidays: March 13-18, 2000
- Founders' Day: April 5 (No class 10:30-12:30), 2000
- Memorial Day: May 29, 2000
- Independence Day: July 4, 2000

## Calendar

<table>
<thead>
<tr>
<th>Calendar</th>
</tr>
</thead>
<tbody>
<tr>
<td>January 1999</td>
</tr>
<tr>
<td>February 1999</td>
</tr>
<tr>
<td>March 1999</td>
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<tr>
<td>April 1999</td>
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<td>May 1999</td>
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<td>June 1999</td>
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<td>July 1999</td>
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<td>August 1999</td>
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<tr>
<td>September 1999</td>
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<tr>
<td>October 1999</td>
</tr>
<tr>
<td>November 1999</td>
</tr>
<tr>
<td>December 1999</td>
</tr>
</tbody>
</table>
Administration and Staff

State of Florida Board of Education
Jeb Bush ......................................................... Governor
Frank T. Brogan .............................................. Lt. Governor
Katherine Harris ............................................. Secretary of State
Bob Butterworth .............................................. Attorney General
Robert F. Milligan ........................................... Comptroller
Bill Nelson .................................................... State Treasurer
Tom Gallagher .............................................. Commissioner of Education
Bob Crawford .............................................. Commissioner of Agriculture

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Gwendolyn F. McClain, Vice Chairman ...................... Okahumpka
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Julian Bennett, Jr ............................................. Panama City
Frank T. Brogan, Commissioner of Education ............ Tallahassee
Charlton B. Daniel, Jr ....................................... Gainesville
James F. Heekin, Jr .......................................... Orlando
Adolfo Henriquez ........................................... Miami
Philip D. Lewis ............................................... Rivero Beach
Elizabeth G. Lindsay ....................................... Sarasota
Jon C. Moyle .................................................. West Palm Beach
Steven J. Uhfelder ........................................... Tallahassee
Welcom H. Watson .......................................... Ft. Lauderdale
Michelle C. Oyola, Student Regent ......................... Boca Raton
Charles B. Reed, Chancellor ................................ Tallahassee

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Vice President for Administration and Finance ........ William F. Merck II
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Interim Vice President for Student Development and Enrollment Services ........ Thomas Huddleston, Jr.
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Vice President for Development and Alumni Relations and CEO, UCF Foundation ........ Robert Holmes

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Assistant Vice President and Director for Continuing Education .......... Patrick Wagner
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Director, Florida-Eastern European Linkage Institute ...... Jean Kijek
Director, Institutional Research and Planning ............. Daniel R. Coleman

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Director, Faculty Center for Teaching and Learning .......... Karen L. Smith
Dean, Honors College ...................................... Allyn M. Stearman
Director, Cooperative Education ......................... Sheri Dressler
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Director, Computer Services ................................ William H. Branch
Director, University Libraries ................................ Barry B. Baker
Director, Instructional Resources ......................... Ruth Marshall
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Director, Student Financial Assistance ..................... Mary McKinney
University Registrar ........................................ Dennis Dunlak

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Security Clearance Officer .................................. Kay Mullahly
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Assistant Director, Publications ............................. Debra Winter
Technology Manager ......................................... Solan Ngn
Director, Florida Board of Education Director of the Provost's Office ........ Dean McFall
Director, Honors College ................................. Allyn M. Stearman
Director, Honors College Relations and Resources .......... Dean McFall
Chair, Biology .................................................. David H. Vickers
Chair, Chemistry ............................................ Glenn N. Cunningham
Director, School of Communication ....................... Milan D. Meeske
Director, School of Computer Science ..................... Erol Gelenbe
Chair, English .................................................. Dawn Trouard
Chair, Foreign Languages and Literatures .................. TBA
Chair, History .................................................. Richard C. Crepeau
Chair, Mathematics .......................................... John R. Cannon
Interim Chair, Music ......................................... Lee E. Eubank

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Associate Dean ............................................. Ben B. Morgan, Jr.
Interim Associate Dean ..................................... Terry J. Frederick
Associate Dean .............................................. Haven C. Sweet
Interim Associate Dean ..................................... José B. Fernández
Assistant Dean .............................................. Lyman Brodie
Interim Chair, Arts ........................................... Joyce Lilie
Chair, Biology .................................................. David H. Vickers
Chair, Chemistry ............................................ Glenn N. Cunningham
Director, School of Communication ....................... Milan D. Meeske
Chair, English .................................................. Dawn Trouard
Chair, Foreign Languages and Literatures .................. TBA
Chair, History .................................................. Richard C. Crepeau
Chair, Mathematics .......................................... John R. Cannon
Interim Chair, Music ......................................... Lee E. Eubank
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Chair, Physics ...................................................... Brian P. Tonner
Chair, Political Science ............................................ Robert L. Bledsoe
Chair, Psychology ................................................... John M. McGuire
Chair, Sociology and Anthropology .......................... Jay Corzine
Chair, Statistics ..................................................... Ibrahim Ahmad
Chair, Theatre ............................................................ Donald Seay

College of Business Administration
Dean ..................................................................... Thomas L. Keon
Interim Associate Dean ........................................ Ronald E. Michaels
Associate Dean .................................................... Robert C. Ford
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Chair, Finance ....................................................... John M. Cheney
Interim Chair, Hospitality Management ..................... Taylor Ellis
Interim Chair, Management ...................................... Halsey R. Jones
Chair, Marketing .................................................... Ronald E. Michaels

College of Education
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Associate Dean .................................................... Jennifer M. Platt
Associate Dean .................................................... Michael C. Hynes
Chair, Educational Foundations ................................. Karen L. Biraimah
Chair, Educational Services ..................................... TBA
Interim Chair, Instructional Programs ......................... Jeffrey Cornett
Chair, Exceptional and Physical Education ................... TBA

College of Engineering
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Associate Dean for Research and Graduate Studies ........ Debra R. Reinhart
Associate Dean for Academic Affairs ......................... Richard N. Miller
Assistant Dean for Graduate Affairs ............................ Issa Batarseh
Chair, Civil and Environmental Engineering .................. A. Essam Radwan
Chair, Electrical and Computer Engineering .................. Wafsy B. Mikhael
Chair, Industrial Engineering and Management Systems . Charles H. Reilly
Chair, Mechanical, Materials, and Aerospace Engineering ... Louis C. Chow

College of Health and Public Affairs
Dean ..................................................................... Belinda R. McCarthy
Associate Dean .................................................... Michael J. Sweeney
Assistant Dean ....................................................... Joyce E. Dorner
Assistant Dean ....................................................... Cheryl E. Green
Interim Chair, Communicative Disorders ...................... Michael J. Sweeney
Chair, Criminal Justice and Legal Studies .................... Bernard J. McCarthy
Interim Chair, Health Professions and Physical Therapy .... Michael J. Sweeney
Chair, Molecular Biology and Microbiology ................... Robert N. Gennaro
Director, School of Nursing ...................................... Elizabeth Stullenbarger
Chair, Public Administration .................................... K. Tom Liou
Director, School of Social Work ................................ Mary Van Hook

School of Optics
Director ................................................................. M. J. Soileau
Associate Director of Academic Programs .................... M. G. “Jim” Moharam
The University of Central Florida

The University of Central Florida opened in the fall of 1963. 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 ten-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.

Mission Statement

The University of Central Florida is a major metropolitan research university whose mission is to deliver a comprehensive program of teaching, research, and service. It provides intellectual leadership through quality undergraduate and graduate programs. It proudly identifies with its geographic region while striving for national and international excellence in selected programs of teaching and research. It serves students who are diverse in age, ethnic, and racial identity, and socioeconomic background. It supports the cultural vitality of our region, serves as a major intellectual and creative resource, develops creative partnerships with public and private enterprise, and participates fully in the economic development of Florida.

UCF offers undergraduate education rooted in the arts and sciences, providing a broad liberal education while developing competence in fields of special interest. Unique aspects of UCF’s approach are its commitment to educate students for a world in which cooperation is as important as competition; in which societal and environmental impacts of new developments are as important as their technical merits; and in which technology, the arts, sciences, humanities, and commerce work together to shape the future.

The complexity of modern society requires comprehensive graduate and professional programs. UCF provides advanced education that matches institutional strengths with evolving regional, state, national, and international needs. It supports these advanced programs by recruiting excellent students, faculty, and staff and by supplying the infrastructure that enables these programs to achieve national prominence.

Basic and applied research, as well as creative activity, are integral parts of a quality education. UCF faculty members are scholar-teachers. As such, they create new knowledge, new points of view, and new means of expression in a broad range of academic, professional, and socially significant areas. Their creativity fosters innovation as they convey their results, methods, values, and expressions to students, colleagues, and the public.

UCF works actively to build partnerships that promote development of Central Florida’s economy through carefully targeted programs of graduate study and research. The I-4 High-Technology Corridor Council, whose goal is to attract, retain and expand high technology investment and jobs, is but the latest example of UCF’s collaboration with partners from industry, state and local government, and higher education.

Service to its community is an important extension of the metropolitan mission of the university. Public service is prominent at UCF, with the university developing partnerships with the community to enrich the educational, artistic, cultural, economic, and professional lives of those it serves in Central Florida and beyond.

Education is more than classroom experience. UCF students are involved in cooperative research and participate in artistic, social, cultural, political, and athletic activities. UCF provides academic diversity by bringing to its campus national and international leaders who expose students and the community to a wide range of views and issues. UCF achieves cultural diversity by using its multi-campus facilities to serve a diverse population of traditional and non-traditional students from various races, cultures, and nationalities.

UCF is committed to the free expression of ideas, the equality of all people, and the dignity of the individual.
Accreditation

The University of Central Florida is accredited by the Commission on Colleges of the Southern Association of Colleges and Schools to award degrees at the associate, baccalaureate, master’s, and doctoral levels.

In addition to the regional accreditation agencies, there are a number of scientific, professional, and academic bodies conferring accreditation in specific disciplines. UCF is listed with an “A” rating in the Report of Credit Given by Educational Institutions. The university is accredited by the following agencies:

- Southern Association of Colleges and Schools (SACS)
- American Assembly of Collegiate Schools of Business (AACSB)
- Computer Science Accreditation Commission (CSAC)
- National Council for Accreditation of Teacher Education (NCATE)
- National Association of School Psychologists
- Council for Accreditation of Counseling and Related Educational Programs
- Florida Department of Education
- Engineering Accreditation Commission (EAC)
- Accreditation Board for Engineering and Technology (ABET)
- Technology Accreditation Commission (TAC)
- Accreditation Board for Engineering and Technology (ABET)
- Commission on Accreditation of Allied Health Education Programs (CAAHEP of AMA)
- Joint Review Committee on Education in Radiologic Technology (JRCERT)
- National Accrediting Agency for Clinical Laboratory Sciences (NAACLS)
- Joint Review Committee for Respiratory Therapy Education, in conjunction with CAAHEP of AMA
- American Speech-Language-Hearing Association - Educational Standards Board (ASHA)
- American Medical Record Association (AMRA), in conjunction with CAAHEP of AMA
- National League for Nursing (NLN)
- Florida Board of Nursing
- American Chemical Society (ACS)
- Council on Social Work Education (CSWE)
- Commission on Accreditation in Physical Therapy Education - American Physical Therapy Association
- National Association of Schools of Music (NASM)

East Central Florida Area

UCF is located in East Central Florida, a region with a population of about two million. Known for its tourist attractions and high-technology industries, the area is one of the fastest growing regions in the nation. East Central Florida is noted for its many lakes. Atlantic beaches are an easy hour drive from the main campus. The area offers Walt Disney World and other attractions that draw vacationers from many countries. The area also offers Broadway productions, pop and classical music headliners, art festivals, a Shakespeare festival of UCF origin, and professional sports teams such as the Orlando Magic, the Solar Bears, and the Orlando Predators.

The Orlando Campus

The 1,415-acre campus is located 13 miles northeast of downtown Orlando. Seventy-nine permanent buildings valued at more than $300 million, radiate outward from an academic core, where UCF’s colleges, classrooms, and Library are located. More than $45 million in new construction is under way, including a $14 million College of Health and Public Affairs building. Facilities recently completed include the $17 million Student Union and $14 million School of Communications Building. UCF recreational facilities include lighted outdoor tennis and basketball courts, an outdoor swimming pool, golf driving range, disc golf range, volleyball and basketball courts, and multipurpose fields.

UCF Area Campuses

In addition to the academic programs offered on the Orlando campus, the University of Central Florida offers a number of upper-division programs and graduate programs at the Brevard and Daytona Beach campuses and at the Downtown Academic Center and the South Orlando Center. Times and dates for all courses are listed in the regularly published Schedule of Classes.
UCF Virtual Campus

Visit our website at
http://pegasus.cc.ucf.edu/~distrib/

UCF offers students convenient opportunities to take credit courses and select degree programs through a variety of interactive distributed technologies. Interactive television (ITV) courses are broadcast in real-time using two-way audio between the main, Brevard and Daytona campuses, and the Downtown Center. ITV courses may be enhanced with multimedia delivery and may originate from any of the receive sites using a compressed video system.

Learning on-line through distributed courses allows students to participate virtually via a computer using e-mail, computer conferencing, and the World Wide Web. Traditional courses use on-line components to enhance classroom activity, while distributed on-line courses may replace some class meetings. Fully on-line courses have minimal class meetings and may involve additional media such as audio and video tapes. UCF’s virtual campus brings the university to students with on-line courses and services. See http://pegasus.cc.ucf.edu/~distrib/ for more information. Courses are listed each semester in the Schedule of Classes. Students planning to take a course with a World Wide Web component should either be familiar with the use of the Web, or have taken CGS 1060.

Center for Distributed Learning
Steven E. Sorg, Interim Director
World Wide Web: http://pegasus.cc.ucf.edu/~distrib/cdl

The Center for Distributed Learning serves as the Virtual Campus for the university. As the Virtual Campus, the Center brings focus to university efforts in Distributed Learning by providing administrative support for all distributed learning credit courses, degree programs, and activities offered by the university.

The Center provides facilitation and direct services in the areas of learner support, course and program marketing, scheduling, registration, and admissions. Credit courses and programs offered by the academic colleges and facilitated by the Center adhere to the same quality standards that apply to the traditional on-campus programs. The Center provides leadership for efforts to achieve accreditation for distance learning programs. The Center’s goal is to provide support to students, faculty, and staff as new and existing technologies become increasingly available for distributed learning courses and programs.

By taking advantage of UCF’s technologies, graduate students can balance other responsibilities with their school work.

UCF Brevard Area Campus

James A. Drake, Campus Director
Clark Maxwell, Jr., Lifelong Learning Center
1519 Clearlake Road, Cocoa, FL 32922
(407) 632-1111, ext. 65567 • UCF ext. 506-5567
Mem Stahley, Associate Campus Director
(407) 632-1111, ext. 65567 • UCF ext. 506-5567
Charlene A. Stinard, Associate Director, Undergraduate Admissions
(407) 632-1111, ext. 65609 • UCF ext. 506-5609

For directions to the Brevard campus, see the map on page 279.

Graduate programs are offered in:
Business Administration (M.B.A.) at BCC Melbourne
Communicative Disorders (M.A.)
Educational Leadership (M.Ed.)
Elementary Education (M.A.)
Master of Arts in Varying Exceptionalities (M.A.), partial
Education - Varying Exceptionalities (M.Ed.), partial
Public Administration (M.P.A.)
Engineering FEEDS/ITV, on videotape at Kennedy Space Center, BCC Palm Bay, and UCF Brevard-Cocoa
Social Work (M.S.W.), partial

The UCF Brevard campus is co-located on the Brevard Community College campus in Cocoa. The university offers junior- and senior-level classes leading to the bachelor’s degree in thirteen undergraduate majors. Nine graduate programs offer course work for the master’s degree.
The campus maintains its own undergraduate admissions, registration/records, and financial aid services offices, co-located with BCC offices in the BCC Student Center. The five colleges (Arts and Sciences, Business Administration, Education, Engineering, and Health and Public Affairs) maintain offices for staff and faculty, providing on-site advisement for graduate and post-baccalaureate students in all majors offered on the campus.

The UCF-BCC Joint Use Library offers full library services. The Florida Solar Energy Center, located adjacent to the UCF Brevard campus, conducts research on a broad range of energy-related issues. Other offices maintained on the Brevard campus include: Student Government Association, Campus Life, cashiering services, a joint use computer lab, and bookstore.

Records, financial aid services, and undergraduate admissions are located in the BCC Student Center. Business hours are Monday through Friday, 8:00 a.m. to 5:00 p.m. Graduate program services are offered in the college advising offices in the Lifelong Learning Center, Monday through Thursday, 9:00 a.m. to 6:00 p.m., and Friday from 9:00 a.m. to noon. Office hours are extended during registration cycles.

A Brevard Community College parking sticker is required for parking lots on the BCC campuses. Decals are free through the UCF Brevard administrative support office, suite 147 of the Lifelong Learning Center, with a valid UCF ID and proof of registration.

A wide range of services are offered for Daytona Beach students including admissions, registration, financial aid, student clubs and organizations, disability services, veterans' affairs, career resources, and others. The Daytona Beach Community College Library provides a full range of library services. Admissions, registration, and student services offices are located in Building 34. Business hours are 8:00 a.m. to 6:00 p.m. Monday through Thursday and 8:00 a.m. to 4:00 p.m. on Friday. Hours are extended during scheduled registration periods.

### Division of Continuing Education

#### Division Administrative Office

J. Patrick Wagner, AVP/Director 12424 Research Parkway, Suite 265, Orlando, FL 32826 Phone (407) 207-4920 • Fax (407) 207-4930

The Division of Continuing Education is the unit within Academic Affairs that coordinates, in collaboration with the colleges, all UCF continuing education activity. Programs include nonfundable credit courses and an array of noncredit programs including conferences, institutes, short courses, workshops, seminars, and camps. Many of these programs are awarded Continuing Education Units (CEUs), when managed through the Division.

### UCF Daytona Beach Campus

Jack B. Rollins, Interim Associate Vice President and Campus Executive Officer

PO. Box 2811, 1200 International Speedway Blvd.

Daytona Beach, FL, 32120-2811

(904) 255-7423, ext. 4010

William J. Wetherell, Associate Campus Director

(904) 255-7423, ext. 4025

General information telephone number: (904) 254-4460

World Wide Web: http://www.daytona.ucf.edu

For directions to the Daytona campus, see the map on page 279.

#### Graduate programs are offered in:

- Business Administration (M.B.A.)
- Counselor Education (M.A.)
- Criminal Justice (M.S.)
- Educational Leadership (M.Ed.)
- Elementary Education (M.S.)
- Engineering (FEEDS/ITV-video)
- Exceptional Education
- Health Services Administration (M.S.)
- Nursing (R.N. to M.S.N.)
- Pre-Kindergarten/Primary Education (Cert.)
- Public Administration (M.P.A.)
- Sociology (M.A.)

The UCF Daytona Beach campus offers upper-division and graduate-level courses to residents of Volusia and Flagler counties. UCF courses are taught by twenty resident faculty, visiting Orlando faculty, and local adjuncts. Additional courses and programs will be added as needs are identified.South Orlando Center

John Duryea, Director

Orlando Central Park • (407) 856-6585

The South Orlando Center offers noncredit educational programs designed to meet the professional development needs of individuals and organizations throughout the state and the region. Offerings include seminars, workshops, conferences, symposia, and certificate programs that enable practitioners to seek personal enrichment and/or professional advancement. Programs are developed in cooperation with the academic colleges and institutes, and university faculty and support services are utilized to bring maximum benefit to both nontraditional and traditional learners.

Working closely with business, professional, and service organizations, the Center designs programs that best meet the needs of the working community. To substantiate the content of professional programs, as well as to offer credentials to verify a learner’s participation, Continuing Education Units (CEUs) are offered to qualified and eligible participants.

The South Orlando Center also offers graduate and undergraduate courses from each of the UCF colleges. Graduate certificate courses are also offered and more are being planned for the coming semesters. Graduate and undergraduate courses are offered in a variety of ways, including traditional face-to-face format, Interactive Television, WEB, and FEEDS. Parking is free and plentiful.

The Center is located in Orlando Central Park, a site convenient to students who live or work in southwest Orange County and north Osceola County. A television studio at the Center has the capacity to receive signals for interactive tele-
vision courses. There is a computer lab for student use, and the library is equipped with LUIS terminals. Admission and financial assistance information is available.

Center for Multilingual Multicultural Studies
Consuelo Stebbins, Director
TR 547  •  (407) 823-5515
Myrna Creasman, Assistant Director
TR 547  •  (407) 823-5435

Using contemporary teaching methodology and computer-assisted instruction, the Center for Multilingual Multicultural Studies provides English language instruction for international students. Four levels of instruction are offered which range from beginning to advanced, and special attention is given to preparing students for academic course work in their specialized fields of study. Full-time students enrolled at the advanced level may elect to take courses as non-degree-seeking students while enrolled in the Intensive English program. Students are required to take an entry placement test to determine their level of proficiency. Student (F-1) visas are extended to qualified applicants. The Center also offers English for Special Purposes for international business personnel.

Downtown Academic Center
Cecelia H. Rivers, Director
36 West Pine Street, Orlando, FL 32801  •  (407) 317-7700
For directions to the Center, see the map on page 279.

The Downtown Academic Center is located in the heart of downtown Orlando. Situated near Orlando's Church Street Station, access to the center is easy. With four classrooms, including a 130-seat lecture hall, a multitude of credit and noncredit courses and programs are made available to UCF students as well as to the business and residential community of Orlando. The Institute of Government, housed at the center, further expands opportunities for professional development through ongoing workshops and seminars. In addition, a distributed learning center features an interactive television system that connects students to courses on the main campus and to satellite conference sites. A state-of-the-art computer lab provides the latest technology to aid student learning and enhance computer literacy. Selected engineering courses are available by video to meet the needs of students unable to attend classes offered at set times. Admission, financial assistance, and other college information is readily available.

The Downtown Academic Center also serves as a central place for meetings, mini-conferences, and retreats. The AT&T executive conference room and flexible classroom space create an atmosphere conducive to hosting a variety of educational activities and cultural events to promote the mission of the university.

The Downtown Academic Center offers upper-division and graduate-level courses through the colleges of Health and Public Affairs, Arts and Sciences, Business Administration, and Engineering.

Information Technologies and Resources

The Division of Information Technologies and Resources includes the Library, Computer Services and Telecommunications, the Office of Instructional Resources, and the Course Development for Interactive Distributed Learning Unit. The Division has responsibility for planning, implementation, and support of information resources to serve the university's primary functions of instruction, research, and administration. Specific services and facilities provided by each of the above units are described in the following sections.

University Libraries
Barry B. Baker, Director
Frank R. Allen, Associate Associate Director
LR 512  •  (407) 823-2564


The main University Library, housed in a facility of 226,000 square feet, has a collection of over 1.2 million volumes, including 5,700 current serial subscriptions. In addition to bound volumes, the Library owns approximately 2.1 million microforms and 22,000 media titles. UCF is a partial depository for both United States and Florida government publications. The Library is open approximately 94 hours per week including evenings and weekends. Hours are extended during the last few weeks of each semester and shortened during vacation periods. Current hours are available on the web site (http://library.ucf.edu/hours.htm) or by calling 823-2756. Borrowing period for library materials vary depending on the item. See the web site (http://library.ucf.edu/circ/default.htm) for complete circulation policies.

WebLUIS, the Library's web-based catalog, can be accessed from any public as well as home PC. From the web go to http://library.ucf.edu and click on WebLUIS. WebLUIS also offers a gateway to hundreds of electronic databases, the catalogs of other state university system libraries, and the community college system libraries. CD-ROM based databases are available from within the Library in the Electronic Reference Area, located near the Reference Desk on the second (main) floor. For help and advice in the use of the Library and its materials, the Reference Desk is open during most library hours. Librarians are on duty for assistance with interpreting the on-line catalog (holdings and locations), as well as with electronic reference sources and other library collections.

The Interlibrary Loan and Document Delivery Services Department (ILL) assists students in obtaining materials not owned by the Library. Most book loans and photocopied materials can be acquired free of charge within two weeks. Request forms are available on the ILL web site at http://
library.ucf.edu/ill, at the ILL Office (Room 321), or at the Reference Desk. For more information, call 823-2383 during office hours or visit the ILL web site.

Special services are provided for people with disabilities. By using WebLUIS, students can determine the availability of books they need and telephone the Library to request that books be retrieved from the shelves and brought to them at the circulation desk. A Kurzweil reading machine is available in the Library for people with visual impairments; students may arrange for instruction in its use. Through the cooperation of the university’s Office of Student Disability Services and the Florida Bureau of Blind Services, the library staff will aid disabled students in obtaining special equipment they may need to use library resources.

The Curriculum Materials Center (CMC), a unit of the University Library, is located in the Education Building. The CMC provides representative K-12 curriculum materials for preview, review, analysis, and circulation. The facility serves primarily the students and faculty of the College of Education, however, it is open to all campus faculty, staff, and students. For more information on this center, see the CMC web site at http://library.ucf.edu/CMC or call 823-2791.

Additional library collections are available at the Brevard Community College/University of Central Florida Joint Use Library in Cocoa and at the Daytona Beach Community College Library in Daytona Beach. At both locations the university partners with the local community college to provide complete information services, including materials processing and checkout. Both locations have electronic access to LUIS and to university resources on the web. Courier and intercampus loan services make the main library’s collections available to UCF students at all area campus sites. For more information, see the web site at http://library.ucf.edu/branches.htm.

Computer Services and Telecommunications

Computer Services and Telecommunications provides central support services for administrative data processing, instruction and research computing, telecommunication networks, e-mail, telephone, information technology training, user help, and microcomputer technology to the university.

Central instruction and research computing is provided primarily by computers located on the main campus as follows: Novell LAN fileservers, Sun Enterprise 450, IBM ES/9000 model 170 and other Internet and campus facilities. There are two public access IBM PC labs in Computer Center II (CCII), Education (EDU), and the Business Building (BA). UNIX equipment is available in CCII. PowerMac and Macintosh labs are available in CCII and EDU. Public access labs are available for faculty and students. Most labs are open seven days a week with extended hours.

Voice Response systems are available for dial-up registration, grades, and financial aid information. Similar services are available from the web at https://polaris.ucf.edu. Campus KIOSK workstations are available in several campus buildings for frequently asked questions and individual student record information. Additional information is available on the UCF World Wide Web servers. Access to Internet and campus information servers is available to our students through Pegasus accounts provided to all newly enrolled students.

The university also operates a full-service on-campus computer store (Student Union), which provides the UCF community a source for quality computer products and services at competitive prices. The store is an authorized campus reseller for Dell, Apple, Microsoft, and many other products. Maintenance and training support is also available from the store.

Office of Instructional Resources

LIB 107 • (407) 823-2571
World Wide Web: http://www.oir.ucf.edu

The Office of Instructional Resources (OIR) supports UCF administrators, faculty, and staff with multimedia design and production, digital media, television production, audio production, photography, graphics, and a full range of multimedia and audiovisual classroom support services. OIR’s facilities include the Digital Image Processing Lab (DIPL), located in the Research Pavilion in the Central Florida Research Park. In association with its community partners, DIPL offers UCF faculty access to state-of-the-art digital imaging technologies including digital image processing, digital document scanning, and CD-ROM production. OIR’s Faculty Multimedia Center (LIB 156) provides multimedia production and training resources for faculty using Macintosh and Windows personal computer systems. OIR’s Electronic Classroom (LIB 157) is used for video conferencing and distributed learning course origination. It also provides faculty with an excellent location for training in distributed learning production and delivery skills. OIR also supports several advanced multimedia classrooms located throughout the campus.

OIR provides UCF with a full array of distributed learning delivery systems including an interactive video network that serves several rooms on the main campus, the Orlando Downtown Center, the branch campuses at Brevard and Daytona, and other off-campus locations; an ITFS network that serves the main campus, the Orlando Downtown Center, the branch campuses at Brevard and Daytona, and the South Orlando campus; Ku and C-band satellite reception; and cable television delivery on the main campus. OIR supports UCF’s Web-based distributed learning programs with Web and multimedia training for faculty and Web design and production facilities.

Course Development and Web Services

Barbara Truman, Director
AD 395-C • (407) 823-6624
World Wide Web: http://reach.ucf.edu/~coursdev

Course Development and Web Services (CD&WS) supports teaching and learning on-line at UCF. The unit is responsible for offering classes to faculty about teaching on-line, such as IDL 6543 (http://reach.ucf.edu/~idl6543) offered twice a year and WebCT Academy (http://reach.ucf.edu/~webct411) offered year-round to all faculty, staff, and student assistants.
CD&WS also produces on-line courses and web sites found on the Reach Server (http://reach.ucf.edu) and maintains the university’s primary web site. Webmaster support through training and referrals is available upon request for departments and faculty needing web-based authoring. Special events are held regularly to promote campus-wide participation and web-based research and development.

CD&WS comprises teams of instructional and digital media designers, software engineers, and programmers called Techrangers who work with faculty, departments, and students to create collaborative digital media projects. The Pegasus Connections CD-ROM is produced semiannually by CD&WS to provide the UCF community with Internet software tools, tutorials, and UCF information (see http://reach.ucf.edu/~coursdev/cdrom).

On-line courses are listed each semester in the Schedule of Classes.

Florida Engineering Education Delivery System (FEEDS) Program
Dr. Ron Eaglin, Director
Naomi Morris, Coordinator
ENGR 387 • (407) 823-2481
World Wide Web: http://feeds.engr.ucf.edu/

The College of Engineering offers all graduate engineering programs by means of live delivery or videotaped instruction. Programs and courses offered are delivered by videotape to branch campuses or to businesses either in-state or out-of-state. Businesses can sign up to receive courses through a partner in education agreement with the College of Engineering. Courses offered through the FEEDS system are listed on the FEEDS web site and in the FEEDS annual catalog and the UCF Schedule of Classes. Also available from the FEEDS system are the Engineering graduate certificate programs offered by each discipline. More information about these programs is available from each engineering department or the Engineering home page at http://www.engr.ucf.edu.
Research Opportunities

An important goal of the University of Central Florida is to develop excellence in key areas of graduate study and research. UCF is dedicated to teaching and research, to scholarship, and to the transmission of that scholarship to students. Graduate students work one-on-one with faculty mentors in studios, libraries, and laboratories, where students and faculty engage in creative research for the benefit of society.

Faculty members at UCF successfully compete for research support, attracting more than $32 million annually from private and public sources. Of this, more than $14.7 million was funded by the federal government in 1995-96, primarily from the Department of Defense. A locally based company, Lockheed Martin, is the largest source of private funding.

Companies have invested in UCF’s graduate programs by providing distinguished professorships and endowed chair opportunities for faculty engaged in research and by providing resources to educate graduate students through mechanisms such as the Lockheed Martin funding of the UCF Academy for Mathematics and Science in the College of Education and the Industrial Fellows Program in the College of Engineering.

The University has several nationally and internationally recognized research institutes. The Florida Solar Energy Center (established in 1975 and located adjacent to the campus of Brevard Community College in Cocoa, FL), the Center for Research and Education in Optics and Lasers (CREOL, founded in 1986), and the Institute for Simulation and Training (IST, founded in 1982) conduct a significant amount of the total research for the University. These institutes actively involve graduate students in their research activities and assist in supervising their graduate theses and dissertations. These three institutes account for more than 50 percent of all sponsored research funding at the University. For more information about sponsored research at UCF, visit the Office of Research and Graduate Studies website at: http://www/orgs.ucf.edu.

Other organized research units also complement the activities of the academic departments. A few examples include the Center for Economic Education, the Florida-Canada Linkage Institute, the Florida-Eastern Europe Linkage Institute, the Institute for Social and Behavioral Sciences, the Center for Applied Human Factors in Aviation, the Phillips Institute for the Study of American Business Activity, the Institute of Statistics, the Center for Executive Development, and the Small Business Institute.

In addition, UCF is situated next to the Central Florida Research Park, where many companies provide research opportunities for students. For those students who may find it difficult to commute to campus, courses are provided through distance-learning opportunities. Students may be employed with companies providing real-world research, while pursuing a graduate degree through distance learning at the same time.

Central Florida Research Park

The Central Florida Research Park, adjacent to the main UCF campus, is a university-related research park established by the Florida Legislature in 1978. The park is a cooperative effort among the University of Central Florida, the Orange County Research and Development Authority, and the Orange County Board of County Commissioners (who appoint the members of the Authority). The governing body of the park is the Orange County Research and Development Authority.

The objectives of the Central Florida Research Park are in keeping with the legislative action which enabled its creation: “to encourage and promote the establishment . . . of research and development activity combining the resources of . . . institutions of higher learning, private sector enterprise involved in pure or applied research, and state or federal governmental agency research.”

The ultimate goal of University-related research parks is to establish an academic/industry community resulting in a unique approach to the creation of a more effective cooperative academic/industrial endeavor. The University and officials of the Central Florida Research Park believe that the potential for the establishment of close ties between the University and industry will create an attractive environment conducive to the location of research-oriented industry in the park. This activity will enrich and support the academic, teaching, and research programs of the University. The University, in turn, as a community of scholars, reservoir of knowledge past and present, and creator of new knowledge and discovery, can provide the necessary expertise and human resources to enhance the research and development activities required and planned by park residents.

Totally planned to provide a campus-like environment for business adjacent to UCF, the Central Florida Research Park consists of more than 1,000 acres of land. Businesses that desire a “university relationship” can purchase or lease land
in the Research Park on which to construct a facility or can lease space for office, office/lab, or light manufacturing activities.

The Institute for Simulation and Training (IST) is located in the Research Park. The Naval Air Warfare Center Training Systems Division (NAWCTSD) and the Army Simulation, Training and Instrumentation Command (STRICOM), the focal point of the nation’s simulation and training industry, have their headquarters in the Research Park. More than $700 million in federal contracts is granted by the Army and Navy each year.

Currently more than 80 companies are located in the Research Park pursuing activities in simulation and training, lasers, optical filters, behavioral sciences, diagnostic test equipment, and oceanographic equipment. Approximately 5,500 employees currently work in the Research Park including many students and faculty.

Research Park tenants are involved with the University of Central Florida through sponsored research, using faculty as consultants and using graduate and undergraduate students for intern programs and part-time employment. Research Park tenants can also contract with the University for the use of the library computer resources and laboratory facilities. Cooperative projects range from technical research to developing business plans and employee training programs.

Research Facilities

Research facilities include access to a DEC MPP 1200 parallel processor and a Harris Nighthawk NH-3800 processor within the Computer Science Department, IBM RS/6000 model 580 and IBM 4381 model T92 processors within the Computer Services department, ES/9000 model 740 with three vectors at the Northeast Regional Data Center and access via the Internet to worldwide computer facilities. 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 biology, as are a greenhouse and accompanying Arboretum, an extensive herbarium, a vertebrate collection, the Feller’s House, which is a research facility located on the Canaveral Seashore, and outstanding inland and coastal natural resources for fieldwork.

The Molecular Biology and Microbiology Department has a full complement of laboratory equipment including complete animal and tissue culture facilities. Cooperative agreements with area hospitals and other research organizations ensure a high degree of professional interaction and the opportunity for a variety of joint research projects.

The engineering departments maintain modern, well-equipped laboratories and shop facilities especially in microelectronics, manufacturing, combustion, and environmental engineering. Close liaison is maintained with the Florida Solar Energy Center and the Central Florida Research Park. 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 journals in a variety of disciplines.

Balanced Reading Instruction. Dr. Tim Blair, Editor
The Canadian Review. Patrick Stewart, Editor
Cypress Dome (student literary magazine). Dr. Donald Stap, Advisor
Educational Forum. Dr. M. L. Kysilka, Editor
Florida Journal of Curriculum and Supervision. Dr. M. L. Kysilka, Associate Editor
The Florida Reading Quarterly. Dr. Rosie Webb Joels, Editor
The Florida Review. Russell Kesler, Editor
Global Perspectives. Dr. John C. DiPierro, Managing Editor
International Journal of Computers and Industrial Engineering. Dr. Gary E. Whitehouse and Dr. Yasser A. Hosni, Editors
International Journal of Mathematics and Mathematical Sciences. Dr. Lokenath Debnath, Professor of Mathematics, Managing Editor of the Journal
The Journal of Reading Education. Dr. Richard A. Thompson, Editor
Public Administration in the 1980’s. Dr. Peter W. Colby, General Editor

Quill

Quill is a select club on the UCF campus that was organized in 1982 to recognize and honor faculty of the University who are authors of one or more books. Criteria of eligibility have been set up by the faculty, and there is an induction of new members at the annual meeting.

Scroll

Scroll is a select club on the UCF campus that was organized in 1987 to recognize and honor faculty of the University who have shown sustained research activities. Criteria of eligibility based on a significant number of peer-reviewed articles in international and national journals have been set up by the faculty. Evaluation of nominees is done by a faculty committee and new members are inducted annually.
Institutes and Centers

Center for Applied Human Factors in Aviation (CAHFA)
Dr. Jefferson M. Koonce, Director and Chief Scientist
PH 302-O • (407) 823-1011 • Fax (407) 823-5862

The Center for Applied Human Factors in Aviation (CAHFA) has as its mission the enhancement of safety in the nation’s airspace system through applied human factors research, systems design, and training strategies. Chartered in 1990, CAHFA is a research consortium established between UCF and Charter partner Embry-Riddle Aeronautical University, Daytona Beach, Florida. CAHFA’s professional staff maintains offices on both campuses. The complementary strengths of the two universities are combined to create a research resource that is without peer for solving a vast assortment of aeronautical human factors problems. CAHFA research initiatives are targeted to significantly reduce human factors-related accidents and incidents by determining the efficacy of and by developing strategies for achieving improvements in human performance.

Center for Economic Education
Dr. Robert L. Pennington, Director
BA 325 • (407) 823-2870

The Center for Economic Education strives to increase public knowledge of economic principles and their applications in daily life. Researchers at the Center develop, collect, and distribute economic educational materials. They also consult with and provide instruction to area schools (K-12), community colleges, and community organizations. Instruction focuses on the principles of economics and their use in making rational economic decisions. Affiliated with the National Council on Economic Education and the Florida Council on Economic Education, the Center also conducts research in economic education.

Center for Executive Development
Donal C. Hoke, Director
BA 237 • (407) 823-2446 • Fax (407) 823-3153
E-mail: execdev@bus.ucf.edu
World Wide Web: http://www.bus.ucf.edu/ced

The Center for Executive Development (CED) of the College of Business Administration develops and coordinates seminars, workshops, and conferences on business and management-related topics. The Center is designed to support the business community in all of its requirements for management education and training. This support may be in the form of short, intensive seminars presented on campus or on-site, special topics seminars developed for particular needs, or customized certificate and non-certificate training programs to increase key competencies and managerial skills. The Center offers individualized attention and training consultation to business clients interested in topics such as Accounting, Business Development, Business Development, Finance, Leadership, Management, Marketing, Professional Development, and Strategic Planning. The Annual Tax and Accounting Conference and Purchasing Manager Certification are examples of seminars and workshops being offered on a yearly basis. International programs include Brazilian workshops and the International School of Tourism and Hotel Management at Colegio Universitario del Este, Puerto Rico.

Additionally, the Center offers a fully accredited Executive MBA Program for qualified executives seeking to earn an advanced degree in business administration while continuing to work full-time. This fast-paced graduate program provides selected students the opportunity to study the latest in business technologies and application. Alumni of the program include professionals from outstanding organizations such as AAA, AT & T, Barnett Bank, Darden Restaurants, Harris Corporation, Lockheed Martin, Nestle, Pepsi Cola, Sears, Roebuck and Co., SPRINT, Sun Trust Bank, Tupperware, Walt Disney World Co., and Universal Studios.

Center for Research and Education in Optics and Lasers (CREOL)
Dr. M. J. Soileau, Director
E-mail: mj@creol.ucf.edu
Dr. M. G. Moharam, Associate Director
E-mail: moharam@creol.ucf.edu
P.O. Box 162700, Orlando, FL 32826-2700 • (407) 823-6800
World Wide Web: http://www.creol.ucf.edu

The Center for Research and Education in Optics and Lasers (CREOL) is the Florida State University System’s Center of Excellence for research and education in optics, lasers, and photonics. It was established in 1985 with the mission to provide the highest quality education in optics and lasers, conduct scholarly fundamental and applied research, and aid in the development of Florida’s high technology-based industries.

CREOL is closely integrated in the School of Optics and serves as its research arm. The School of Optics/CREOL has grown to an internationally recognized institute with 25 faculty members, 25 Ph.D. level research scientists, and 120 graduate students. The School of Optics/CREOL faculty are recognized to be among the best in the optics/laser/photonics field with two-thirds holding the rank of Fellow in major national and international professional societies in their field. It is one of only three independent optics academic departments in the nation offering M.S. and Ph.D. degrees in optics. It is housed in a state-of-the-art 83,000-square-foot building dedicated to optics, photonics, and laser education and research on the main campus. This facility houses ninety research laboratories equipped with over $35 million of state-of-the-art equipment. Graduate assistantships, with stipends ranging from $14,000 to $18,000 are available to outstanding students pursuing graduate education in optics and photonics. Research training opportunities are available to undergraduate students through the Research Experience for Undergraduates (REU) program sponsored by the National Science Foundation and other research grants and contracts.
CREOL's research activities span the spectrum from basic science to prototype development. The faculty and research staff pursue joint research projects with industry, other universities, and government laboratories, and are always seeking new opportunities to work with industry to expose students to the industrial environment and to help in technology transfer. Current research areas include: linear and nonlinear guided-wave optics and devices, high speed photonics telecommunications, semiconductor lasers, nonlinear optics, laser-induced damage, quantum-well optoelectronics, photonic information processing, infrared systems, optical system design, image analysis, virtual reality, medical imaging, diffractive optics, optical crystal growth and characterization, high intensity lasers, x-ray optics, EUV sources, optical glasses, and laser materials processing, free-electron lasers, and light matter interaction. These research programs are supported by over $6 million of research grants and contracts from numerous federal and state agencies and industry.

CREOL has a very active Industrial Affiliate Program to facilitate strong cooperative relations with industry. The program provides businesses and manufacturers with benefits of cutting-edge research and with access to the expertise and facilities of CREOL. Faculty members are teaming with Florida-based small businesses to help them compete for federally sponsored Small Business Innovative Research (SBIR) programs. The program provides industry with effective ways to contribute to and sustain the research and teaching of laser and electro-optic technology.

For additional information, please visit our website at http://www.creol.ucf.edu or contact Dr. M. J. Soileau, Director of the School of Optics/CREOL at (407) 823-6800 or by email: mj@creol.ucf.edu.

Dick Pope, Sr., Institute for Tourism Studies
Dr. Abraham Pizam, Director
BA 410 • (407) 823-2188

The mission of the Dick Pope, Sr., Institute for Tourism Studies is to improve the quality of the tourism product and increase the benefits of tourism for the industry, the state, and the local community. To this end, the institute is involved in a variety of research projects and educational programs.

The research includes the collection, development and dissemination of information relevant to the tourism and hospitality industries in the areas of marketing, consumer behavior and visitor satisfaction, feasibility, economic, motivational, and forecasting. Some of the institute’s patrons include tourism promotion agencies at the state and local levels; tourism development commissions; professional associations; and private enterprises such as attractions, hotels, motels, food-service establishments, ground and air transportation companies, travel agencies and tour operators, and other related businesses.

The institute devotes significant efforts to educating the public about the tourism industry in Florida and internationally, and about its contribution to the social and economic welfare of the general public.

Florida-Canada Linkage Institute
Dr. Warren McHone, Director
Orlando Campus • (407) 823-5789
E-mail: fcli@bus.ucf.edu
World Wide Web: http://www.bus.ucf.edu/fcli/

The Florida-Canada Linkage Institute was established by the State of Florida in 1986 to foster cultural, educational, and economic linkages between Florida and Canada. Linkage is developed through promotion of expanded public/private dialogue on cooperative research and technical assistance, cultural exchange, enhancement of language training and student/faculty exchange programs.

Florida-Eastern Europe Linkage Institute
Dr. Jean C. Kijek, Director
HPB 350D/E, PO Box 160155, Orlando, FL 32816-0155
(407) 823-3647 • FAX (407) 823-3649

The Florida-Eastern Europe Linkage Institute (a Class I state-mandated activity) is a statewide effort hosted by the University of Central Florida in partnership with Lake Sumter Community College, and is designed to create and foster educational, commercial, cultural, and social exchanges between the countries in central, eastern Europe, and former Soviet Union; and the state of Florida. The institute, funded and administered through the Office of Academic Affairs and located in the College of Health and Public Affairs on the main campus of the University of Central Florida, promotes the development of linkages through expanded public/private dialogues on cooperative research and technical assistance, cultural exchanges, the enhancement of language training, and student/faculty exchange programs.

Institute of Government
Marilyn Crotty, Director
(407) 317-7745 • FAX (407) 317-7750

The Institute of Government, an affiliate of the Florida Institute of Government, is housed in the College of Health and Public Affairs and provides training and technical assistance to federal, state, and local government agencies and intergovernmental associations. Training workshops, certification programs, conferences, seminars, applied research projects, citizen surveys, strategic planning, and organizational development programs are among the services offered by the institute.
The Institute for Simulation and Training (IST) is an internationally recognized research institute that focuses on technology advancement in training systems, education, and simulation and modeling. IST was established in 1982 as a research unit of the University of Central Florida (UCF) and is part of the Department of Defense (DoD) Center of Excellence (COE) for Simulation and Training. The COE represents the largest concentration of simulation and training expertise in the world.

IST is located in the Central Florida Research Park, where it occupies over 35,000 square feet of laboratory and office space adjacent to the main UCF campus. Also located in the Park is the Army Simulation Training and Instrumentation Command (STRICOM), the Naval Air Warfare Center Training Systems Division (NAWCTSD), and the Air Force Agency for Modeling and Simulation (AFAMS), in addition to numerous companies involved in simulation and training development.

IST's strength lies in its broad-based, multidisciplinary resources. These include a concentration of in-house simulation and training expertise, extensive laboratory facilities and equipment, and an experienced support staff. IST draws on these resources together with those of UCF, government, commercial organizations, and other universities to advance the state-of-the-art in simulation-based training.

Services provided by IST include:
- Research and research support
- Data gathering, evaluation, and distribution
- Technology transfer
- Modeling and simulation course, workshop, publication, and website development
- Resources and research opportunities for students in simulation-related disciplines
- Development of links among academic, government, and commercial simulation entities
- Education and training applications
- Information gathering/dissemination
- Technology transfer

Institute of Statistics
Dr. Mark E. Johnson, Director
CCII 226 • (407) 823-2289

The Institute of Statistics provides statistical consulting and analytical support to all areas of the university. The institute makes valuable contributions to research by supporting non-statistical researchers with statistical consulting assistance during the planning of experiments and investigations, analysis of data, and the evaluation of results. The institute also provides statistical support to various governmental agencies and private organizations.

Institute for Technical Documentation
Dr. Daniel Jones, Director
FA 301 • (407) 823-2212

The Institute for Technical Documentation offers a variety of services for client companies, including the development of original technical documentation, the translation of documentation written in foreign languages, and the development of seminars to assist clients in writing their own documentation.

The institute consists of a core of permanent professional staff, supplemented by University faculty, staff, and students, all of whom have demonstrated expertise in technical writing of documentation. These services are enhanced by the cooperative efforts of educators, engineers, foreign language experts, psychologists, and scientists who act as consultants to the institute.

Trained writers, established facilities, and continued contact with personnel in industry and research enable the institute to engage in a wide variety of documentation projects.

Small Business Development Center
Aloyse T. Polfer, Director
BA 309 • (407) 823-5554

The Small Business Development Center (SBDC) is part of a statewide organization designed to promote economic development by responding to the needs of the small business community. The SBDC, located in the College of Business Administration at the University of Central Florida, is responsible for a geographic area including Orange, Osceola, Lake, Citrus, Brevard, Volusia, Flagler, Seminole, and Sumter counties. Regional centers located at Brevard Community College, Daytona Beach Community College, and Seminole Community College assist small business in these areas.

Assistance is provided through workshops and individual counseling in the following areas: Marketing, Personnel, Bookkeeping, Business Tax, Franchising, Sources of Financing, Product Innovation, Business Plan Development. Additional programs provide assistance to clients in the areas of government contracting, energy conservation, and international trade.
Small Business Institute
Dr. Ron Rubin, Director
BA 346  •  (407) 823-2682

Business schools have for some years been interested in getting students out of the classroom and involved with real business problems rather than “textbook” situations. By sponsoring the Small Business Institute (SBI) program, the University of Central Florida does not only satisfy this need, but at the same time provides free professional help to small business people who are in need of managerial guidance.

The SBI program uses a team of senior-level undergraduate or graduate-level students who, under faculty supervision, provide management counseling and technical assistance to small business clients. Examples of these services are: general management audits, development of business plans, establishment of accounting systems, design of inventory systems, cost analysis, pricing strategies, and evaluation of alternative markets.

The major objective of the College of Business Administration at the University of Central Florida is to educate men and women for positions of productive responsibility in business and the professions. UCF’s Small Business Institute program stresses analytic ability and the student’s learning skills in recognizing and coping with change. At the same time, the program provides on the job experience and sound academic training for the student.

Florida Solar Energy Center (FSEC)
Dr. David Block, Director
1679 Clearlake Road, Cocoa, FL 32922-5703
(407) 638-1000  •  FAX (407) 638-1010

Created by the Florida legislature in 1974, the Florida Solar Energy Center is the largest and most active state-supported renewable energy and buildings research institute in the United States. FSEC functions as the energy research institute of Florida and is one of the research institutes of the University of Central Florida. It is located on a 20-acre complex on UCF’s Cocoa campus, 35 miles east of the main campus in Orlando.

FSEC employs a staff of 150. Of that number, approximately 75 are professionals with expertise in engineering and energy research, buildings science, energy analysis, policy analysis, and education and training. The remainder of the staff comprises technical and clerical support personnel and University student assistants.

FSEC annually receives approximately $3 million in operating funds from the state of Florida. The institute also contracts to perform research for external sponsors. The value of these contracts and grants ranges from $5 million to $8 million annually. Total funding from 1975 to 1998 exceeds $87 million.

FSEC has gained national and international respect for its program activities in:
- Photovoltaic systems, applications, and cells
- Energy and building systems
- Indoor air quality
- Advanced HVAC systems
- Solar thermal systems
- Hydrogen energy from renewable resources
- Pollutant detoxification
- Photoelectrochemical processes
- Alternative fueled vehicles
- Education and Training

Research at FSEC is based on experimental data from highly instrumented laboratories and field test sites. Detailed analytical models are developed and validated with the experimental data. Systems analysis, cost-benefit analysis, and technology transfer follow research that demonstrates technology feasibility. Results are published and widely disseminated by national as well as local media.

Florida Space Institute (FSI)
Dr. Ron Phillips, Director
12424 Research Parkway, Suite 400, Orlando, FL 32826
(407) 658-5599  •  FAX (407) 658-5595

Florida Space Institute (FSI) is an interdisciplinary organization that relies on faculty participation from all five colleges of the University. FSI’s goal is to maximize space research opportunities for UCF faculty and students, while providing highly valued results to the space community. FSI’s objectives are to:
- Facilitate the performance of research to advance space technology.
- Serve as a catalyst to advance educational opportunities and experiences.
- Provide researchers with access to the upper atmosphere and space.
- Upgrade UCF capabilities through training and development programs.
- Advocate UCF’s contributions to commercial space services.
- Be an active participant in the international space community.

Space research areas of interest include advanced launch systems, communications, the earth system sciences, educational technology, and space optics. Over 50 faculty members at the University have expertise and experience in these areas. In education, FSI serves to aid in the development of new space-related courses and programs. FSI also works with industry, government, and the Central Florida school districts to improve science and mathematics education through the use of space applications and technology.

Environmental Systems Engineering Institute
Dr. James S. Taylor, Director
(407) 823-2785

Engineering research is a primary function of the Environmental Systems Engineering Institute (ESEI). Located within the Civil and Environmental Engineering Department at the University of Central Florida (UCF), ESEI provides a central location for coordinating environmental projects utilizing the specific expertise of CEE and other departments at UCF. Specific expertise within the CEE department includes potable water treatment, corrosion control, stormwater abatement,
The Florida Solar Energy Center (FSEC) in Cocoa is nationally recognized for comprehensive programs in solar energy and energy-efficiency. This center is one of the many research opportunities available to graduate students at UCF.
Research Opportunities

air dispersion modeling, noise abatement, solid waste, incineration, hazardous waste investigation, wastewater treatment, and receiving water impacts.

UCF has a long history of environmental problem solving. ESEI projects have involved colleges and departments outside of the College of Engineering at UCF in order to conduct comprehensive environmental projects concerning research, training, analysis, and education. UCF has significant capital resources invested in laboratory space, advanced analytical equipment, and computer technology that is available for environmentally oriented problem solving.

Projects conducted through ESEI provide a central contact point within UCF, which allows a project team with a high degree of specialized expertise to be assembled. Information regarding ESEI or any environmentally oriented project can be obtained by calling or writing Dr. J. S. Taylor at the above address or phone number. ESEI was created by UCF to enhance environmental education and services at UCF and actively seeks interaction with government and private organizations.

Other Centers

Institute for Exercise, Physiology, and Wellness
Dr. Frank Rohter, Director • (407) 823-2049

The Institute for Exercise, Physiology, and Wellness provides physiologic assessments for: Body Fat Percent (Hydrostatic Weighing); VO\textsubscript{2} Max; Resting Metabolic Rate; Lactate Threshold; Cholesterol Profile; and Exercise and Nutrition Intervention Programs.

Additional centers providing opportunities for graduate student research are:

Dr. Phillips Institute for the Study of American Business Activity
Dr. David Scott, Director • (407) 823-5903

Florida Sinkhole Institute
Dr. S. Kuo, Director • (407) 823-5644

Transportation Systems Institute
Dr. Haitham Al-Deek, Director • (407) 823-5798

Institute for Research and Program Development in Education
Dr. Michael C. Hynes, Director • (407) 823-6076
Graduate Studies (AD 144) coordinates the admissions process with the appropriate program coordinator and the dean of the college to admit prospective students to graduate study in areas for which they are applying. Graduate Studies also admits students who are not applying for a degree program as non-degree students or as certificate students. Please note that non-degree admission or admission to a graduate certificate program at UCF does not guarantee admission to graduate status in a degree program.

Request applications and program information on-line, or by e-mail, telephone, or fax.

Graduate Studies website: www.graduate.ucf.edu
E-mail requests and questions: graduate@mail.ucf.edu
Telephone: (407) 823-2766
Fax: (407) 823-6442

Applicants are responsible for requesting that the supporting documents be sent directly to:

Graduate Studies - Admissions
Administration Bldg., Suite 144
University of Central Florida
P.O. Box 160112
Orlando, FL 32816-0112

Admission to Graduate Programs

In seeking admission to a graduate program, the following documents are required to be on file before the application can be considered. Applications, residency forms, and health forms should be typed or clearly printed in black ink. All documents become part of the UCF files and will not be returned to the applicant or duplicated for any purpose outside the university.

For specific program information, refer to the appropriate department descriptions in the college sections of this catalog. Program application deadlines are listed under "Application Deadlines" in this catalog.

NOTE: All programs require all admission documents (application form, residency form, transcripts, recommendations, essay/personal statement, resume) to be submitted simultaneously as a packet. Transcripts should be sealed in an envelope by the registrar of the former institution and included in the packet.

Application for Admission to a Graduate Program

If you are a U.S. citizen or resident alien in the United States, please submit the following:

- Graduate Application for Admission form (signed by the applicant)
- $20 application fee (not required if you have previously attended UCF)
- Residency Classification form
- Two official transcripts (in sealed envelopes) from each college/university attended. Request transcripts electronically if you graduated from a Florida public institution.
- GRE (or GMAT, if required by the program) scores sent directly to UCF
- TOEFL scores sent directly to UCF, if an applicant is from a country where English is not the primary language or if an applicant’s bachelor’s degree is not from an accredited U.S. institution
- Free Application for Federal Student Aid (FAFSA), if financial support is desired
- Recommendations, if required by the program
- Essay/Goal Statement/Research Statement/Personal Statement, if required by the program
- Professional resume, if required by the program
- Student Health Services - Health Form, including immunization record and health history* (Distance learners do not need to fill out the Health Form.)

Some programs may require interviews, portfolios, or other materials.

* To expedite processing of materials, return this completed form with the rest of your application. This form is not used in making an admission decision. However, you will not be allowed to enroll at UCF without completing this form.

Application for International Admission to a Graduate Program

To apply for international admission to a graduate program, it is best to complete the forms available on the web, which are downloadable. For those without web access, please request an application form by mail or e-mail (graduate@mail.ucf.edu). If you are not a U.S. citizen or resident alien, please return:

- Graduate Application for International Admission (signed by the applicant)
An unofficial transcript showing a bachelor's degree (or equivalent)

$20 application fee (not required if you have previously attended UCF)

Once these documents have been received, additional forms will be sent to the applicant for completion.

- Residency Classification form
- Financial Statement with a letter indicating commitment (from your parents, government, etc.) to financially support your education
- Two official transcripts (in sealed envelopes) from each college/university attended. Request transcripts electronically if you graduated from a Florida public institution.*
- Transcript Evaluation (see "Transcript Evaluation" under "International Students" in this chapter)
- GRE (or GMAT, if required by the program) scores sent directly to UCF. We cannot accept international students without official copies of the GRE or GMAT. Please make arrangements to take these exams before submitting this application.
- TOEFL scores sent directly to UCF, if an applicant is from a country where English is not the primary language or if an applicant's bachelor's degree is not from an accredited U.S. institution. We cannot accept international students without an official copy of the TOEFL. Please make arrangements to take this exam before submitting this application.
- Recommendations, if required by the program
- Essay/Goal Statement/Research Statement/Personal Statement, if required by the program
- Professional resume, if required by the program
- Student Health Services - Health Form, including immunization record and health history** (Distance learners do not need to fill out the Health Form.)

Some programs require interviews, portfolios, or other materials.

- Official transcripts are required. If time is a factor in issuing the I-20, then you may receive special permission from your UCF program coordinator to submit unofficial transcripts now and bring official transcripts with you when you arrive at UCF. However, failure to produce official transcripts upon arrival will result in immediate deportation at the applicant's expense.
- To expedite processing of materials, return this completed form with the rest of your application. This form is not used in making an admission decision. However, you will not be allowed to enroll at UCF without completing this form.

Application for Admission as a Non-degree Student

If you are interested in taking graduate courses at UCF for personal or professional enhancement or to prepare for a graduate program, complete a Nondegree application. The following materials should be returned:

- Nondegree Application form

- $20 application fee (not required if you have attended UCF previously or you are a State University System (SUS) transient student)
- Residency Classification form
- Official transcript showing an earned bachelor's degree
- Student Health Services - Health Form

Application for Admission as a Transient Student

Students attending UCF for a term from another institution where they are receiving their degree are classified as transient students. To apply as a transient student the following materials should be received by Graduate Studies (AD 144):

- Nondegree Application form
- Residency Classification form
- $20 application fee (not required if you have previously attended UCF or you are a State University System (SUS) transient student
- Health Form required if you are not a State University System (SUS) transient student
- A letter from your home institution stating that you are in good academic standing and that the institution will accept the transfer of the hours

Application for Admission to a Certificate Program

If you are interested in taking graduate courses at UCF in a specialized or interdisciplinary area and receiving a graduate certificate, complete a Nondegree Application. There are 35 graduate certificate programs available. The following materials should be returned:

- Nondegree Application form
- Residency Classification form
- $20 application fee (not required if you have previously attended UCF or you are a State University System (SUS) transient student
- Health Form required unless you are taking courses exclusively off-campus
- Official transcript showing an earned bachelor's degree or master's degree.

If you are a regular graduate student in a graduate degree program and wish to supplement your degree with a graduate certificate, you may do so by completing a Nondegree Application form indicating the certificate program.
Accreditation

For the purposes of this catalog, "accredited institutions" means those institutions accredited by the six regional associations. Students with degrees from nonaccredited institutions will not be accepted into graduate programs at the university of Central Florida without an independent evaluation of the institution. The six regional associations are:

- New England Association of Schools and Colleges
- Middle States Association of Colleges and Secondary Schools, Commission on Institutions of Higher Education
- North Central Association of Colleges and Schools, Commission on Colleges and Universities
- Northwest Association of Secondary and Higher Schools, Commission on Higher Schools
- Southern Association of Colleges and Schools
- Western Association of Schools and Colleges, Accrediting Commission for Senior Colleges and Universities and Accrediting Commission for Junior Colleges

Applications

Applications for admission to the university for degree-seeking or non-degree-seeking study may be obtained from Graduate Studies - Admissions (AD 144) or by downloading from our web site at http://www.graduate.ucf.edu. Completed applications must be submitted to the same office.

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 non-degree status, all applicants must obtain official transcripts from the previous institution showing a baccalaureate degree and the grades for the last 60 semester (90 quarter) hours of attempted undergraduate work and include them in the application packet sent directly to Graduate Studies - Admissions (AD 144). If grades were transferred in from other schools in the last 60 semester hours, official transcripts from those schools also must be obtained and included. If applying to the Business, Social Work, or Psychology programs, all transcripts from all colleges attended are required. 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 Examinations

The Board of Regents of the State of Florida requires that every student take either the Graduate Record Exam (GRE) or the Graduate Management Admission Test (GMAT) before the student can be accepted into graduate student status. Some programs may also require the GRE subject test before admission into graduate student status. Official copies must be mailed directly from the Educational Testing Service to Graduate Studies - Admissions (AD 144) and be on file before graduate student status can be granted. UCF recommends that any individual contemplating class work beyond the 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 (paper format) is given at the UCF main campus three times a year, in November, December and April at the Counseling and Learning Center (407-823-2811). Test results are usually received within about two months for GRE-paper exams taken in the U.S. The GMAT exam is computerized and is available only at Sylvan Learning Centers (407-671-2332). The GRE is also available in a computerized format at Sylvan and test scores are usually available in three to four weeks. Preparatory courses are offered through the Division of Continuing Education (407-823-6100).

Educational Testing Service's policy, effective with the October 1985 GRE test, is to report scores only until September 30 following the fifth anniversary of the test date. If ETS cannot provide an official copy, students will need to repeat the GRE or GMAT and have an official score reported to Graduate Studies - Admissions (AD 144).

Records Deadline—Supporting Documents

If the program has a specific deadline, all supporting documents are due by that deadline (see "Application Deadlines" at the front of this catalog). For all other programs and non-degree applicants, all supporting admissions documents should be received by Graduate Studies no later than July 15 (fall admission), December 1 (spring admission), or April 15 (summer admission). In some cases, applicants may be allowed to register on a temporary basis (without all records), allowing it can be determined from available records or consultation with the students that they appear admissible. Failure to submit records in the first semester will result in registration holds for all succeeding terms.

All programs require all admission documents to be submitted simultaneously in a packet. Transcripts should be sealed in an envelope by the registrar of the former institution.

Records—Validity of Documents

If the university finds that an applicant has made a false or fraudulent statement or a deliberate omission on the application, residency affidavit, health report, or any accompanying document or statement, that applicant may be denied admission. If the student is enrolled when such fraud is discovered, the student may be immediately withdrawn (with no refund), further enrollment denied, and credit earned and any degree based on such credit invalidated. Actions for this type of offense are handled administratively by the Student Development and Enrollment Services office after notification to the alleged violator and hearing by that office.
Confidentiality of Student Records

State regulations and the federal Family Educational Rights and Privacy Act of 1974 guide the procedures for confidentiality of student records. Students who have questions or specific requests concerning the confidentiality of records should contact the Office of the Dean of Students. In accordance with 228.093, F.S. the university is required to release student directory information to independent vendors upon request. Therefore, if students do not wish their names on such a list, they should notify the Dean of Students in writing upon acceptance of admission to a graduate program of study. The Golden Rule outlines the university procedures for confidentiality.

Medical History Report

All new students must furnish medical history reports on the approved university health form before registration will be allowed. The Student Health Services - Health Form should be mailed with the application for admission. Those students who will take courses solely on the web, and never come to UCF or an area campus, will be required to fill out the Medical History part of the form only. Immunizations and diagnostic procedures may be required of students by the university prior to any registration. University requirements for vaccinations or immunizations may be waived upon receipt of appropriate documentation from the student that the waiver is requested on the basis of religious grounds or on the recommendation of a university physician.

Where physician examinations or certificates are required, they must be signed by a doctor of medicine or by a doctor of osteopathy. The university reserves the right to refuse registration to any student whose health record or report of medical examination indicates the existence of a condition that may be harmful to members of the university community.

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 year with no additional application fee. Reactivation is the process by which the original application can be reactivated and considered for admission without having to resubmit all application materials. Admission is not guaranteed by completing a reactivation form. After a year, student application files are destroyed. An application fee is required if a student applies again after the one-year period. When reactivating an application, please check program deadlines and requirements to ensure that all requirements are met. Complete a reactivation form or fax (407-823-6442) or e-mail (graduate@mail.ucf.edu) Graduate Studies indicating your name, Social Security Number, and date desired for admission.

Admission to the University

Admission as a non-degree student is not admission to a graduate program. The admission process begins with the receipt of the Graduate Application for Admission packet and fee in Graduate Studies. Graduate Studies will return your completed, stamped postcard notifying you of receipt of the application. Providing Graduate Studies with all the required information in a timely manner expedites the admission process. Many departments do not view an application until it is complete.

The application information is forwarded to the appropriate degree program. Transcripts, test scores, recommendations, and personal statements are also forwarded to the degree program as soon as they are received.

Non-degree-seeking applicants will receive notice of acceptance to the university and registration information from Graduate Studies. Acceptance to a graduate degree program will be made by the academic program.

Readmission to the University

A regularly admitted student who has not been registered for two major semesters (spring/fall) must make application for readmission through Graduate Studies 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.

- Students may not be guaranteed continuing graduate status if they do not enroll in the university for a period of two major semesters (spring/fall). When students apply for readmission, after having been out two or more semesters, the program will review the students' records to determine if they will be continued in graduate status or be reverted to non-degree status.
- Graduation policy allows a student to fulfill degree requirements as listed in their official program of study on file in the office of their major. The program of study should use the catalog associated with the entry term into graduate status of the student. 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 continuous attendance only if the interruption is for two or more consecutive terms (spring/fall). Under these circumstances, a student may lose the option of fulfilling the degree requirements originally listed in their official program of study already on file, and will graduate using the latest graduate catalog.
Admission to a Graduate Program

After receiving copies of all transcripts, standardized test information, and other documents required by the department from Graduate Studies, the degree program coordinator will admit (either regular, conditional, provisional, or restricted) the applicant as a degree-seeking graduate student or deny the applicant.

Appeals Procedure for Admissions

Students who are not accepted 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. The appeal procedure consists of the student writing a letter to the program coordinator indicating the desire to appeal and the reasons for the appeal. The program coordinator may ask the department or program graduate committee to examine the necessary information and recommend a response to the appeal. The program coordinator will recommend an admissions action to the department chair.

Should the department chair deny the appeal and there are new circumstances, facts, or other matters that the student feels warrants consideration the student may request further consideration from the College by writing a letter to the graduate coordinator of the college indicating the desire to appeal further and the reasons why an appeal is sought. The graduate coordinator may ask the College Graduate Committee to examine the necessary information and recommend a response to the appeal. The graduate coordinator will recommend an admission action to the college dean.

Should the college dean deny the appeal, and there are new circumstances, facts, or other matters that the student feels warrants consideration, the student may request further consideration from the university by writing a letter to the Associate Vice President for Graduate Studies indicating the desire to appeal further and the reasons why an appeal is sought. The Associate Vice President for Graduate Studies may ask the Graduate Council to examine the necessary information and recommend a response to the appeal.

Admission to graduate status can be in one of four categories: regular, conditional, provisional, or restricted status.

Graduate Status—Regular

All students who wish degree-seeking status must submit an official GRE General Test score (or an official GMAT score as required). Some programs also require the GRE Subject Test. 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. Programs may require a minimum GRE General Test score more stringent than the Board of Regents requirement.

- A baccalaureate degree or equivalent from a regionally accredited university and 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 at-

Graduate Status—Conditional

A student who meets the Board of Regents criteria for admission, but has not submitted all required documents may be admitted conditionally into a graduate program. Conditions must be met by midterm of the first semester in order to register for future semester classes.

Graduate Status—Provisional

A student who does not fulfill the minimum BOR requirements for regular admission may be admitted provisionally upon recommendation of the dean of the college to which admission is sought.

 Provisional admissions may not 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.

If a student does not maintain a 3.0 GPA in the graduate program of study, he or she will be placed on academic provisional status for 9 semester hours, then reverted to non-degree status if the GPA is still unsatisfactory. A student, with regular or provisional status, whose overall GPA falls below 2.0 will be reverted immediately to non-degree status. (See “Appeals” in the “University Graduate Regulations” chapter.)

Graduate Status—Restricted

Even though BOR minimum requirements are met, a program may attach restrictions to the admission of an applicant, such as completing certain prerequisite courses, retaking the GRE, maintaining a certain GPA in the first few hours of a graduate program, etc. Students may be denied admission to regular graduate status if the conditions are not met.
Non-degree Status
Students are generally placed in this category at their request. International students are not eligible for non-degree status unless they hold an eligible visa status.

A student may elect to remain in non-degree 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 non-degree status, students are allowed to take graduate courses, in some departments, on a space-available basis. Non-degree students may also enroll in specific graduate certificate programs. Non-degree students register the last day of registration. Not all departments accept non-degree students and the procedures for enrollment into graduate-level classes vary with each department. Students should check with the individual departments or colleges before attempting to register.

All students who take graduate-level course work while in non-degree status should be aware of the limit of 9 semester hours of graduate-level course work that can be transferred into a graduate degree program if a student is given graduate status. In general, at the discretion of the program, students accepted into graduate programs may transfer all the hours from a graduate certificate program into a graduate program.

Change of Major or College
When students wish to change their major or college, after having been admitted to a graduate program, they must file a new application form for the new program at Graduate Studies (AD 144). The program coordinator of the new program will then decide whether to admit the student. Non-degree students wishing to apply to a degree program must also file an application for that degree program. Students who have been admitted in provisional status in a degree program must file a new application if they wish to be accepted by another graduate program.

Second Master's Degree
Individuals seeking a second master's degree must file a separate application for that program and complete the normal UCF master's degree requirements for the second degree.

Up to nine (9) semester hours from a completed master's program at 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.

Transcript Requests from UCF
Transcripts of a student's UCF academic record may be requested by the student through the Office of the Registrar. A student's academic record can be released only upon written authorization by the student. When requesting a transcript be sure to include your full name and social security number and indicate the names and complete addresses to whom transcripts are to be sent. If grades or degree statements for the current term are needed, indicate that the transcript request is to be held until the final semester reports are posted. The first two transcripts are provided at no cost to the student. For additional transcripts, there is a charge of $5.00 each. The check or money order should be made payable to UCF. Cash payments can be accepted only by the Cashier's Office (Monday 8:30-6:30; Tuesday-Friday 8:30-4:00). Students requesting transcripts may do so in person or by writing to: Transcript Request, Office of the Registrar, University of Central Florida, P.O. Box 160114, Orlando, FL 32816-0114.

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.

Financial Statement for International Students
The Financial Statement must be satisfactorily completed before immigration forms will be issued. Please complete both sides of the Financial Statement. Part 2 of the form must be completed (unless a government or employer is your sponsor) confirming the ability of your parent or sponsor to cover your educational expenses. We also require a letter indicating a commitment (from your parents, government, etc.) to financially support your education. If you have questions about this requirement, please contact UCF International Student Services (407-823-2337).

Official Transcripts
Official transcripts are required. If time is a factor in issuing the I-20, then you may receive special permission from your UCF program coordinator to submit unofficial transcripts now and bring official transcripts with you when you arrive at UCF. However, failure to produce official transcripts upon arrival will result in immediate deportation at the applicant's expense.

Transcript Evaluation
In addition to your official transcripts, a transcript evaluation is required of all students who attended a college/university outside the United States AND scored below 1000 on the GRE (or 450 on the GMAT). If transfer credits are desired from previous work at an international institution, then a tran-
Admissions

An admission decision may be delayed by the failure to produce a transcript evaluation. If time is a factor in enrolling at UCF, it is recommended that applicants send their transcripts for evaluation with the application packet.

UCF accepts transcript evaluations from the following agencies:

World Education Services, Inc.
PO Box 01-5060, Miami, FL 33101
E-mail: SOUTHWESTES.ORG
Telephone: 305-358-6688
Fax: 305-358-4411

Josef Silny and Associates, Inc.
International Education Consultants
PO Box 248233, Coral Gables, FL 33124
Website: http://www.jsilny.com
Telephone: 305-666-0233
Fax: 305-666-4133

International Application Deadlines

Complete applications (all required documents) for all graduate programs must be received by the date listed below to be considered for admission for that semester. Failure to meet these deadlines may prevent admission as a regular graduate student for the term.

<table>
<thead>
<tr>
<th>Program</th>
<th>FALL</th>
<th>SPRING</th>
<th>SUMMER</th>
</tr>
</thead>
<tbody>
<tr>
<td>Curriculum and Instruction</td>
<td>March 1</td>
<td>August 1</td>
<td>December 1</td>
</tr>
<tr>
<td>Counseling Education (Master)</td>
<td>February 1</td>
<td>April 15</td>
<td></td>
</tr>
<tr>
<td>Educational Leadership</td>
<td>February 15</td>
<td>April 15</td>
<td></td>
</tr>
<tr>
<td>Molecular Biology and Microbiology*</td>
<td>March 15</td>
<td>April 15*</td>
<td></td>
</tr>
<tr>
<td>Nursing</td>
<td>February 15</td>
<td>April 15</td>
<td></td>
</tr>
<tr>
<td>Physics</td>
<td>February 15</td>
<td>April 15</td>
<td></td>
</tr>
<tr>
<td>Psychology</td>
<td>February 1</td>
<td>April 15</td>
<td></td>
</tr>
<tr>
<td>Psychology, Clinical (M.A.)</td>
<td>February 15</td>
<td>April 15</td>
<td></td>
</tr>
</tbody>
</table>

Test of English as a Foreign Language

International students, except those who are from countries where English is the only official language or those who have earned a degree from an accredited American college or university, are required to submit a score on the Test of English as a Foreign Language (TOEFL) before they can be admitted to the university. When the official test score is received in Graduate Studies, a copy will be sent to the graduate program coordinator, who evaluates the student's record and determines admission or denial to the program. Students who are offered Graduate Teaching Assistant positions must also take and pass the Test of Spoken English before they will be allowed to teach.

A TOEFL paper-based score of 550 or computer-based score of 213 is required unless otherwise specified by the program. The list below includes programs that have determined minimum required TOEFL scores different from the university requirement.

<table>
<thead>
<tr>
<th>Program</th>
<th>TOEFL (Paper)</th>
<th>TOEFL (Computer)</th>
</tr>
</thead>
<tbody>
<tr>
<td>College of Arts and Sciences Biology</td>
<td>573</td>
<td>230</td>
</tr>
<tr>
<td>Chemistry, Industrial</td>
<td>500</td>
<td>173</td>
</tr>
<tr>
<td>English</td>
<td>577</td>
<td>233</td>
</tr>
<tr>
<td>History</td>
<td>577</td>
<td>233</td>
</tr>
<tr>
<td>Political Science</td>
<td>500</td>
<td>173</td>
</tr>
<tr>
<td>Psychology, Clinical (M.A.)</td>
<td>500</td>
<td>173</td>
</tr>
<tr>
<td>Psychology, Industrial/ Organizational (M.S.)</td>
<td>500</td>
<td>173</td>
</tr>
<tr>
<td>Sociology, Applied</td>
<td>500</td>
<td>173</td>
</tr>
<tr>
<td>Statistical Computing</td>
<td>500</td>
<td>173</td>
</tr>
<tr>
<td>College of Business Administration</td>
<td>577</td>
<td>233</td>
</tr>
<tr>
<td>College of Education</td>
<td>550</td>
<td>213</td>
</tr>
<tr>
<td>College of Engineering</td>
<td>550</td>
<td>213</td>
</tr>
<tr>
<td>College of Health and Public Affairs</td>
<td>500</td>
<td>173</td>
</tr>
<tr>
<td>Communicative Disorders</td>
<td>500</td>
<td>173</td>
</tr>
<tr>
<td>Health Sciences: Health Services</td>
<td>500</td>
<td>173</td>
</tr>
<tr>
<td>Nursing</td>
<td>500</td>
<td>173</td>
</tr>
<tr>
<td>School of Optics</td>
<td>550</td>
<td>213</td>
</tr>
</tbody>
</table>

International Student Mandatory Health and Accident Insurance

Each international student accepted for admission must, prior to registration, submit proof of compliance with the Board of Regents mandatory health and accident insurance (effective fall semester 1992). There are no exceptions made for submitting this proof. Written proof of insurance, must be provided to the International Student Services Office and must be valid at all times. Cancellation of the policy or stoppage of the premium will result in administrative withdrawal from all classes.

If the insurance is issued by an insurance carrier from outside of the United States, a notarized statement, in English, must be provided attesting to meeting the minimum coverage mandated by the State of Florida.
During each academic semester, registration is held for all new, currently enrolled, degree-seeking, and non-degree-seeking students for the following term. Registration consists of these periods:

- Advanced Registration for continuing students, which is normally held immediately after the midterm of the current semester for the next semester
- Regular Registration for new students, which is normally held one or two days immediately before the start of the semester
- Add/Drop, which is held during the first week of classes for each semester

Spring Advanced Registration is held following midterm for the fall semester. Summer and fall Advanced Registrations are held concurrently immediately following the midterm of the spring semester. The dates and times of each of these registration periods are listed in the Schedule of Classes.

Telephone and On-line Registration

Registration is available by telephone (with an 800 as well as local number), in the college advising offices, and at walk-by registration. Registration is also available on-line on the Web through the POLARIS system. To access the system (https://polaris.ucf.edu), you will need to enter a student identification number and also a PIN code.

PIN (Personal Identification Number)

For new students who have never accessed POLARIS, a kiosk, or Direct Access (Financial Aid), the PIN code will be the birth month and day in the MMDD format (August 27 would be 0827) for the student. After logging in once, the system will force a change to a new four-digit PIN. Student should check their PIN prior to registration.

If a PIN has been forgotten, a photo ID presented to the Registrar’s Office or at an area campus records office is necessary to reset it. The PIN cannot be reset using the telephone.

The universal PIN can be used for TouchTone registration and grades, POLARIS, Direct Access (Financial Aid), and the kiosks located around campus.

On-line Registration Information and Course Schedules

Registration information and course schedules are also both available on-line.

Registration: http://www.ucf.edu
Course Schedules: http://pegasus.cc.ucf.edu/~wwwdata/tally2.html

Schedule of Classes

The Schedule of Classes is published two times a year by the Registrar’s Office (AD 161). One edition contains the summer and fall terms and the second edition contains the spring term. The Schedule of Classes is distributed by the colleges and departments.

New Graduate Students

All new first-term graduate students must have residency, health, and patent forms completed before they are allowed to register at UCF. Holds placed on registration will be removed once the forms are received. Forms may be obtained in Graduate Studies - Admissions (AD 144) and on the Web at www.graduate.ucf.edu. Registration information will be mailed to first-term graduate students about two to three weeks prior to the beginning of the term.

Continuing Graduate Students

Continuing graduate students register by telephone using their PIN codes. They may pick up their registration (Audit) form in their departments. All continuing students should register early to ensure that courses will be offered. For graduate students with fellowships or assistantships, failure to register early may result in delays in receiving assistantship paychecks and sometimes result in the loss of tuition waivers. Continuing graduate students registering for Internship, Independent Study, Thesis or Dissertation hours, or research report hours must fill out a Registration Agreement form obtained from their advisor or department office. The college graduate office will normally register students into these courses. The TouchTone registration system cannot be used for registering for these classes.
Non-degree-seeking Students

All non-degree-seeking students should check with the departments where they want to take courses before they register to learn what is required by that department to register. Certain classes are restricted, and it is best to find this out first. In the College of Education, non-degree-seeking students can ONLY register for 5000- and 6000-level classes. In the College of Business Administration, non-degree-seeking students cannot register for graduate courses. The College of Engineering will only allow non-degree-seeking students to register with special approval from the program coordinator. Non-degree-seeking students who want to register for College of Arts and Sciences or College of Health and Public Affairs courses should check with the individual programs for more detailed information.

Non-degree-seeking students must be registered for 12 hours to be considered full-time. Non-degree-seeking students who already have certification elsewhere (i.e., from a College of Education in another state) are not eligible to receive financial aid. In general, non-degree-seeking students are not eligible for financial aid, assistantships, fellowships, or tuition waivers, although it is best to check with the Office of Student Financial Assistance for specific details.

Only up to nine hours taken in non-degree-seeking status may be used toward a graduate degree.

Audit Registration

Auditors are those students wishing to attend classes without receiving academic credit. To audit a class, the student must file a regular application and be accepted as a degree-seeking or non-degree-seeking student. Audit forms are available in the Registrar’s Office and must be filled out by the student and must be approved by the college where the course is taught. Students registering for credit during regular registration, late registration, or add/drop may not change to audit status, but must remain in the course or withdraw through normal withdrawal procedures.

Holds

Holds may be placed on students’ records, transcripts, grades, or registrations because of financial or other obligations to the university. Satisfaction of the hold is required before a release can be given. To obtain a release on financial holds, payment must be made in cash, cashier’s check, or money order in U.S. currency at the Cashier’s Office (AD 111).

To release Graduate Studies holds, the students must provide the documents to complete their records; or if the hold is labeled “denied,” they must stop by Graduate Studies (AD 144) and switch to non-degree status.

Those students who are placed on nine-hour holds must see their adviser or they may sign a form provided by Graduate Studies stating they are not taking courses toward a graduate degree.

Transfer Credit

Transfer Summary Reports are prepared for all degree-seeking graduate students who are enrolled and have attended another regionally accredited institution. Priority is given to complete files (i.e., files with final transcripts from each institution received by the twentieth class day). Students with incomplete files will be placed on Administrative Hold. Although all college-level course work transferred from a regionally accredited institution is shown on the UCF transcript, applicability of the course work toward a degree is determined by the college or major department. Graduate students can only apply nine credit hours of transfer work to their intent to graduate.

Fee Payments

All graduate students must pay their tuition and fees at the end of add/drop. It is important to do this as students will be dropped from courses at this time. If a department or college has not recorded tuition waivers by then, students must pay all tuition and fees. If a department or college has waived partial tuition and it is recorded, then students must pay the remainder of the tuition owed and all of the fees by the end of add/drop. It is important for graduate students to register early to provide the department or college enough time to record tuition waivers.

Fee Invoices

You are not assured of being registered for any class until you pick up your Fee Invoice/Schedule. Your fee invoice lists your fees and the classes in which you are registered. Although fee invoices will be mailed for summer and fall courses, please obtain a new invoice if you register after the invoices are mailed. The new invoice will reflect changes in your fees. Be sure to have your current address on file (see “Address Changes”).

Pick up your Fee Invoice/Schedule by presenting a photo ID at the Registrar’s Office, area campus, or college advising offices. Fee Invoices are also available on POLARIS and in these offices: Arts and Sciences, BA 202; Business Administration, BA 240; Education, ED 109; Engineering, ENGR 281; and Health and Public Affairs, HPB 201.

Fee Invoices will be mailed approximately: Summer, April 20; Fall, July 6; and Spring, November 14. Obtain a new fee invoice if you register for courses or change your schedule after these dates.

Mandatory Health Information

In order for a student to register, the State University System of Florida requires:

- All students born AFTER 1956 to present documented proof of immunity to measles (rubeola).
- All students UNDER the age of 40 to present documented proof of immunity to rubella (German measles).
- All students (REGARDLESS OF AGE) to submit a signed medical history form.
Please refer to the immunization form for specific details of requirements and acceptable documentation. If you have questions, contact the Immunization Coordinator, Student Health Services (phone: 407-823-3707; fax: 407-823-3135; e-mail: bjobes@pegasus.cc.ucf.edu). Our office hours are Monday-Friday, 8:00 a.m. to 4:30 p.m.

Address Changes

The address the university uses for students is taken from the application for admission or readmission. It is the student’s responsibility to make the appropriate changes to their address. Address changes should be made in the Registrar’s Office (AD 161) or at any of the kiosks located on campus.

Address changes can also be made by writing to the Registrar’s Office. Written requests must include the student’s Social Security Number and signature and must be mailed to the Registrar’s Office, UCF P.O. Box 161114, Orlando, FL 32816-0114.

Enrollment Certifications

To confirm enrollment in the university, students should go to the Registrar’s Office, AD 161. A picture identification is required. Enrollment certifications for a current term are available after add/drop.

Enrollment Status for Fall and Spring Terms

<table>
<thead>
<tr>
<th>Non-degree-seeking</th>
<th>Degree-seeking</th>
</tr>
</thead>
<tbody>
<tr>
<td>Status</td>
<td>Credit Hours</td>
</tr>
<tr>
<td>Full</td>
<td>12 or more</td>
</tr>
<tr>
<td>Half</td>
<td>6, 7, 8, 9, 10, or 11</td>
</tr>
<tr>
<td>LTHT</td>
<td>less than 6</td>
</tr>
</tbody>
</table>

Enrollment Status for Summer Term

<table>
<thead>
<tr>
<th>Non-degree-seeking</th>
<th>Degree-seeking</th>
</tr>
</thead>
<tbody>
<tr>
<td>Status</td>
<td>Credit Hours</td>
</tr>
<tr>
<td>Full</td>
<td>12</td>
</tr>
<tr>
<td>Half</td>
<td>6</td>
</tr>
<tr>
<td>LTHT</td>
<td>less than 6</td>
</tr>
</tbody>
</table>

One credit hour of thesis/dissertation is considered full time in all semesters.

Student Records

Student records submitted to the university become the property of the university and cannot be returned to the student or released to a third party. Copies of student records can be released if a written request signed by the student is received by Graduate Studies (AD 144).

Withdrawals

Students may withdraw from courses after the end of add/drop. The withdrawal time period begins the first business day after add/drop through the date specified in the UCF academic calendar as the deadline for withdrawals. This date is normally the midpoint of the semester. Students wishing to withdraw from a class must present their picture identification card and sign the withdrawal form in the Registrar’s Office, AD 161.

Withdrawals may be accomplished by mail, but mail requests must be postmarked no later than the published date for withdrawals that is published in the UCF academic calendar. Students who wish to withdraw after the published deadline must file a petition in the Enrollment and Academic Services, AD 210, (407) 823-2691.

Financial Support

Graduate students who will be supported on assistantships must see their program coordinator to see that their employment contract form is filled out. If tuition waivers are desired, then they must also fill out a Graduate Tuition Fee Waiver Request Form with the program coordinator and attach the employment contract to it (PAF). This should be done before fees are paid; for continuing students, this should be done before the new semester begins. Paychecks are delayed when these arrangements are not made prior to the beginning of the semester.

Fellowships

All graduate students who are receiving fellowships should register as early as possible, and see the Fellowships Coordinator (AD 144, 823-6497, gradaid@pegasus.cc.ucf.edu) to ensure that arrangements are made to receive proper payment.

Student Responsibility to Inform Offices

All graduate students who need or have financial aid to attend UCF should be sure to tell appropriate offices when receiving advisement about desired goals.

Parking

Phone: (407) 823-5812

All vehicles parked on campus, including evening students’ vehicles, must be registered with the Parking Services Office and display the appropriate permit or decal. Parking Services offers assistance to motorists, including battery jump-starts and unlocking car doors. Office hours are 7:30 a.m. to 6 p.m. Monday - Thursday and 7:30 a.m. - 5 p.m. on Friday.

Visitor Information Center

Phone: (407) 823-2429

To park on campus without a permit, purchase a daily permit at the Visitor Information Center (VIC) across from the Administration Building or from any of pay-and-display machines on campus. Daily permits are valid only in student lots. Meters are also available. The VIC is open 7 a.m. to 8 p.m. Monday - Friday, and 7:30 a.m. to 4 p.m. Saturday.
Financial Information

Graduate education is an important investment for both the student and the community. Graduate education enables students to enter new career fields with more choices as to their work assignments. It provides enrichment and a deeper understanding of a chosen field. Educated employees improve the quality of life in the State of Florida. The cost of this investment is very reasonable.

A student's basic expenses at the University will be for tuition, course-related fees, textbooks, other instructional supplies, room and board, and miscellaneous items.

Tuition and Fees

Required fees are established by the Board of Regents and the Florida State Legislature and are subject to change without notice. Fees are affected by residency status as noted in the “Florida Residency for Tuition Purposes” section in this chapter.

Students are encouraged to obtain a fee invoice/schedule to confirm fees and course registration. Fee invoice/schedules are available on the POLARIS web system, from students' college advising offices, and the Registrar's Office. Students should obtain a new fee invoice/schedule after making any course changes or schedule adjustments.

Tuition not paid by the payment deadline date for each term will result in late payment fees.

1998-99 Fee Schedule

(Fees for 1999-2000 were not available at the time of publication.)

<table>
<thead>
<tr>
<th>Category</th>
<th>Florida Resident</th>
<th>Non-Florida Resident</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Undergraduate</td>
<td>Graduate</td>
</tr>
<tr>
<td></td>
<td>(0000-4999)</td>
<td>(5000-7999)</td>
</tr>
<tr>
<td>Fees per Credit Hour:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Matriculation</td>
<td>$46.99</td>
<td>$113.03</td>
</tr>
<tr>
<td>Non-Resident Fee</td>
<td>-0-</td>
<td>-0-</td>
</tr>
<tr>
<td>Building Fee</td>
<td>2.32</td>
<td>2.32</td>
</tr>
<tr>
<td>Capital Improvement Fee</td>
<td>2.44</td>
<td>2.44</td>
</tr>
<tr>
<td>Financial Aid Fee</td>
<td>2.34</td>
<td>5.65</td>
</tr>
<tr>
<td>Non-Resident Financial Aid Fee</td>
<td>-0-</td>
<td>-0-</td>
</tr>
<tr>
<td>Activity and Service Fee</td>
<td>6.95</td>
<td>6.95</td>
</tr>
<tr>
<td>Athletic Fee (capped at 12 hrs)</td>
<td>6.50</td>
<td>6.50</td>
</tr>
<tr>
<td>Total per Hour</td>
<td>$67.54</td>
<td>$136.89</td>
</tr>
</tbody>
</table>

Repeat Course Surcharge: Beginning with the fall term 1997, a student enrolled in the same undergraduate college credit course more than twice shall pay matriculation at 100 percent of the full cost of instruction.

The following schedule applies to all University of Central Florida students.

A. Application Fee — $20.00. Must be paid by U.S. check or money order (required with all applications for admission to the University unless the applicant has attended UCF previously). The fee is not refundable.

B. Registration Fees per semester are shown below for main campus, area centers, and continuing education courses. Zero-hour registration students are assessed one credit hour at the Florida Resident Tuition rate at the course level for which the student is registered.

Tuition Surcharge

The General Appropriations Act proviso 1997-98 directs students to pay an additional 50% of tuition for credit hours in excess of 115% of the hours required in the student's degree program. There are exceptions to this for those who are active military personnel, those students who have declared disability, and those who have taken hours to achieve teacher certification which is not credited toward the first bachelor's degree. Other exceptions are made for those participating in internship hours, study abroad, and honors programs, as specified in the proviso. The surcharge will be applied by the
credit hour and includes the matriculation fee plus 50%; it does not include additional fees such as the health fee, building fee, activity fees, etc.

The excess hour surcharge will not apply to graduate students, including those accepted provisionally, conditionally, restricted, or regularly, although it will apply to non-degree students who began their baccalaureate work in Fall 1996 or thereafter. It will not apply to those hours required for teacher certification, to maintain other professional state certification or licensure, or for those admitted and enrolled in UCF graduate certificate programs.

Graduate hours taken and applied toward an undergraduate program will be counted as part of the 115% of hours required in the student's degree program. Course work taken at any other state-funded institution as well as public and private credit, including credit from out-of-state that is accepted, will be part of the 115% if applied to the student's degree program at UCF.

Students attempting a second baccalaureate degree will be subject to the surcharge for all course work taken beyond the first degree toward the second degree. For those attempting two degrees at one time, all hours in excess of the 115% for one degree will be subject to the surcharge.

State employees who are enrolled on a space-available basis using the state employee waiver will be charged an excess hour fee for the course if it is over the 115% of hours required for the student's degree program.

E. Late Registration and Late Payment Fees

- A $50 late registration fee will be assessed all students who register during the late registration period and pay fees by the deadline.
- A $50 late payment fee will be assessed all students who pay fees after the deadline.
- Both a $50 late registration fee and a $50 late payment fee will be assessed all students who both register late and pay fees after the deadline.

All payments accepted after course cancellation notices are mailed, approximately the third week of classes, must be cash, cashier's check, or money order.

F. Vehicle Registration

(required of everyone operating a motor-powered vehicle on campus) per calendar year for all students, including full-time students, part-time students, and courtesy students from other institutions.

Student decal fee (1998-99) $78.00

G. Student Health Fee

The Student Health Fee is assessed to all students registered in main campus course offerings.

H. Transcripts

First two transcripts are provided at no charge. Each additional copy $5.00

Florida Residency for Tuition Purposes

To qualify as a Florida Resident for tuition purposes, students must:

- Be a U.S. Citizen, Resident Alien, Parolee, Cuban National, Vietnamese Refugee, or other refugee or asylee so designated by the U.S. Immigration and Naturalization Service, AND
- Have established a legal residence in this state and maintained legal residence for 12 months immediately prior to the term in which they are seeking Florida resident classification. The student residence in Florida must be as a bona fide domiciliary rather than for the purpose of maintaining a mere temporary residence or abode incidental to enrollment in an institution of higher education, and should be demonstrated as indicated below (for dependent students, as defined by IRS regulations, a parent or guardian must qualify), AND

Submit the following documentation (or in the case of a dependent student, the parent must submit documentation) prior to the last day of registration for the term for which resident status is sought:

- Documentation establishing legal residence in Florida must be dated at least one year prior to the first day of classes of the term for which resident status is sought. The following documents will be considered in determining legal residence:
  A. Declaration of Domicile.
  B. Proof of purchase of a home in Florida in which the student resides.
  C. Proof that the student has maintained residence in the state for the preceding year (e.g., rent receipts, employment records).
been a legal resident for the required 12-month period,

ment fee may make their appeal to the Fee Appeals Commit­

can be obtained from Student Development and Enrollment

Building, and may appear (not mandatory) before the com-

Florida, or a spouse or dependent,

Appeals of Late Fees

Become a legal resident or be married to a person who has

Documentation establishing bona fide domicile in Florida
which is not temporary or merely incidental to enroll-
ment in a Florida institution of higher education. The fol-
lowing documents will be considered evidence of domicile
even though no one of these criteria, if taken alone, will
be considered as conclusive evidence of domicile:
A. Declaration of Domicile.
B. Florida voter registration.
C. Florida vehicle registration.
D. Florida driver license.
E. Proof of real property ownership in Florida (e.g., deed, tax
receipts).
F. A letter on company letterhead from an employer verifying
permanent employment in Florida for the 12 consecutive
months before classes begin.
G. Proof of membership in or affiliation with community or
state organizations or significant connections to the State.
H. Proof of former domicile in Florida and maintenance of
significant connections while absent.
I. Proof of residence upon Florida sources of support.
J. Proof of admission to a licensed practicing profession in
Florida.
K. Any other factors peculiar to the individual which tend to
establish the necessary intent to make Florida a permanent
home and that the individual is a bona fide Florida resi-
dent, including the age and general circumstances of the
individual.

No contrary evidence establishing residence elsewhere.
• Documentation of dependent/independent status (nota-
rized copy of most recent IRS tax return).

OR
Become a legal resident or be married to a person who has
been a legal resident for the required 12-month period,

Be a member of the Armed Forces on active duty stationed in
Florida, or a spouse or dependent,

Be a member of the full-time instructional or administrative
staff of a state public school, community college or Univer-
sity in Florida, a spouse or dependent,

Be a dependent and have lived five years with an adult rela-
tive who has established legal residence in Florida,

AND
File a notarized residence affidavit with Graduate Studies -
Admissions (AD 144).

Graduate Studies reserves the right to require additional
documentation as seen necessary to accurately determine
the resident status of any student.

Appeals of Late Fees

Students who wish to appeal a late registration or late pay-
ment fee may make their appeal to the Fee Appeals Commit-
tee by initiating a student petition (Form 41-561). This form
can be obtained from Student Development and Enrollment
Services, the University Cashier, or the Student Accounts Sec-
tion of Finance and Accounting. Students must submit their
petitions to Student Accounts, Room 112, Administration
Building, and may appear (not mandatory) before the com-
mittee. To avoid complications, students should pay all fees,
including late fees, and if the appeal is granted, they will re-
ceive a refund of the late fees.

Past-due Accounts

All financial obligations to the University must be met if good
standing is to be maintained. Failure to meet obligations can
result in the withholding of grades and transcripts and in the
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. All costs
of collection, including attorney’s fees, are borne by the debtor.

Payment Procedures

Payment may be made in the Cashier’s Office, AD 108. Hours
are Monday and Thursday, 8:30 a.m. to 7:00 p.m., and Tues-
day, Wednesday, and Friday, 8:30 a.m. to 4:00 p.m. Credit
cards are not accepted. Payments (NO CASH) may be placed
in the Cashier’s night depository on the north (pond) side of
the Administration Building; INCLUDE SOCIAL SECURITY
NUMBER ON CHECK OR MONEY ORDER. Payment guide-
lines for off-campus registration are contained on the off-
campus registration form.

Mail payments (check or money order only) must be
postmarked no later than the due date to be considered on
time and avoid the late fee. Address payment to: University
Cashier, University of Central Florida, P.O. Box 620000, Or-
lando, FL 32891-8449.

Do not assume your registration will be canceled if you
do not pay fees or attend classes.

Refund of Fees

A refund of fees will be made under the conditions noted
below. A written appeal for a refund or other appeal action
must be submitted to the University within six (6) months of
the close of the semester to which the refund or other appeal
action is applicable. Any debts to the University will be de-
ducted from the refund, up to the full amount.

A. Full refund when:
1. Any class is dropped before the end of the Add/Drop
period.
2. Cancellation of the course by the University.
3. Student is denied admission to an offered course by
the University for whatever reason.

B. Partial refund (25 percent of the total tuition paid):
1. Complete withdrawal from the University prior to the
end of the fourth week of classes, during a 16- or 17-
week semester, or at the end of the first quarter of
classes during a mini-semester or summer semester
(rounded out to the end of the week in which the first
quarter occurs). Student must present withdrawal slip
and request the refund from Student Accounts.

C. Refunds for exceptional circumstances at any time upon
withdrawal from one or more courses.
1. Up to 100 percent of tuition and registration fees due to 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. Pro rata refunds for first term at UCF students:
1. Between 40 percent and 90 percent of tuition and dorm charges for students who fully withdraw before 60 percent of the term has elapsed. Applies only to UCF students in their first term. An administrative fee defined as the lesser of 5 percent of all charges or $100 will be deducted from the refund.

Graduate Student Support Opportunities

Graduate students may receive financial assistance in the form of fellowships, tuition waivers, loans, or assistantships. Students may inquire about these opportunities at the following offices:

Fellowships and Financial Support Coordinator (AD 144)—407/823-6497, Fax: 407-823-6442
Student Financial Assistance Office (AD 120)—407/823-2827
Loans—Fax: 407/823-5241

Holds on records, graduate status—Fax: 407/823-6442

Some on-line financial aid information web pages are available for specific information concerning financial aid, grants, and fellowships. The addresses are:

Financial Aid Information: www.finaid.org
Graduate Fellowship Information: www.graduate.ucf.edu/.

Non-degree-seeking students are not eligible for financial aid.

Tuition Waivers

Full-time (regularly or conditionally, not provisionally or restricted) accepted graduate assistants are eligible to receive tuition waivers for part of their tuition costs. Students should contact the departmental program coordinator and fill out a Request for Tuition Waiver Form when they register for classes. Fee waiver monies are used to assist graduate students to progress toward their degrees. In-state tuition waivers are available for qualified Florida residents. Out-of-state tuition waivers are offered to qualified non-Florida residents. Part-time graduate students and post-baccalaureate students are not eligible to receive tuition waivers.

Graduate Teaching and Research Assistants must be enrolled full-time (six credit hours in the fall and spring terms and three credit hours in the summer) to receive a tuition waiver. Students taking only thesis or dissertation hours are required to be enrolled in at least one hour of thesis or dissertation to be considered full-time and receive a tuition waiver. Graduate Teaching and Research Assistants who are pursuing a non-thesis option and are in their graduating semester, as determined by their college may receive tuition payments paid by the college to Student Accounts. Full-time graduate teaching and research assistants and associates are eligible for FICA and FUTA exemptions if they are enrolled at least half time, regardless of the hours worked. This chapter has more details under FICA/FUTA Exemption Guidelines.

Rules that govern the use of tuition waiver monies for graduate students are:

1. Graduate students must be full-time students (defined above) and in good standing with a graduate GPA of 3.0 or higher. The student must be enrolled in classes full-time for the term in which they receive the waiver and employed as a graduate teaching or research assistant for at least 10 hours/week (0.25 FTE) on average, or receiving a fellowship in the amount of $3250 or higher for the academic year.

2. If more than one academic unit employs a student who creates the waiver, the waiver money generated by the student is credited to both units proportional to the contribution of the student stipend.

3. The units of those students on fellowships will receive credit for the waiver generated by the fellowship student.

4. Fee waiver money is to be allocated to the colleges and institutes, rather than administrative offices such as Academic Affairs, Student Development and Enrollment Services, etc.; Graduate students who work in these offices should go to their units for tuition fee waiver support.

5. If a student drops a course for which a fee waiver has been received but remains full-time, the waiver money received for the class must be returned to the University. Holds on student records will prevent students from registering for classes, receiving transcripts, or receiving grade reports until the money is returned.

6. If a student drops a course for which a fee waiver has been received and becomes part-time as a result, all waiver money must be returned to the University. Any such funds will be reallocated to the unit from which they originated. Holds on student records will prevent students from registering for classes, receiving transcripts, or receiving grade reports until the money is returned. (In extreme cases, a student may petition for an exception to this.)

7. If a graduate student assistant is dismissed or resigns at any point during the semester, tuition waiver funds received by the student must be returned to the University.

8. Waiver money is only provided for courses taken as necessary for progress towards a student’s degree.

9. Waiver money is limited to 9 terms for master’s students, 12 terms for doctoral students beyond the master’s degree, or 21 terms for doctoral students without a master’s degree.

All graduate assistants and fellows (the fellowship pays at least $3,250 per academic year), regardless of their tax status, are eligible to receive tuition waivers and will generate tuition waiver authority according to Board of Regents guidelines.

Tuition Waivers for State of Florida Employees

State employees, faculty, and staff who use a state tuition fee waiver for course work (up to 6 credit hours per semester) without payment of the registration fees must register on the
day and time provided by the Registrar. Employees who register prior to the prescribed time and date will have an invalid state fee waiver and will be liable for all applicable fees on courses enrolled. It is the responsibility of the employee to register only on a space-available basis; and this is only during the prescribed time as indicated by the Registrar. In addition, the tuition fee waiver cannot be used for courses that require increased costs. These courses include, but are not limited to: courses offered through the Center for Continuing Education, independent study, supervised research, supervised teaching lab, thesis hours, dissertation hours, internship, co-ops, practicum or applied, individualized instruction in music, art, or dance, web-based instruction, etc. State employees should check with their program about the use of the state employee tuition waiver.

Tuition Waivers for Senior Citizens

Persons 60 years of age or older who meet Florida residency requirements may register to audit classes without payment of tuition and application fees. Registration is on a space-available basis during the last hour of Add/Drop Registration. The tuition fee waiver cannot be used for courses that require increased costs. These courses include, but are not limited to: courses offered through the Center for Continuing Education, independent study, supervised research, supervised teaching lab, thesis hours, dissertation hours, internship, co-ops, practicum or applied, individualized instruction in music, art, or dance, etc. A Florida Residency Affidavit is required in order to establish Florida residency. A completed Student Health History must be filed prior to registration. Inquiries should be directed to the Office of the Registrar, AD 161, (407) 823-3100.

Latin American, South American, and Caribbean Scholarship Guidelines

A Graduate Scholarship provided by Latin American, South American, and Caribbean countries to UCF in the amount of at least $3,250 per academic year in support of a graduate student will result in that student's classification as an in-state student for tuition purposes. Currently, students receiving graduate fellowships from the Fundacion Gran Marsical Ayacucho in Venezuela may be eligible for classification as in-state for tuition purposes. For information concerning this, please check with Graduate Studies (407) 823-6497.

State Tuition Exempt Program (STEP)

Eligible members of the active Florida National Guard may receive a waiver of 50 percent of tuition and lab fees. Registration is on a space-available basis only during the time designated by the Registrar.

Fellowships

Fellowship information is available from several sources. Program and graduate coordinators and other interested faculty may be contacted for specific opportunities related to their fields of study. Published fellowship deadlines are approximate and subject to change.

A listing of fellowship opportunities and application materials offered by the University to graduate students is available on our Web site: http://www.graduate.ucf.edu. Books, such as the Graduate Scholarship Directory, listing fellowship opportunities are available at the Reserve Desk of the Library for students to review. It is recommended that graduate students complete a FAFSA (Free Application for Federal Student Aid) form while applying to graduate programs. Graduate students who are found to be in need of financial assistance are eligible for several need-based fellowship programs.

UCF Undergrad to Grad Fellowship

This merit-based award is for first-year graduate students who will complete their undergraduate degrees at UCF in the previous year and who will continue in UCF graduate programs, either master’s or doctoral, in the following academic year. Students must be nominated by their college for this award and must be fully accepted into the graduate program by the time of receipt of the award. This fellowship includes an award of $5,000 per year ($2,500 in both the fall and spring terms) from the Office of Graduate Studies as well as at least a 10-hour-per-week assistantship and maximum tuition waiver from the department of study. The award period is two years beginning with the fall semester.

This fellowship is not awarded in conjunction with other fellowships, and the student is eligible to receive the fellowship only once. Evaluation of candidates will be made by the University Graduate Fellowship Committee. This award is funded by differential tuition funds. There are approximately eight fellowships available each year.

A complete application includes:
• Fellowship application
• UCF Undergrad to Grad Fellowship nomination form, completed by the department
• Statement of Goals, completed by the student
• Two letters of recommendation from the program coordinator or faculty
• Test Scores (GRE/GMAT)
• Transcripts on file or official ones included

Eligibility:
• Students must have applied to graduate school at the time of selection, and they must be fully admitted (regularly or conditionally, not provisionally or restricted) to the graduate program in order to receive the award.
• Students must be enrolled for at least nine hours of graduate course work or one hour of thesis or dissertation during each fall and spring term of the award.
Incentive Graduate Fellowship

This fellowship was created for graduate students who wish to attend full-time but need additional financial assistance. The Incentive Graduate Fellowship assists students who are academically qualified and who demonstrate financial need. The required financial need is determined by the Free Application for Federal Student Aid (FAFSA). The FAFSA should be completed at least six weeks prior to the selection date.

There is no application for the Incentive Graduate Fellowship. Selection is not determined by an application process. Students are first selected based on demonstrated financial need and then by academic merit. Students must be enrolled for nine graduate hours each term of the award. Students may be first-time or continuing students, but must be U.S. citizens or permanent resident aliens.

The fellowship is a one-year award ($2,500 per term) and is limited to two consecutive terms. This fellowship is not awarded in conjunction with other fellowships, and the student is eligible to receive the fellowship only once. This award is funded by differential tuition funds. Approximately 100 fellowships are available each year.

Eligibility:

- Students must have established an unmet financial need through the FAFSA (Free Application for Federal Student Aid) process. The FAFSA, must be completed and mailed to the appropriate agency 4-6 weeks prior to the review date. The FAFSA may also be filed electronically, but the signature page must be mailed immediately by certified, return receipt mail. To file electronically, go to the FAFSA Web site: http://www.ed.gov/offices/OPE/express.html or go to http://www.graduate.ucf.edu and click on the FAFSA link.
- Students must be U.S. citizens or permanent resident aliens.
- Students must have a minimum GRE score of 1000, GMAT score of 500, or 3.0 GPA.
- Students must demonstrate unmet financial need greater than or equal to the award amount.
- Students must be fully accepted (not provisionally or restricted) and enrolled in a graduate degree program.
- Students must maintain enrollment for two consecutive terms of at least nine graduate credit hours or one hour of thesis or dissertation during the fellowship.
- To retain eligibility to receive this fellowship, award recipients must maintain continuing academic progress (with a graduate GPA greater than or equal to 3.0 each term of the award).

Fellowship review: Mid-May for fall/spring

Proovst’s Graduate Fellowship

These merit-based fellowships are for recruiting high-quality graduate students into our graduate programs. Each college will be allocated a specified number of fellowships. Students will be identified and selected by the colleges after examining admission materials submitted by each applicant. Tuition must be provided by the programs or colleges to fellowship recipients. Colleges will be required to equally match the amount of this support with assistantships or college fellowships. Tuition waivers, tuition matches, or additional tuition monies may not be used as matching for this fellowship program; however, they must accompany all fellowship offers. Graduate students who accept this award must be enrolled for nine hours each term of the award. Students must be first-time graduate students who are recruited into the program. The Provost’s Graduate Fellowships will be provided at $2,500 per Fall and Spring semesters for one year. U.S. citizens, resident aliens, and international students are all eligible. However, the new IRS rules that apply to international students require that they pay taxes on the fellowship at a considerable rate if they are not employed at the institution.

A complete application includes:

- Request for Assistantship Information form, included in the Graduate Application for Admission (printed or Web version)
- Departmental selection
- Department eligibility for funding
- Test Scores (GRE/GMAT)
- Transcripts on file or official ones included

Eligibility:

- Students must be fully accepted (not provisionally or restricted) and enrolled in a graduate degree program.
- Students must maintain enrollment for two consecutive terms of at least nine graduate credit hours.
- To retain eligibility to receive this fellowship, award recipients must maintain continuing academic progress (with a graduate GPA greater than or equal to 3.0 each term of the award).

Fellowship review: Mid-April for fall/spring

Graduate Work Fellowship

This financial need-based fellowship provides work experience to graduate students who wish to attend full-time but need additional financial assistance. Financial need is determined by the Free Application for Federal Student Aid (FAFSA). The FAFSA should be completed at least six weeks prior to the selection date. Students must be enrolled for nine graduate hours each term of the award. Students may be first-time or continuing, but must be U.S. citizens or permanent resident aliens.

The fellowship award period is one year and provides a 20-hour-per-week assistantship in the department of study paying up to $3,250 per term for fall and spring terms. A tuition waiver may be provided by the department if funding is available.
The fellowship is not awarded in conjunction with other fellowships, and the student is eligible to receive the fellowship only once. Evaluation of candidates will be made by the University Graduate Fellowship Committee. Students must be fully accepted (not provisionally or restricted) and enrolled in a graduate degree program. Students must maintain enrollment for the fall and spring semesters of at least nine graduate credit hours or one hour of thesis or dissertation during the fellowship.

A complete application includes:
- Students must be U.S. citizens or permanent resident aliens.
- Students must demonstrate unmet financial need greater than or equal to the award amount.
- Students must be fully accepted (not provisionally or restricted) and enrolled in a graduate degree program.
- Students must maintain enrollment for two consecutive terms of at least nine graduate credit hours or one hour of thesis or dissertation during the fellowship.
- To retain eligibility to receive this fellowship, award recipients must maintain continuing academic progress (with a graduate GPA greater than or equal to 3.0 each term of the award).

Deadline for nominations: Mid-May for fall/spring

Minority Fellowships

UCF Foundation Minority Graduate Fellowship

First-time UCF graduate students who are also designated ethnic minority graduate students are eligible. The applicant must be a U.S. citizen and must be considered a minority by the “Racial Ethnic Definitions” standards used by the EEO office.

This fellowship awards $3,250 ($1,625 per fall/spring term) and includes a tuition waiver for up to nine in-state graduate hours provided by the Office of Graduate Studies. This fellowship is not awarded in conjunction with other fellowships, and the student is eligible to receive the fellowship only once. Evaluation of candidates will be made by the University Graduate Fellowship Committee. Students must be enrolled in nine semester hours per term of the award. This award is funded by differential tuition funds. Approximately four fellowships are available each year.

This fellowship is awarded based on academic merit in support of new UCF graduate students. New students are defined as those who are enrolled for the first time during the calendar year of the fellowship application. This includes spring, summer, and fall terms. The fellowship is not renewable. Applicants must be receiving any other scholarship aid (except for out-of-state fee waivers). However, students who receive funds that require a work commitment are eligible for this fellowship.

A complete application includes:
- Fellowship Application, completed by the student
- Statement of Goals, completed by the student
- Two letters of recommendation, by the graduate program coordinator or faculty
- Test Scores (GRE/GMAT)
- Transcripts on file or official ones included

Eligibility:
- Students must be U.S. citizens and American Indian, Alaskan Native, Hispanic, Black, Pacific Islander (not Asian).
- Students must be fully accepted (not provisionally or restricted) and enrolled in a graduate degree program.
- Students must maintain enrollment for the fall and spring semesters of at least nine graduate credit hours or one hour of thesis or dissertation during the fellowship.
- To retain eligibility to receive this award, recipients must maintain continuing academic progress (with a graduate GPA greater than or equal to 3.0 each term of the award).

Deadline for applications: Mid-February for fall/spring

Graduate Studies Summer Mentoring Fellowships

The purpose of this merit-based program is to allow minority graduate students an opportunity to work closely with a faculty member in a mentoring relationship. Provisional, conditional, restricted, and regular first-year graduate students are eligible. Students are required to work 20 hours per week with an assigned faculty member on an approved research project, take six hours of independent study (or directed research course work related to the research), and attend mentoring workshops throughout the summer. Both the student and faculty members participating must be on campus in the A or C terms and meet regularly.

This fellowship provides $3,250 for the summer term payable in two installments. No tuition waiver is provided with this fellowship. This fellowship is not awarded in conjunction with other fellowships, and the student is eligible to receive the fellowship only once. Evaluation of candidates will be made by the University Graduate Fellowship Committee.
This award is funded by differential tuition funds and State of Florida funds. Approximately 20 fellowships are available each summer.

For this fellowship, graduate students will be required to create, jointly with their mentor, an agreement detailing expectations for the research project before the fellowship is awarded.

A complete application includes:
- Fellowship Application, completed by the student
- Statement of proposed research by the student
- Two letters of recommendation (one from the intended mentor)
- Mentor/Mentee Agreement
- Test Scores (GRE/GMAT)
- Transcripts on file or official ones included

Eligibility:
- Provided to ethnic minority students.
- Student must be a U.S. citizen or permanent resident alien.
- Student must enroll for six graduate hours in directed research or independent study during the Summer A or C term, exclusively.
- Student must attend scheduled mentoring workshops and meet regularly with the mentor.
- Student must write a report on the completed research and submit the report to the Office of Graduate Studies at the end of the summer.
- Student will receive at least two evaluations during the summer from the mentor.

Deadline for Applications: Late March for summer

Delores A. Auzenne Fellowship

New and continuing ethnic minority graduate students are eligible for the Delores A. Auzenne Fellowship offered by the State of Florida. This fellowship is a merit-based award requiring no work obligation. Students must be enrolled for nine graduate hours of course work each term of the award, and must be U.S. citizens or permanent resident aliens. This fellowship is not awarded in conjunction with other fellowships.

This fellowship award is $5,000 ($2,500 per term for fall and spring). No tuition waiver is provided with this award. Master’s degree-seeking students may receive support for up to two years; doctoral students may receive support for up to four years. A new application must be submitted each year. Because graduate students will be competing with other applicants, funding is not guaranteed for future years. Approximately 8-10 awards are available each year.

Selection is based on academic background, program of graduate study, and career goals. The awards are designed to encourage and support minority American graduate students enrolling in disciplines with low minority representation. The University Graduate Fellowship Committee including faculty, administrators, and staff will consider each student’s potential for contributing to the work force in the chosen discipline and will rank all eligible applicants.

A state-level committee will make the final selections. Particular emphasis is given to students who are in under-represented areas.

F.S. 240.400: Eligibility for state financial aid requires that students must have "residency in this state for no less than two years preceding this award."

Certain restrictions regarding citizenship/visa status apply, based on eligibility for resident tuition. U.S. citizens and permanent resident aliens are eligible. The non-U.S. citizen/non-resident alien categories B, C, D, F, J, L, and M are not eligible for this fellowship.

A complete application includes:
- Fellowship Application
- Statement of Goals, completed by the student
- Two letters of recommendations, from the program coordinator or faculty
- Test Scores (GRE/GMAT)
- Transcripts on file or official ones included

Criteria Used in Auzenne Fellowship Screening Process
- Provided to ethnic minority graduate students entering or enrolled in a discipline with low representation
- Potential to succeed, demonstrated initiative
- Achievement record, progress in program
- Potential service to UCF and the State University System (SUS)
- Recipients of full fellowships from other sources will not be eligible for consideration.
- Awards will be granted for no more than two years to those recipients seeking a master’s degree and four years to those seeking a doctorate.
- Continuing academic progress (graduate GPA of at least 3.0 for each term of the award) is required to maintain eligibility to receive this fellowship.

Deadline for applications: Early March for fall/spring

FAMU Feeder Fellowship

Outstanding Florida A & M University graduates who participate in the Feeder program at FAMU are eligible for this award. From the nominations received from FAMU, program coordinators select outstanding candidates from nominees with interest in their programs and the University Graduate Fellowships Committee selects the recipients of the awards.

This fellowship includes an award of $10,000 per year for master’s students and $15,000 per year for doctoral students. The award includes an in-state tuition waiver of up to nine hours of graduate course work per semester. Students must be enrolled for nine semester hours while receiving the fellowship.

This fellowship is not awarded in conjunction with other fellowships, and the student is eligible to receive the fellowship only once for a two-year period. Continuing academic progress (graduate GPA of at least 3.0 for each term of the award) is required to maintain eligibility to receive this fellowship. This award is funded by differential tuition funds. Approximately two fellowships are available each year.

Selection of candidates is made in mid-January each year.
FGAMP Fellowships

The Florida Georgia Alliance for Minority Participation provides this fellowship to designated AMP minority graduate students in engineering, computer science, physics, and math. Students are nominated by their program coordinator for this award.

This fellowship includes an award of approximately $4,000 per year ($2,000 in both the fall and spring terms) as well as a 20-hour-per-week assistantship (where students must assist with minority teaching activities) and a tuition waiver (up to six hours of graduate course work per semester) provided by the graduate program. Students must be U.S. citizens. Students must be enrolled for nine semester hours while receiving this fellowship.

This fellowship is not awarded in conjunction with other fellowships. Evaluation of candidates will be made by the University Graduate Fellowship Committee. Approximately four to six fellowships are available each year.

A complete application includes:
• Fellowship Application
• A departmental nomination, from the graduate program coordinator
• Two letters of recommendation from university faculty
• Test Scores (GRE/GMAT)
• Transcripts on file or official ones included

Eligibility:
• Recipients must be U.S. citizens and American Indian, Alaskan Native, Hispanic, Black, Pacific Islander (not Asian).
• Recipients must be fully accepted (not provisionally or restricted) and enrolled in a graduate degree program.
• Students must maintain enrollment for the fall and spring semesters of at least nine graduate credit hours or one hour of thesis or dissertation during the fellowship.
• To maintain eligibility to receive this fellowship, award recipients must maintain continuing academic progress (graduate GPA of at least 3.0 for each term of the award).
• Recipients must commit to at least one activity related to the goal of enhancing minority undergraduate education.

Deadline for applications: Early-March for fall/spring

McKnight Doctoral Fellowship Program

Funded by the Florida Education Fund, the McKnight Doctoral Fellowship program is designed to address the underrepresentation of African American faculty at colleges and universities in the state of Florida by increasing the pool of African American citizens qualified with Ph.D. degrees to teach at the college and university levels. Fellowships are especially encouraged in, but not limited to, the following disciplines: biology, business administration, chemistry, computer science, engineering, mathematics, physics, and psychology.

Academic programs that lead to professional degrees such as the M.D., D.B.A., D.S., J.D., and D.V.M. are not covered by the McKnight Doctoral Fellowship. With the exception of Ph.D. programs in Math Education, Science Education, and Education Measurement and Testing, graduate programs that are housed in a University’s school or college of education are not covered by the McKnight Doctoral Fellowship.

This fellowship provides $11,000 per year for three years. A full tuition waiver (up to nine graduate hours) is also provided by the Office of Graduate Studies. Each annual renewal is contingent upon satisfactory performance and normal progress toward the Ph.D. degree. This fellowship is not awarded in conjunction with other fellowships. Approximately 20 fellowships are provided each year to African American doctoral students throughout the state of Florida.

Applicants must be African American U.S. citizens who hold or will receive a bachelor’s degree from a regionally accredited college or university. Students who hold or will receive a master’s degree or who have completed some graduate work are also eligible. (Note: Since this program is intended to increase African American enrollment at the participating universities, currently enrolled doctoral students in these universities are not eligible to apply.)

Application forms may be obtained from the Office of Graduate Studies. Applications must be mailed to the Florida Education Fund and postmarked no later than January 15th of each year.

Request application from:
Office of Graduate Studies, AD 144 Fellowships Coordinator
P.O. Box 160112
Orlando, FL 32816-0112
Phone: (407) 823-6497
Fax: (407) 823-6442
E-mail: gradfaid@mail.ucf.edu

Mail completed application to:
The Florida Education Fund
201 E. Kennedy Blvd., Suite 1525
Tampa, FL 33602
Phone: (813) 272-2772

Graduate Student Assistantships

Graduate students often receive assistantships from their departments while pursuing graduate studies. Graduate students are paid to teach, conduct research, or perform other tasks for departments. Full-time graduate students may be employed as Graduate Research Assistants (GRAs), Graduate Teaching Assistants (GTAs), or as Graduate Assistants (GAs). Appointments for GRA/GTAs may be for any duration up to 12 months, as required by the conditions of their employment, but normally are contracted by term. GAs are appointed one time and continue until the student is taken off the payroll through a Personnel Action form.

Eligibility and application guidelines for graduate assistants are established by the colleges and departments, as are pay scales. To apply for an assistantship, contact the program coordinator for your individual program of study. It is important to complete the Request for Assistantship Information form in the Graduate Application for Admission packet if desiring an assistantship and include on the form any spe-
cial abilities, particularly computing or teaching experiences. All graduate assistants must be employed at more than minimum wage ($6.00 per hour), for a minimum of 10 hours per week and a maximum of 20 hours per week.

Part-time students (those registered for less than six hours in the fall and spring terms, less than three hours in the summer term, or less than one hour of thesis or dissertation during any term) and non-degree students are not eligible to receive assistantships.

Graduate students who want to work more than twenty hours per week must complete a Multiple Employment/Excess Hours form with the University. Students should consult their program coordinators for more information.

Each college has guidelines for determining pay rates for graduate students. Factors included are the stage of the student's graduate studies, discipline, and prior educational or research experience. Graduate assistantships funded using state monies are limited to 9 terms for master's students, 12 terms for doctoral students beyond the master's degree, or 21 terms for doctoral students without a master's degree.

Graduate Research Assistants (GRAs) and Graduate Teaching Assistants (GTAs) must be registered as full-time degree-seeking students, and may work between 10 and 20 hours per week regardless of the number of departments in which they have assistantship support. They may be assigned to professors to assist with research activity, or they may be assigned as graders, lab assistants, or classroom teachers. Only those graduate students who have satisfactorily completed and passed more than 18 credit hours of graduate course work in the major may be classroom teachers of record. All graduate teaching and research assistants must sign a contract with the University for employment. Graduate Assistants (GAs) will complete a time card to record their hourly work for payment.

The appropriate title to be used for students, i.e., Graduate Teaching Assistant, Graduate Research Assistant, or Graduate Assistant, will be determined by the employer hiring the student (Vice President, Dean, Director, etc.) on the basis of the duties to be performed.

To be employed, students must be classified as graduate students by the end of the add/drop period for that term. Non-degree students may be employed but must be classified as Student Assistants (not Graduate Assistants). Students receiving graduate assistantships may not be simultaneously employed as a student assistant or adjunct faculty. Graduate Assistants are not faculty and are not able to receive faculty parking privileges or faculty ID cards.

On-campus employment is limited to no more than 20 hours per week while school is in session. Such employment may be full-time during vacation periods for students who are eligible and intend to register for the subsequent academic term.

International students on an F-1 visa are eligible to apply for one year of optional practical training after completion of their program.

For additional information, students should contact the International Student and Scholars Office at (407) 823-2337.

Requirements for Graduate Teaching Assistants

Graduate students employed as Graduate Teaching Assistants must not be the instructor of record or teach independently unless they have at least 18 hours of graduate course work in the major. New Graduate Teaching Assistants are required to attend the University Graduate Teaching Assistants Workshop held during the year, before teaching classes at the University.

Graduate Teaching Assistants and Graduate Assistants with access to student records must maintain the confidentiality of all student records and information. Any violation of this confidentiality results in immediate dismissal.

English Competency for Graduate Teaching Assistants

All graduate students involved in classroom instruction who received their undergraduate degrees from foreign institutions must take the Test of Spoken English (TSE) or the Foreign Service Institute Language Proficiency Interview (LPI). Spoken English language competence of graduate students involved in classroom instruction is covered in Board of Regents rule 6C-6.0091, as follows.

A. Presently Involved in Classroom Instruction:
The spoken English language competence of all graduate students involved in classroom instruction, other than in courses conducted primarily in a foreign language, shall be ascertained by the respective department or college during the annual evaluation. Graduate students found to be potentially deficient in oral language skills shall be required to achieve a score of 220 on the TSE or a 3 on the LPI. If the score is within the range of 190-210 on the TSE or a 2+ on the LPI, the student may teach one semester while enrolled in appropriate English language instruction, beyond which time the score of 220 on the TSE or 3 on the LPI shall be required before the teaching assignment can be continued.

B. New Students:
The college or department will make an assessment during evaluation of an applicant's credentials of graduate students seeking assignment as a classroom instructor. If found to be potentially deficient in oral language skills, the applicant shall be required to achieve a score of 220 on the TSE or 3 on the LPI either taken at the University upon arrival or in the country of origin in accordance with a special agreement between the University and the country of origin.

Employment of International Students

According to INS regulations, graduate students who are on an F-1 or J-1 visa may accept employment on campus without prior INS approval as long as the student is enrolled full-time and employment does not interfere with their studies. Off-campus employment, however, must be at locations affiliated with the University either through contractually funded projects or associated with the University curricula. Curricular training is authorized by the International Student and Scholars Office only to students who qualify for Curricular Training for off-campus employment.
FICA and FUTA Exemption Guidelines

The Internal Revenue Service (IRS) excludes certain types of student wages from the IRS definition of "employment" for purposes of FICA and FUTA tax withholding. The Internal Revenue Code (IRC) 3121[b][10][B] provides in part that wages paid by a university to one of its student employees who is enrolled at least half-time and regularly attending classes are exempt from the FICA and FUTA tax withholding. The University has the sole discretion whether to treat a student's employment at UCF as exempt from FICA and FUTA withholding taxes.

The University provides assistantships for graduate students to gain research and/or teaching experience as part of their education toward a graduate degree. Graduate students are defined as those with pay classifications of 9181-9185.

To be eligible for this IRS exemption, a graduate assistant must:

- Be enrolled at least half time at UCF
- Attend classes regularly

Under this classification, services that are performed by graduate students as a general rule qualify as incidental to their primary purpose of pursuing a course of study at the University.

Criteria for FICA/FUTA Exemption Eligibility

- Graduate students are eligible for the FICA and FUTA exemptions only if they are enrolled at least half time. Graduate students are considered half-time when they are registered for at least three hours in fall or spring terms, at least two hours in summer terms, or enrolled in at least one hour of thesis or dissertation during any term.
- Generally, students who are on fellowships are not subject to FICA and FUTA taxes, since they do not have to account for hours of employment per week.
- Graduate students will be exempt from FICA/Medicare taxes during pay periods that overlap with the academic term and during breaks of less than five weeks. Graduate students who are not enrolled for longer than five weeks and employed by the University are subject to FICA/FUTA.

Student Loans

Graduate students are eligible to apply for financial aid by completing the Free Application for Federal Student Aid (FAFSA) from the Office of Student Financial Assistance (AD 120). Applications should be received before March 1 to be considered for a Perkins Loan or Federal College Work Study. Graduate students may be considered for the Federal Stafford Loan, the Perkins Loan, and the Federal College Work Study Program. Short-term loans are also available for graduate students.

In order to be eligible for a Federal Stafford Loan, graduate students must be degree-seeking, enrolled in at least three hours at UCF, and maintain academic progress. The maximum subsidized loan amount for graduate students is $8,500. An Entrance Interview is required of first-time borrowers at UCF.

To obtain a loan, students must not be in default on any educational loan or owe repayment on a grant at this or any other institution. Students must supply a financial aid transcript from all previously attended post-secondary institutions, whether or not any financial aid was applied for or received. Only U.S. citizens or eligible noncitizens (e.g., resident aliens) are eligible for Stafford Loans. In order to be eligible for Perkins Loans, students must be enrolled for a minimum of six (6) graduate credit hours.

Short-term loans are available to cover books and supplies, or for unexpected emergencies. This loan is not for tuition and fees. These funds are normally available within 3-4 working days after application processing once classes have begun. Up to $300 may be requested; more may be obtained for graduate students only under special conditions that generally are recommended by Graduate Studies.

Non-degree-seeking students are not eligible for student loans. However, "SB" students are eligible. "SB" students are non-degree students who are seeking first-time teacher certification in the College of Education or licensure and certification in other programs such as Social Work, Engineering, and Accounting.

Federal Work Study Program

The Federal Work Study program is a federally funded source of student financial assistance. The goal of this program is to stimulate and promote part-time employment of students who are in need of earnings from work to pursue their degrees. Students are advised to find jobs that fit with their future career plans.

The Office of Student Financial Assistance is responsible for administering student employment under the Federal Work Study (FWS) program as well as OPS employment. Federal Work Study is available to graduate students who demonstrate financial need. Graduate students must be enrolled at least half-time (3 credit hours), be U.S. citizens, and maintain satisfactory academic progress to be eligible for the Federal Work Study Program. All students desiring to work on campus as student assistants must meet the these qualifications, which are intended to protect their academic progress and comply with state and federal requirements.

Scholarships

Visit the web site at http://pegasus.cc.ucf.edu/~finaid/ for more information about scholarships.
Student Rights and Responsibilities Concerning Financial Aid

- Students have the right to full information about the financial aid programs available at UCF, application procedures and deadlines, and the criteria used to determine a financial package.
- Students have the right to appeal decisions made by the Office of Student Financial Assistance.
- Students have the right to equitable treatment of their financial assistance applications. Although each student's case is analyzed individually, eligibility standards are applied uniformly without regard to race, gender, religion, creed, national origin, or physical handicap.
- All student records are confidential.
- It is the student's responsibility to review and understand all information and instructions, meet all deadlines, and provide all information and documentation accurately. Errors and omissions can cause delays and prevent students from receiving assistance. Misrepresentation is a violation of the law.
The Associate Vice President for Graduate Studies is responsible for providing leadership and vision for all graduate education at UCF. The Associate Vice President oversees all activities for the admissions, records, policies, appeals, and graduation of graduate students.

Graduate Studies works in conjunction with the Faculty Senate Committees and the college and graduate program coordinators and is responsible for developing university-wide graduate policies, coordinating graduate activities, distributing tuition fee waivers to the colleges, assisting with the adoption of new graduate programs, and coordinating recruitment of graduate applicants and admitting graduate students to the university. Students apply to the university through this office and their files are sent to the colleges and departments for admission decisions. Graduate student records are kept indicating the status of the student and are updated by this office as students progress through their academic programs. Any policy questions about graduate issues should be directed to the Office of Graduate Studies or the Graduate Council. Operational procedures should be directed to the Office of Graduate Studies (AD 243) or to the individual graduate college or program coordinators.

Mission Statement

The Office of Graduate Studies provides leadership to enhance the university’s capability of achieving international prominence in key areas of graduate studies. Graduate Studies collaborates with the faculty to develop policies and best practices to further the high academic standards and excellence of our graduate programs. Graduate Studies provides support for interdisciplinary and cooperative programs. Graduate Studies is mindful of the need to retain the academic values of the graduate programs while acting as a partner in the social and economic well-being of the community and state.

The Office of Graduate Studies is client-centered, focused on providing the information and services that students need to enhance their experience with UCF and that faculty and staff need to effectively carry out their responsibilities to students. Graduate Studies emphasizes cooperation with the colleges, graduate programs, administrative offices, and support services to provide an excellent experience for our graduate students from inquiry to graduation. Through its primary activities, programs, and services, Graduate Studies contributes to enrollment growth, planning for graduate education, enhanced infrastructure support for our graduate students and programs, and quality student support services for a diverse and talented graduate student population. We are a strong advocate for providing graduate education to all persons who are full-time working professionals requiring flexible and relevant advanced education, those who are high ability full-time graduate students being mentored by our graduate faculty, and those who are nontraditional, underrepresented, or economically disadvantaged.

Graduate College and Program Coordinators

Graduate College Coordinators work with Graduate Studies to coordinate graduate department activities, recruit graduate students, distribute fee waivers to the departments, ensure program standards for the colleges, and prepare an annual report to Graduate Studies on their activities. The Graduate Program Coordinators work with the Graduate College Coordinators and are responsible for recruiting graduate students, distributing tuition fee waivers to individual students, ensuring program standards in their department, and preparing an annual report to the Graduate College Coordinators on their activities.

Graduate Council

The Graduate Council is a standing committee of the Faculty Senate and reports to the Senate on graduate policy and curriculum matters. The committee consists of eighteen members, at least six of whom are current Faculty Senate members. The composition of the committee consists of a nonvoting library representative, three members from each college, except Arts and Sciences which has six. The Associate Vice President for Graduate Studies is an ex-officio member of this committee.

The Graduate Council deals with policy issues and standards for the university. New graduate program requests are reviewed by the Graduate Council. The program proposals will be sent to the Office of Graduate Studies for initial review. The proposal may undergo some editing changes, corrections, and format changes to meet Board of Regents requirements. Once the final program review request is ready, it is forwarded to the Graduate Council for final approval. The Graduate Council will then transmit its recommendations to the Associate Vice President for Graduate Studies for submission to the Office of Academic Affairs and the Board of Regents.
The Graduate Council has three subcommittees that examine and formulate policies and procedures, hear petitions for variances from graduate programs, college, or university requirements, and review graduate Course Action Requests for new programs, among other matters. Each subcommittee consists of four senate members and at least three non-senate members.

**Duties of the Graduate Council**

1. Reviews and recommends university-wide graduate policies and standards.
2. Reviews all new proposals for Board of Regents planning and implementation of graduate programs including deletion of existing programs.
3. Reviews all matters referred by the Graduate Council subcommittees.
4. Transmits its recommendations to the Faculty Senate Steering Committee, which normally submits these recommendations to Graduate Studies on behalf of the Provost.

**Policy and Procedures Subcommittee**

The Policy and Procedures Subcommittee examines and recommends new policies and procedures or changes to existing policies and procedures with regard to graduate education.

The Policy and Procedures Subcommittee consists of four senate members and at least three non-senate members with representation from each college and the Associate Vice President for Graduate Studies as an ex-officio member. The Chair of the Graduate Council serves as the Chair of the Policy and Procedures Subcommittee. Terms of service are two years, staggered. Vacancies are filled during the term of which they occur from the college of the vacating member for the remainder of that person's term.

**Duties of the Policy and Procedures Subcommittee**

1. Examines existing policies and procedures and recommends new policies and procedures with regard to graduate education, including but not limited to policies and procedures affecting admissions, academic progress, and financial support for graduate students.
2. Reviews all matters referred by the Graduate Council.
3. Transmits its recommendations to the Faculty Senate Steering Committee, which normally submit these recommendations to the Associate Vice President for Graduate Studies.

**Appeals Subcommittee**

The Appeals Subcommittee is a subcommittee of the Graduate Council. It consists of four senate members and at least three non-senate members with representation from each college and with the Associate Vice President for Graduate Studies as an ex-officio member. The Chair of the Graduate Council appoints the Chair of the Appeals Subcommittee. Terms of service are two years, staggered. Vacancies are filled during the term of which they occur from the college of the vacating member for the remainder of that person's term. A graduate student representative is appointed by the Chair of the Graduate Council based on recommendations made from the Deans of the colleges and the Associate Vice President for Graduate Studies.

**Duties of the Appeals Subcommittee**

1. Hears petitions for variances from graduate program, college, or university requirements for non-degree, certificate, or graduate students at the university or applicants to graduate programs. A student petition is considered when the department and college have reviewed the request and denied the petition or when the student is requesting an exception to university policies or regulations. Applicant petitions are considered upon request of the applicant when the program has reviewed an appeal of an admissions decision, after denying admission.
2. Recommends approval or denial of appeals or petitions to the Associate Vice President for Graduate Studies, who will notify the student, department, and college of the action.
3. Hears all requests from graduate program coordinators for exceptions from graduate policies and procedures.
4. Reviews nominees for the University Excellence in Graduate Teaching Award and makes recommendations to the Vice President for Academic Affairs.
5. Monitors graduate program quality and makes recommendations to the Graduate Council.
6. Reviews all matters referred by the Graduate Council.

**Course Review and New Programs Subcommittee**

The Course Review and New Programs Subcommittee is a subcommittee of the Graduate Council. It consists of four senate members and at least three non-senate members with representation from each college and the Associate Vice President for Graduate Studies as an ex-officio member. The vice chair of the Graduate Council serves as the chair of the Course Review and New Programs Subcommittee. Terms of office are two years, staggered. Vacancies are filled during the term in which they occur from the same college of the vacating member for the remainder of that person's term.
Duties of the Course Review and New Programs Subcommittee

1. Reviews curricular issues related to graduate education.
2. Reviews proposals of new graduate programs and deletion of existing programs, which will be submitted to this subcommittee by the Associate Vice President for Graduate Studies prior to submission to the Board of Regents for final approval.
3. Reviews changes to existing graduate programs (such as hours, thesis/non-thesis options) and makes recommendations to the Associate Vice President for Graduate Studies.
4. Reviews new tracks or options to existing graduate programs and deletions of tracks or options, and makes recommendations to the Associate Vice President for Graduate Studies.
5. Reviews new certificate programs and the deletion of existing certificate programs and makes recommendations to the Associate Vice President for Graduate Studies.
6. Reviews all requests for additions, revisions, and deletions of graduate and special topic courses and makes recommendations to the Associate Vice President for Graduate Studies.
7. Reviews all matters referred by the Graduate Council.

Graduate College Coordinators

Arts and Sciences—Dr. Ben Morgan, CAS 190, (407) 823-0218. E-mail: morgan@mail.ucf.edu

Business Administration—Dr. Robert Ford, BA 240, (407) 823-2385. E-mail: robert.ford@bus.ucf.edu

Education—Dr. Michael Hynes, ED 146, (407) 823-6076. E-mail: hynes@mail.ucf.edu

Engineering—Dr. Issa Batarseh, ENGR 281, (407) 823-0185. E-mail: batarseh@mail.ucf.edu

Health and Public Affairs—Ms. Joyce Dorner, MAP 219, (407) 823-0205. E-mail: jdorner@pegasus.cc.ucf.edu

School of Optics—Dr. Jim Moharam, CROL 274, (407) 823-6833. E-mail: moharam@creol.ucf.edu

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Instructional Technology: Educational Technology (M.A.)—Dr. Glenda Gunter, ED 313, (407) 823-3502. E-mail: ggunter@pegasus.cc.ucf.edu
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School Psychology (M.S.)—Dr. Carl Balado, ED 314, (407) 823-2054. E-mail: cbalado@mail.ucf.edu
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Curriculum and Instruction (Ed.S. & Ed.D.)—Dr. Marcella Kysilka, ED 355, (407) 823-2011. E-mail: kysilka@pegasus.cc.ucf.edu
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College of Engineering

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Electrical and Computer Engineering (M.S., M.S.E.E., M.S.Cp.E. & Ph.D.)—Dr. Juin J. Liou, ENGR 407, (407) 823-5339. E-mail: jli@ece.engr.ucf.edu
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Industrial Engineering and Management Systems (M.S., M.S.I.E., Ph.D. & certificates)—Dr. Linda Malone, ENGR 307B, (407) 823-2204. E-mail: malone@mail.ucf.edu
Mechanical, Materials & Aerospace Engineering (M.S.M.E., Ph.D. & certificates)—Dr. Alain Kassab, ENGR 381, (407) 823-2416. E-mail: kassab@mail.ucf.edu

College of Health and Public Affairs

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School of Optics

Optics (M.S. & Ph.D.)—Dr. Jim Moharam, CROL 208, (407) 823-6833. E-mail: moharam@creol.ucf.edu
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 college descriptions (see Arts and Sciences, Business Administration, Education, Engineering, Health and Public Affairs, School of Optics).

Student Status

Students who are taking graduate classes may be classified in several ways. Those classifications are defined as:

Regular Graduate Student—a student who has been accepted into a graduate degree program with no conditions or provisions and is seeking a graduate degree.

Provisional Graduate Student—a degree-seeking student who does not meet BOR criteria for GPA or GRE/GMAT requirements, but for other reasons is accepted as a degree-seeking student by a program. Conditions will be attached to the admission that will have to be fulfilled in the first nine hours of a graduate program before the student can be made a Regular Graduate Student. Only 10 percent of all new students in any degree program may be Provisional. Provisional graduate students cannot, in general, receive graduate fellowships or tuition waivers.

Conditional Graduate Student—a degree-seeking student who meets BOR criteria for admission, but has not submitted all required documents. Conditions must be met by midterm of the first semester in order to register for future semester classes.

Restricted Graduate Student—a degree-seeking graduate student who meets BOR criteria, but does not meet program requirements to be accepted as a Regular Graduate Student. Restrictions will be attached to the admission that will have to be fulfilled before the student is made a Regular Graduate Student.

Non-degree-seeking—a student who has not been accepted into an academic program and is not seeking a graduate degree. Some students in this category are completing application requirements for a graduate program. Students who are allowed to take graduate courses in this category can only transfer nine credit hours into a graduate program.

Graduate Certificate Student—a student, either a degree-seeking graduate student or a non-degree-seeking student, enrolled in a graduate certificate program. Non-degree-seeking students enrolled in graduate certificate programs are not eligible for financial aid. If accepted into a graduate program, students in this status may, at the discretion of the program, transfer the credit hours from a graduate certificate program into a regular graduate program.

Student's Responsibility

It is the student's responsibility to keep informed of all rules, regulations, and procedures required for graduate studies. Graduate program regulations will not be waived or exceptions granted because students plead ignorance of the regulations or claims failure of the adviser to keep them informed.

University Closings

In the event of some extraordinary event (such as a natural disaster or prolonged power outage), the President shall determine whether it is necessary to cancel classes and approve administrative leave for employees in affected areas. Department chairs, in consultation with their faculty and with the college dean, shall determine the effect on final examinations and other academic matters.

UCF Employment

Full-time graduate students may be offered the opportunity to work as graduate assistants. All graduate assistants (GTAs and GRAs) must work at least 10 hours per week, but not more than 20 hours per week. Students who want to work for more than one employee and/or for hours in excess of 20 hours per week must complete a Multiple Employment/Excess Hours Form. Exceptions to this policy may be granted by the Office of Graduate Studies and the Graduate Council for compelling reasons.

Student FICA exemption—Graduate students who are enrolled at least part time (3 hours in spring/fall; 2 hours in summer; 1 hour of thesis/dissertation) will be exempt from FICA/Medicare taxes during pay periods that overlap with the academic term and during breaks of less than five weeks. Breaks longer than five weeks where graduate students are employed but not enrolled will result in withholding FICA/Medicare taxes.

Note: International students with F-1 Visas are prohibited from working in excess of 20 hours per week during fall and spring semesters.
Appeals

When unusual situations arise, petitions for exceptions to policy may be requested by the student. Requests for consideration of exceptions to departmental rules should be made in writing to the graduate program coordinator. A Graduate Petition Form should be used for this request. The graduate program coordinator may ask the department or program graduate committee to examine the necessary information and recommend a response to the petition. The graduate program coordinator will recommend to the department chair whether the petition should be granted. If the department is considering an exception solely to a departmental policy or rule, the petition will not have to be considered further. Should the student wish to appeal the departmental decision, the student or department may request in writing to the graduate college coordinator that the college reconsider the decision.

If the petition requires an exception to a college policy or rule, the student or department will request in writing that an exception be made at the college level. The graduate college coordinator may ask the graduate college committee to examine the petition at the request of the department or student once the department has made its recommendations. The graduate college coordinator will recommend to the college dean whether to grant the exception to college policy. If the college is considering an exception solely to a college policy or rule, then the petition will not have to be considered further. Should the student wish to appeal the college decision, the student or college may request in writing that the university reconsider the decision.

If the petition requires an exception to a university policy or rule, the student or college will request in writing that an exception be made at the university level. The Associate Vice President for Graduate Studies may ask the Graduate Council to examine the petition at the request of the college or student once the college has made its recommendation. The Associate Vice President for Graduate Studies will determine whether or not the exception should be granted. The Provost and Vice President for Academic Affairs is the final authority on whether exceptions to university policies will be made.

General Requirements for All Graduate Programs

Program of Study and Academic Performance

A program of study is an agreement concerning course work between the student and the degree program specifying all degree requirements. It must be established prior to enrollment in the second term for a 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 Program of Study form (either a SASS audit or written form) can be obtained from the graduate program coordinator or graduate college coordinator, prepared and given to the graduate program coordinator to be placed in the student’s permanent file. It must comply with the catalog current at the time it is proposed. The Program of Study, once established, cannot be altered solely due to poor academic performance by the student.

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 (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, students will be changed to academic provisional status for a maximum of nine semester hours. If students have not attained an overall graduate GPA of 3.0 in the program of study at the end of the nine semester hours, they will be reverted to nondegree status. (Students admitted on provisional status are similarly given 9 semester hours to attain a 3.0 GPA.) If a student wishes to appeal a change in status, an appeal should be filed with the graduate program coordinator. (See “Appeals” in this chapter.)

No graduate-level courses with a grade of “D” or lower are acceptable in a program of study or, following admission to degree-seeking status, on a SASS audit. In addition, no 4000-level courses or transfer courses with a grade of “C” or lower are acceptable in the program of study. Once established, the program of study cannot be altered solely due to poor academic performance of the student.

Graduate students whose overall GPA falls below 2.0 will be reverted to nondegree status.

Maximum Hours of Unsatisfactory Grades

A student may earn a maximum total of six semester hours of “C” grades in the program of study. The final program of study may not contain unresolved “I” grades. 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 six semester hours of unsatisfactory (more than six semester hours of “C” or unresolved “I”) grades in a specified graduate program of study is reason for reversion to nondegree status.

Incomplete Grades

A grade of “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 date may, at the discretion of the instructor, result in the assignment of an “F” grade, or a “U” grade for thesis or research report hours. It is the student’s responsibility to arrange with the instructor for the changing of the “I” grade. Both the new grade and the letter “I” will appear
on the student's permanent record. Grades of "I" awarded after Fall 1997 must be resolved within one calendar year or prior to graduation, whichever comes first. Incompletes left unresolved will be changed to "F" if not changed in the allowed time period. A student may register for a course in which an "I" was received, but no repeat "I" action will be made on the permanent record. Incomplete grades cannot be used on the program of study.

Review of Performance
The primary responsibility for monitoring performance standards rests with the degree program. However, the college and university may monitor a student's progress and may revert any student to post-baccalaureate status if performance standards as specified above are not maintained. Satisfactory academic progress in a program also involves maintaining the standards of academic and professional integrity expected in a particular discipline or program. Failure to maintain these standards may result in termination of the student from the program.

A degree program may revert any graduate student to post-baccalaureate 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 post-baccalaureate status, reinstatement to graduate student status can occur only through a formal appeal process. (See "Appeals" in this chapter.)

Course Requirements

Course Loads
A full-time graduate student must take at least six credit hours each semester, with 12 semester hours being the maximum load. International students who are not receiving assistantships or fellowships must be enrolled in nine semester hours each semester (for fall and spring) per Immigration and Naturalization Service guidelines. During the summer term, full-time is 3 credit hours and half-time is two credit hours. In order to meet residency requirements, doctoral and specialist students must register for six hours in two contiguous terms. During the terms a student is registered for special courses such as thesis, dissertation research, or dissertation writing, the hours may vary. Students taking only thesis or dissertation hours will be required to be enrolled in at least one hour of thesis or dissertation research to be considered full-time.

Students receiving veterans' education benefits should refer to the "Office of Veterans' Affairs" and "Veterans' Benefits" sections in the "Student Services and Organizations" chapter in this catalog.

Course Levels of Graduate Work

7000-Level Courses. These courses are designed for doctoral students.

6000-Level Courses. These courses are designed for graduate students. Post-baccalaureate or non-degree-seeking students should check with the colleges about their ability to enroll in 6000-level courses. Undergraduate registration in 6000-level courses is allowed only in special situations with prior approval by the college. Undergraduate students must be within nine hours of graduation, have a minimum 3.0 GPA, and not register for more than a total of twelve hours in that term.

5000-Level Courses. Courses at the 5000 level may be utilized toward satisfying the graduate degree requirements and may be taken by graduate students. Non-degree-seeking students and seniors may enroll in 5000-level courses with permission from the program.

Other. Under special circumstances 4000-level courses may be applied toward a graduate degree, but not in excess of six 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 college prior to enrollment in the course. Under no circumstances should 3000-level courses be used in a doctoral program except as transfer credits as explained under “Transfer Credit” for doctoral students in this catalog.

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

Transfer of Credit When Accreditation Is Uncertain

Students who believe they have mastered the content of a graduate-level course should present a portfolio to the graduate program coordinator documenting the learning experience. If the committee after examining the portfolio believes the student has mastered the content presented in a graduate-level course, the student should be allowed to demonstrate that mastery through examination. (See "Credit by Examination or Waiver" below.) Correspondence courses are not acceptable toward a graduate program of study; however, extension or continuing education courses may be accepted.

The acceptance of courses from unaccredited agencies or institutions threatens the integrity and value of the graduate degrees awarded by UCF. Graduate-level course work demands the mastery of skills, theories, and concepts at a much higher level than undergraduate-level course work. Therefore, the university will not allow students to transfer course work from professional societies, independent agencies, employees, or companies unless they are ACE (American Council on Education) certified.
Credit by Examination or Waiver

Examination credit may be used to satisfy program course requirements, but not credit hour requirements. Certain program requirements or courses may be waived at the discretion of a program, although the total hours required for the program must be satisfied.

Thesis, Research Report, and Dissertation Grades

For thesis (XXX 6971 or 6973), dissertation (XXX 7980), and research report (XXX 6909) courses, satisfactory (S) or unsatisfactory (U) grades are used to reflect student progress in these courses. Should a student in a given term be given an incomplete, then this grade should be changed to an S or U, upon completion of the work. Other grades are not allowed to be given in these courses. Students who do not maintain satisfactory progress in their research may be reverted to post-baccalaureate status.

Public Access

Students, faculty, staff, and other interested parties are strongly encouraged to attend thesis and dissertation defense sessions. Notices providing date, time, and location of such meetings must be distributed to all academic departments.

These sessions are educational and informative for graduate students and provide an opportunity for colleagues to observe the work of their peers with students. At the discretion of the Chair of the Committee, questions may be invited from the audience. That part of the session involving committee discussion leading to a vote on the acceptance of the work will be closed. Sessions may be recessed briefly to excuse visitors and the candidate before this stage begins.

Degree Application Process

Application for Graduate Degree

Graduate students must file an Intent to Graduate form with the graduate program coordinator by the last day of registration for the term of graduation. If the student does not graduate in that term, a new form must be filed at the beginning of registration for the term of anticipated graduation.

Application for Graduate Certificate

Those students, graduate or non-degree, who are completing a certificate must file a Completion of Certificate form with the graduate program coordinator by the last day of registration for the last course in the graduate certificate program. If the student does not complete certificate requirements in that term, a new form must be filed at the beginning of registration for the term of completion.

Thesis and Dissertation Requirements

An oral defense of a thesis or dissertation is required with copies of the approved thesis or dissertation being prepared in accordance with program, college, and university requirements. The Graduate Studies Thesis and Dissertation Manual describes UCF’s formatting requirements for theses/dissertations and outlines the steps graduate students must follow to submit their theses/dissertations to Graduate Studies for binding. Graduate students can obtain the manual from the Thesis/Dissertation Editor in the Office of Graduate Studies, use the copies on reserve at the Reference Services Desk in the UCF Library (second floor), or access this information on the editor’s website at: http://www.graduate.ucf.edu/thesis/manual.htm.

Each semester the Thesis and Publications Editor presents workshops to inform graduate students about procedures, deadlines, and requirements associated with preparing a thesis and dissertation.

Students who wish to complete their degree requirements in a given semester must take their oral defense and turn in their final unbound copies to the Thesis and Publications Editor in Graduate Studies by the dates shown in the Academic Calendar of the Graduate Catalog.

Certification for Degree or Certificate

The college of the degree program must certify through the College Dean that all program and college requirements have been met. Degree certification forms are forwarded to Graduate Studies for final determination that all program, college, and university requirements have been met. Graduate students who have completed all the requirements for the degree and have successfully completed the required thesis or dissertation may request a letter to that effect prior to the receipt of the degree. Such letters will be issued by Graduate Studies.

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., for review of thesis or research report by faculty or editorial staff, for completion of internships, or for comprehensive or other examinations). Therefore, unless the graduate program certifies to Graduate Studies that no UCF resources will be utilized, a student must be registered in the term of graduation.

Readmission

To file for readmission, the student must complete a Reactivation/Readmission Application, or fax (407-823-6442) or e-mail (graduate@mail.ucf.edu) Graduate Studies stating a desire for readmission for a particular term. Graduate Studies will consult with the program about readmission.
Graduate Certificate Programs

Graduate certificate programs are available at UCF to supplement an existing graduate program or to provide specialized knowledge in disciplines that complement the education of working professionals in the metropolitan area served by UCF. Many of our area employees have advanced graduate degrees and can enhance their education with specialized courses. Frequently a package of specialized courses that forms a certificate will increase employment credentials and lead to career enhancement.

It is the intent of these programs to be current, providing specialized and state-of-the-art content to area employees. Often certificate programs are offered using flexible and non-traditional delivery systems that provide the best service to the employees in this metropolitan area. Distributed learning, weekend courses, evening courses, and accelerated term courses are acceptable.

Certificate programs may round out a graduate degree program, providing a special emphasis in addition to a graduate degree. Frequently a certificate program can provide an interdisciplinary focus to an existing program of study to provide more depth and understanding to enhance the graduate program.

Any academic unit may propose a graduate certificate program that encompasses graduate courses in its graduate program. If an interdisciplinary certificate program is proposed, it must be acceptable to departments and faculty offering the courses and graduate programs on which the certificate program is based.

Only departments offering graduate degree programs are eligible to develop graduate certificate programs, although departments not offering graduate degrees could join a graduate program in offering an interdisciplinary certificate. College-wide graduate programs are also eligible to develop graduate certificate programs. Certificate programs will not be allowed without some connection to an existing graduate program. The program, wherever it is academically housed, must be clearly identified and labeled as a certificate program. The intent of the program must be specified in any department or college publications (print or Web based).

A faculty coordinator will be appointed for each certificate program. The coordinator will be responsible for certifying successful completion of the program's academic requirements. The Provost will approve the design and title of the certificate. The Office of Graduate Studies will arrange for recording the completed certificate on the student's transcript. However, certificate recipients will not be recognized at commencement.

University Admission Standards

Students admitted to a graduate degree program or to post-baccalaureate status are eligible to take certificate programs. Those with bachelor's, master's, or doctoral degrees are eligible to enroll in certificate programs. Entry to a certificate program does not guarantee admission to a graduate program. However, once a person is accepted into a regular graduate program, credits from a UCF certificate program may be applied toward an existing graduate program with the consent of the program. Post-baccalaureate students who are enrolled in a certificate program are not eligible for tuition waivers, assistantships, fellowships, or federal financial aid. Students may apply for admission into a certificate program at any time prior to the completion of the last course in the certificate program.

Course Requirements and Loads

A certificate program must comprise a minimum of nine semester hours and a maximum of 18. The course work must consist of an integrated and organized sequence of study.

No internship or independent study courses may be used in a certificate program. The use of practicum courses in certificate programs is not generally encouraged, but may be used in programs where there is a strong professional setting and on-campus faculty supervision. Alternative delivery programs are acceptable and encouraged. Distributed learning, weekend courses, evening courses, and accelerated term courses are acceptable.

A course may not apply toward more than one certificate program. Certificate students must take the full number of required hours. If an overlap of course work occurs between two or more certificate programs for the same student, the student must complete the total required hours by taking electives approved by the program.

All courses that are offered as part of a certificate program must be graduate-level courses. Students must earn course grades of "B" or better to get credit toward the certificate. Courses may be retaken to achieve a better grade.

Applicable Credits

Transfer of Credit

No graduate credit hours taken at other institutions can be applied to a graduate certificate program at UCF.

Recency of Credit

Graduate credit hours taken at UCF less than three years previously from a prior baccalaureate, master’s, specialist, or doctoral degree may be applied toward a certificate, with the consent of the program.

Master's Programs

University Admission Standards

Admission to graduate status requires a bachelor’s degree from an accredited institution and a minimum of a 3.0 GPA in the last 60 attempted semester hours of undergraduate studies, or a score of at least 1000 on the combined verbal-quantitative portion of the GRE or a score of at least 450 on the combined verbal-quantitative portion of the GMAT, or a master’s degree from an accredited institution and GRE or GMAT scores. A GRE or GMAT (Business Administration) exam score is required of all applicants. Admission to the
university does not constitute admission to a master's program. Meeting minimum university admission standards for graduate status may not satisfy master’s program admission requirements. Additional or higher criteria may be required by the college or department. An applicant's character, integrity and general fitness to practice a particular profession may also be considered in the admission process.

Applicable Credits and Courses

Total Hours Required
A minimum of 30 semester hours (combined course work and thesis) is required, although many programs require more than this. For the thesis option, at least 24 semester hours of course work must be earned exclusive of thesis. For the non-thesis option, at least 50 percent of the credits offered for the degree must be in a single field of concentration. Some colleges offer a course work only option, in which a thesis is not required, although a research report may be required.

Course Levels
6000-Level Courses. A minimum of fifteen credit hours (including thesis hours) of an individual's program of study must be in 6000-level courses, which are designed for graduate students. Exceptions to this requirement must be approved by the Graduate Council. Exceptions to this rule have been granted to Computer Science, Mathematics, Statistics, and English.

Directed Independent Studies Courses
A maximum of three courses may be taken as independent study, for a total of no more than six semester hours.

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 (Brevard, Daytona Beach, South Orlando, Downtown Academic Center); or at geographical locations where UCF courses are being taught by regular UCF faculty members. Residence credits also include UCF courses offered through the World Wide Web.

Transfer of Credits Taken Before Enrolling at UCF
Work taken at an accredited institution 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:

- Work taken as a post-baccalaureate student at UCF
- Work taken at institutions within the State University System (SUS)
- Work taken at other accredited institutions not in the SUS
- Work taken while in graduate status in another major while at UCF
- Work taken in a graduate certificate program at UCF

No more than nine semester hours total of graduate credit may be transferred into the graduate program from UCF post-baccalaureate work or from other accredited institutions.

Graduate programs are permitted to accept up to nine hours of graduate course work taken at UCF while an undergraduate student as part of an undergraduate program of study. Oversight of the appropriateness of and discretion for accepting such courses into a graduate program of study will be provided by the instructor, graduate program coordinator, and graduate college coordinator. The use of these hours of graduate course work in a graduate program of study is at the discretion of the college and program. This does not apply to undergraduate course work taken while an undergraduate student.

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 some instances, UCF will have conducted an independent evaluation of a nonaccredited institution. If judged to be equivalent, hours may be transferred from these schools. In all instances, only grades of B or better will be transferred.

Students who wish to take course work elsewhere while enrolled as a student at UCF must apply and be accepted as a Traveling Scholar. Credits earned as a Traveling Scholar are considered "resident" credits that are earned at UCF. Consult the “Traveling Scholar” section in this chapter for more information.

Time Limitation for Degree Completion
The student has seven years from the date of admission (pre-requisite, articulation, and foundation courses are exempt) to the master’s program to complete the degree. No course older than seven (7) years at the time of graduation may be used in the Program of Study for a master's degree. Students who do not maintain continuous enrollment (missing enrollment at the university for a period of two major semesters [spring/fall], excluding summers) must file for readmission to the university, although seven years is measured from when the student was first admitted to the program.

Examinations

Evaluation
All examination procedures and other evaluations 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 appropriate culminating academic experience is required of all master’s degree students. It may include a thesis defense, written or oral examination, research report, capstone course, presentation and defense of a portfolio of student work, or other appropriate scholarly activity of a type that has been approved by the Graduate Council.
Advisory Committees

Appointment of Committee or Adviser
It is the responsibility of the appropriate academic Dean of the college or the coordinator of the program to (1) determine whether an advisory committee or an adviser will be used and (2) approve the necessary appointments. The Office of Graduate Studies reserves the right to review appointments to advisory committees, place a representative on any advisory committee, or to appoint a co-adviser. There may be two advisers appointed by the program, the Academic Adviser who oversees the satisfaction of university requirements, and in thesis degree programs, a Thesis Adviser who may oversee the thesis research. The Academic Adviser must be a UCF faculty member in the program granting the degree.

The Academic Adviser is normally necessary when there is considerable flexibility in course work, or where the student is conducting research and working with a thesis adviser who is not a UCF faculty member. Both thesis and non-thesis programs may find it useful to appoint an Academic Adviser.

Thesis Advisory Committee
A student seeking a degree requiring a thesis shall have a Thesis Advisory Committee of at least three members with the designation of chair and/or thesis director being optional. Two of the members must be faculty in the program. This committee shall recommend to the Dean of the college the design of the student's program of study, 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.

Thesis

In some programs, students are required to complete a thesis. An oral defense of the thesis is required with copies of the approved thesis being prepared in accordance with program, college, and university requirements. The UCF Thesis and Dissertation Manual describes formatting requirements for theses/dissertations and outlines the steps graduate students must follow to submit their theses/dissertations to Graduate Studies for binding. Graduate students can use the copies on reserve at the Reference Services Desk in the UCF Library (second floor), or access this information on the editor's website at http://www.graduate.ucf.edu/thesis/.

Each semester the Thesis and Publications Editor presents workshops to inform graduate students about procedures, deadlines, and requirements associated with preparing a thesis and dissertation.

Students who wish to complete their degree requirements in a given semester must take their oral defense and turn in their final unbound copies to the Thesis and Publications Editor in Graduate Studies by the dates shown in the Graduate Catalog.

Enrollment Requirement
Master's level students who are engaged in thesis or research report-related activity must be enrolled for at least 1 credit hour each semester during which this activity takes place.

This requirement does not negate the requirement that all graduate students be enrolled the term they graduate. (See "Registration in Term of Graduation."

Thesis Defense
The Dean of the college, or designee, will normally attend all thesis defenses. Thesis committee members who do not approve of the thesis may choose to not sign the thesis approval sheet. Thesis defenses will be approved by a majority vote of the Thesis Advisory Committee. Further approval is required from the Dean or Dean designee and the Office of Graduate Studies before final acceptance of the thesis in fulfilling degree requirements.

Education Specialist Programs

Education Specialist (Ed.S.) degrees are awarded in Educational Leadership, Curriculum and Instruction, and School Psychology. The Ed.S. degree provides an opportunity for professionals in leadership positions in an educational environment to receive in-depth academic study. This degree provides the opportunity for the development of a high level of professional proficiency in such areas as instruction, supervision, administration, curriculum, and current research literature. Because the purpose of the Ed.S. degree may differ from that of the Ed.D., credit earned in an Ed.S. program is not automatically transferable to a doctoral program. Instead, if a holder of an Ed.S. degree enters a doctoral program at a later date, the doctoral advisory committee will decide how much of the credit earned in the Ed.S. program will be credited toward the doctorate. In any case, only 30 hours taken prior to doctoral status may be transferred into the doctoral program of study. The primary goal of the Ed.S. degree is teaching or acquiring professional proficiency in a specialized education-related area.

University Admission Standards

Admission to the Education Specialist program requires (1) a master’s degree from a regionally accredited institution (except in the case of the School Psychology Specialist program, which does not require a master’s degree, but does have other special admission criteria), (2) a combined score of 1000 (Verbal and Quantitative Sections of the General Graduate Record Examination), (3) other criteria as required by the individual departments, and (4) a recommendation for admission by the appropriate College of Education Graduate Admissions Committee. Admission to the university does not constitute admission to a specialist program.

Examinations

Two examinations are required. Educational Leadership majors must successfully complete one three-hour examination in their major area and one three-hour examination in an area of specialization. Curriculum and Instruction majors must
successfully complete one three-hour examination in their teaching specialty and one three-hour examination in the Educational Foundations area.

Program of Study and Academic Standards

A program of study (i.e., required course work) will be specified by the student’s program area and approved by the college. Minimal core requirements for the Ed.S. degree consist of 36 hours beyond the master’s degree in an approved program, which must include a minimum of 12 graduate-level hours in the specialization area, 6 graduate-level hours in research/statistics, and additional core requirements that are specific to each of the Ed.S. degrees. An overall 3.0 GPA must be maintained on all graduate work attempted. All other academic standards which apply to master’s students will not be lower for specialist students.

Transfer of Credit

Educational Leadership program. Total transfer credit can never exceed nine semester hours. All credit must be earned after the master’s degree with the maximum being nine semester hours from accredited institutions.

Curriculum and Instruction program. Up to 30 hours of credits earned during the master’s degree are transferable into the specialist degree.

Time Limitation and Continuous Attendance

The student has seven (7) years from the date of admission (prerequisite, articulation, and foundation courses are exempt) to the specialist program to complete the degree. No course older than seven (7) years, at graduation, may be used in the program of study for a specialist degree. Students who do not maintain continuous enrollment (missing enrollment at any time by the advisory committee.

Examinations

To avoid confusion of terminology for examinations, all programs should use the following terms:

Qualifying Examination. This title designates the examination (optional by programs) which is used to determine if students should continue with their doctoral studies. It is normally given within the first year of the doctoral program. This is a written examination and is permanently filed in the student’s records in the program.

Candidacy Examination. This title is used for the examination which the student takes prior to admission to Candidacy Status. This is a written examination and is permanently filed in the student’s permanent records. It is normally taken near the end of completion of course work, and must be passed before being allowed to enroll in dissertation hours.

Dissertation Proposal Examination. After passing the general Candidacy Examination, the student will write and defend a Dissertation Proposal in an oral examination.

Dissertation Defense. This is an oral examination (or defense) of the dissertation.

Completion of Qualifying Examination

Eligibility to continue 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 allow a student continuing progress toward a doctorate is made by the graduate committee of the program area concerned and the Dean of the college on the basis of the qualifying examination and/or other criteria as specified by the individual program area. This exam is normally taken within the first year of a doctoral program.

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 college. The particular plan of study, which may vary from student to student, should be formulated jointly by the student and the appropriate committee or adviser in the program area. Changes in the program of study may be made at any time by the advisory committee.
Course Requirements

The course requirements for a doctoral degree will consist of lectures, seminars, discussions, independent research, 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 taken at UCF outside the student’s program area. A university-wide minimum of at least 15 hours of dissertation hours are required for all doctoral programs. Specific programs may require more.

Independent Study Hours

No more than 12 total semester hours of independent study (including those hours counted toward a master’s degree) may be applied to a doctoral program of study.

Academic Standards

Academic standards for doctoral students will meet or exceed those previously stated for master’s programs.

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 the college. Any course credit earned in attaining such a skill does not count toward minimum hour requirements.

Residency Requirements

Each student is expected to complete two contiguous semesters in full-time graduate student status after acceptance into a doctoral program. Doctoral students must be registered a minimum of 6 semester hours during this time.

Transfer Credit

Up to 30 semester hours of credit from an accredited institution may be transferred into a doctoral program, and will be determined on a case-by-case basis by the graduate committee of the program area generally at the time the student is admitted to the program. The transfer hours will consist of a maximum of six hours of 4000-level work, no 3000-level courses, and no courses with grades of less than "B." The College of Engineering allows up to 36 credit hours, including up to 6 thesis credits, to be transferred from the master’s program.

Graduate programs are permitted to accept up to nine hours of graduate course work taken at UCF while an undergraduate student as part of an undergraduate program of study. Oversight of the appropriateness of and discretion for accepting such courses into a graduate program of study will be provided by the instructor, graduate program coordinator, and graduate college coordinator. The use of these hours of graduate course work in a graduate program of study is at the discretion of the college and program. This does not apply to undergraduate course work taken while an undergraduate student.

Time Limitation for Degree Completion

The student has seven (7) years from the date of admission to the doctoral program to complete the dissertation. No courses taken since the original program entry date at UCF may be older than seven (7) years and used in the program of study.

Readmission

Students who do not maintain continuous enrollment (missing enrollment at the university for a period of two major semesters [spring/fall], excluding summers) must file for readmission to the university, although seven years is measured from when the student was first admitted to the program. To file for readmission, the student must complete a Reactivation/Readmission Application, or contact the Office of Graduate Studies by fax (407-823-6442) or e-mail (graduate@mail.ucf.edu) and state a desire for readmission for a particular term. Graduate Studies will consult with the program about readmission. For more information about readmission, refer to the “Admission to the University and Graduate Programs” chapter.

Examination Committee

In some programs a doctoral examination committee will be formed consisting of several faculty members representing the appropriate disciplines and approved by the Dean or college designee to administer qualifying and/or candidacy examinations. In many cases this committee will consist of the program graduate committee. All members will evaluate and vote as to whether students have successfully completed the exams.

Candidacy

Admission to Candidacy

Students may not be admitted to candidacy until a Doctoral Committee has been appointed, and the Committee has certified that the student has successfully completed the Candidacy Examination and demonstrated the qualifications necessary to successfully complete requirements for the degree. Only after admission to candidacy may a student register for dissertation hours (XXX 7980). The admission to candidacy will be approved by the graduate college coordinator and forwarded to Graduate Studies for status change.
Candidacy Examination
The purpose of the Candidacy Examination is for the student to demonstrate knowledge of the field, including theory, bibliography, and research methodology. The examinations must be written and should be based on the student’s plan of study and may be a defense of a written dissertation proposal. Written examinations are administered and established on campus by the student’s Doctoral Committee in coordination with the college. All written original examination materials will be kept in the student’s file in the program.

Enrollment in Dissertation Hours
The student must continue to enroll for at least one semester hour of 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: Generally enrollment in 3 credit hours is required while students are in residence at UCF and placing substantial time demands on their professors. For part-time and nonresident students enrollment of at least one semester hour is required. Colleges may have more stringent requirements.

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.

Dissertation Advisory Committee Composition
Doctoral students must have a Dissertation Advisory Committee prior to the Candidacy Examination. The 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 or designee of that College. Program areas may further specify additional committee membership. All members should be in fields related to the dissertation topic. The Office of Graduate Studies reserves the right to review appointments to advisory committees, place a representative on any advisory committee, or appoint a co-adviser.

All members vote on acceptance or rejection of the dissertation proposal and the final dissertation. The dissertation proposal and final dissertation must be approved by a majority of the committee.

Dissertation Preparation
The Graduate Studies Thesis and Dissertation Manual describes UCF’s formatting requirements for theses/dissertations and outlines the steps graduate students must follow to submit their theses/dissertations to Graduate Studies for binding. Graduate students can obtain the manual from the Thesis and Publications Editor in the Office of Graduate Studies, use the copies on reserve at the Reference Services Desk in the UCF Library (second floor), or access this information on the editor’s website at http://www.graduate.ucf.edu/thesis/.

Each semester the Thesis and Publications Editor presents workshops to inform graduate students about procedures, deadlines, and requirements associated with preparing a thesis and dissertation. Those students who have just passed Candidacy are encouraged to attend a workshop.

Students who wish to complete their degree requirements in a given semester must take their oral defense and turn in their final unbound copies to the Thesis and Publications Editor in Graduate Studies by the dates shown in the Graduate Catalog. Doctoral students also must provide one unbound copy for microfilming by University Microfilms International (UMI). The editor will send dissertations to UMI, with the student’s completed UMI form and microfilming fee.

Dissertation Defense
The dean of the college or his/her designee will normally attend all dissertation defenses. Dissertations will be approved by a majority vote of the advisory committee. Further approval is required from the Dean or Dean designee and the Office of Graduate Studies before final acceptance of the dissertation in fulfilling degree requirements.

Special Scholar Programs

Traveling Scholars
The university participates in the Board of Regents Traveling Scholar Program (6C-6.07) enabling a graduate student to take advantage of special resources available on another campus but not available at the home campus; for example, special course offerings, research opportunities, unique laboratories, and library collections. A traveling scholar is a student who, by mutual agreement of the appropriate academic authorities in both the sponsoring and hosting institutions, receives a waiver of admission requirements of the host institution and a guarantee of acceptance of earned resident credits by the sponsoring institution.

A traveling scholar must be recommended by his or her own graduate adviser, who will initiate a visiting arrangement with the appropriate faculty member of the host institution. After agreement by the student’s adviser and the faculty member at the host institution, graduate deans at both institutions will be fully informed by the adviser and have the authority to approve or disapprove the academic arrangement. A student will register at the host institution and will pay tuition and/or registration fees according to fee schedules established at that institution. The Traveling Scholar form, available in the department offices, must be used for documentation. This form must be completed and prior approval obtained before any course work can be taken.

Each university retains its full right to accept or reject any student who wishes to study under its auspices. A traveling scholar will normally be limited to one term for a total of six credit hours taken as a traveling scholar at another institution.

A traveling scholar is not entitled to displacement allowance, mileage, or per diem payments. The home University, however, may at its option continue its financial support of
the traveling scholar in the form of a fellowship or graduate assistantship with any work obligation to be discharged either at the home or at the host institution.

As part of the Traveling Scholars agreement, SUS institutions agree to accept one another's entrance requirements and credits. All Traveling Scholars are required to submit the Student Health History and immunization requirements according to UCF and BOR policies. Credit is not automatically transferred into the graduate program of study. The student must request an official transcript be sent from the host institution to Graduate Studies (AD 144, P.O. Box 160112, Phone 823-2766), and the graduate program coordinator must complete the Program of Study so that the credits can be entered into the student database. Credits earned at another institution while in Traveling Scholar status will be considered resident credits and are not counted as "transfer" credits under the "nine-hour" rule. These hours may count toward UCF residency requirements if prior approval is obtained. Graduate students are not allowed to be traveling scholars in their final, or graduation, term except by appeal to Graduate Studies.

### International Visiting Scholars

The following policy and procedures allow departments to invite international visitors to study or participate in research activities at UCF. These scholars will be designated as Visiting Scholars or Visiting Research Scholars. The policy is directed to those who do not wish to earn a degree, but who may audit courses in the post-baccalaureate, non-degree-seeking status for professional development and who normally have complete financial support provided by some outside agency. These visitors will have J-1 Exchange Scholar Visa status, limited to one year, which can be extended. J-1 visa holders must return to their home country; they may not request to remain in the United States. Visitors seeking degrees will use regular UCF admission procedures and must qualify for an I-20 Certificate of eligibility for an F-1 Student Visa.

Visitors participating in the international scholars program who are required to audit courses at UCF must fill out the UCF Nondegree/Certification/Transient Application and pay the $20 application fee. The deadline is about four (4) months before the beginning of a term. A faculty member, as Faculty Sponsor, must accept the responsibility for recommending, advising, and directing the activities of the scholar. The procedure for extending an invitation is as follows:

1. If financial support will be provided to the visiting scholar using University resources, then the approval of the University must be obtained on all correspondence with the visiting scholar. Written arrangements should be made with the Vice President for Research for financial support prior to invitations to visiting scholars.

2. The Department Chair will submit a recommendation to the Dean specifying the Faculty Sponsor, documenting anticipated activities, and providing the following information on the Visiting Scholar:
   a. Date of birth
   b. City and country of birth
   c. Country of residence if different from country of birth
   d. Place of work (academic institution, business firm, etc.)
   e. Current position held in country of residence
   f. Academic background
   g. Professional experience
   h. Source and amount of financial support (recommended honorarium, if any)
   i. English proficiency
   j. Dates of visit
   k. Statement of how the Visiting Scholar will participate in research and what will be accomplished
   l. Office space, equipment, etc. which will be required for scholar's use

3. If arrangements are approved, the Dean will notify the Vice President for Research that the College is extending an invitation. The Chair's recommendation will be included with the notification. These will be sent to Graduate Studies so that the invitation and application may be placed in the visiting scholar's official University file.

4. Graduate Studies will then forward copies of the information to the International Student Services Office. A copy of the recommendation will also be sent to the Director of International Student Services asking that Form IAP-66 for the J-1 Visa be issued.

5. The Faculty Sponsor will then correspond with the visitor detailing the conditions of the visit, including whatever limited financial support and facilities will be provided and what is expected of the Scholar. Correspondence will be sent to the International Student Services Office and the Vice President for Research. The Scholar will be asked to write a brief report at the termination of the visit.

During each academic term of the visit, the Visiting Research Scholar may be required to audit one hour of XXX 6918, Directed Research, under the direction of the Faculty Sponsor and also may be permitted (or required) to audit regular courses. The Visiting Scholar will be admitted to post-baccalaureate status and will audit courses as directed and approved by the Faculty Sponsor. The Visiting Scholar will not be permitted to take courses for credit unless formally admitted to a degree program or upon written approval from the Dean of the college in which the student is studying.

The international visiting scholar will be appointed Visiting Research Scholar or Visiting Scholar in the College and may be given a modest honorarium. Such scholars will normally not be maintained on the College payroll, but are expected to have extended financial support.

### Academic Common Market Scholars

The University is a participant in the Academic Common Market Program with other universities in the Southeast offering access to both undergraduate and graduate courses in selected fields. Arrangements can be made for certified Florida residents to earn a graduate degree at a participating University, and be treated as an in-state student at that University. This program can be used only when the field of study is not available in the home state and the participating institution approves. Students taking part in this program...
will have to apply and be accepted by a participating University, notifying that University of their planned attendance as an Academic Common Market Scholar. The participating universities are located in the following states:

- Alabama
- Arkansas
- Florida
- Georgia
- Kentucky
- Louisiana
- Maryland
- Mississippi
- Oklahoma
- South Carolina
- Tennessee
- Texas
- Virginia
- West Virginia

Both Florida and Texas only participate at the graduate level. For further information, please contact Graduate Studies at 823-6432 (AD 243, P.O. Box 160212).

Linkage Agreements

The State of Florida has established various linkage agreements to assist in the development of stronger economic and social ties between Florida and strategic foreign countries. Linkage Institutes are set up throughout the state, and provide out-of-state tuition exemption to scholars from the foreign countries represented by the institutes. To participate in these exemptions, students must apply to the Linkage Institute for the country in which they reside for out-of-state tuition exemption. Students participating are required to return home after their tenure of graduate study for a length of time equal to the exemption period. Each institute develops its own criteria for selection of students, and typically support the out-of-state fees for about 20 to 30 scholars a year.

The institutes established in Florida are listed below with their contact persons.

**Florida-Brazil Institute**
Dr. Elizabeth Lowe McCoy, UF, 352-392-5834
Dr. Terry McCoy, UF, 352-392-0375
Dr. Robert Vitale, Miami-Dade Community College, 305-237-2533

**Florida-Canada Institute**
Dr. Warren McHone, UCF, 407-823-2629
Dr. Sean P. Smith, Palm Beach Community College, 561-367-4574

**Florida-Caribbean Institute**
Dr. Mark B. Rosenberg, FIU, 305-348-2894
Mr. Francisco Bertot, Daytona Beach Community College, 904-254-3091

**Florida-China Institute**
Dr. Henry O. K. Chen, UWF, 904-474-2665
Mr. Robert J. Ludwiczak, Brevard Community College, 407-632-1111
Ms. Miriam B. Stamps, USF, 813-974-6305

**Florida-Costa Rica Institute**
Dr. Erasmo G. Gerato, FSU, 904-644-1414
Ms. Carol Litrides, Valencia Community College, 407-855-9989

**Florida-Eastern Europe Institute**
Dr. Jean Kijek, UCF, 407-823-3647
Dr. Robert W. Westrick, Lake Sumter Community College, 352-365-3523

**Florida-France Institute**
Dr. Erasmo G. Gerato, FSU, 904-644-1414
Dr. Eugene Scruggs, USF, 813-974-4126
Dr. Robert Vitale, Miami-Dade Community College, 305-237-2533

**Florida-Isreal Institute**
Dr. William B. Stronge, FAU, 561-367-2833
Dr. Benjamin Popper, Broward Community College, 954-475-6733
Ms. Nancy Q. Rosen, FAU, 954-351-4150

**Florida-Japan Institute**
Dr. Mark Orr, USF, 813-974-4090
Ms. Shigeko Honda, UWF, 904-474-3108
Dr. Glen E. Goltermann, UWF, 904-474-2144

**Florida-Mexico Institute**
Dr. Mark B. Rosenberg, FIU, 305-348-2894
Mr. Hugh Anderson, Polk Community College, 813-297-1026

**Florida-West Africa Institute**
Dr. Harriett A. Paul, FAMU, 904-599-8825
Dr. Roland E. Buck, UNF, 904-620-2600
Dr. Brenda Simmons, Florida Community College at Jacksonville, 904-633-8319

Proprietary and Confidential Information

If thesis or dissertation work is supported by a contractual agreement with an outside sponsoring agency, and provision was made in the agreement to delay disclosure of the study's results for the purpose of filing a patent or copyright, then this section describes procedures for handling the thesis/dissertation. (See also "Patent and Invention Policy" for explanations of rights associated with patents and copyrights.)

1. Only for those theses and dissertations where a prior written agreement was made with an outside sponsoring agency or where the University wishes to pursue a copyright/patent may publication of the thesis/dissertation be delayed. Review and delay of disclosure of the thesis/dissertation will normally not exceed one term.

2. The review by the outside sponsoring agency or by the University for the purpose of copyright or patent will follow the oral defense of the document. If it appears that the review process will delay certification of the degree or if the delay of disclosure is exercised, the certification process will be completed prior to deposit. The document will be held by the college or the Office of the Associate Vice President for Graduate Studies and deposit in the Library will take place following the delay.
3. No graduate degree will be awarded when the thesis or research report, after a reasonable interval, is not available to the public. If material is sensitive, classified, or will be or has been patented, it may be placed in the Office of the Associate Vice President for Graduate Studies for a specified period.

4. Contractual agreements that contain provisions for review and delay of disclosure shall be reviewed by the Vice President for Research, and exceptional cases shall be considered by the Graduate Council. Exceptional cases include a delay of disclosure for more than one year and/or review prior to the oral defense.

5. The student and the student’s Advisory Committee shall be informed of the possibility of the delay of disclosure at the time of appointment of the Advisory Committee.

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**Patent and Invention Policy for Graduate Students**

The “Patent and Invention Policy for Graduate Students” is included here in its entirety. Departments and colleges should discuss this policy with graduate students at orientations.

**PREMISE:** UCF has three fundamental responsibilities with regard to graduate student research. They are to (1) support an academic environment that stimulates the spirit of inquiry, (2) develop the intellectual property stemming from research, and (3) disseminate the intellectual property to the general public. UCF owns the intellectual property developed using University resources. The graduate student as inventor will according to this policy share in the proceeds of the invention.

1. **University Authority and Responsibilities:** Department of Education (6C7-2.029 Copyrights and Patents, pp. 1461 and 1462) authorizes the University to take any action necessary to secure letters of patents, copyrights, and trademarks on any work produced by a graduate student’s research done in a thesis or dissertation, or in connection with dissertation problems.

2. **Definitions:** For the purposes of this policy the following definitions shall apply:

   (a) A work includes any copyrightable material (other than journal articles) such as printed material, computer software or databases, audio or visual materials, circuit diagrams, architectural and engineering drawings, lectures, musical or dramatic compositions, choreographic works, pictorial or graphic works, and sculptural works.

   (b) An Invention includes any discovery, invention, process, composition of matter, article of manufacture, know-how, design, model, technological development, strain, variety, culture of any organism, or portion, modification, translation, or extension of these items, and any mark used in connection with these items.

   (c) Instructional Technology Material includes motion pictures, film strips, photographic and other similar visual materials, live video and audio transmissions, computer programs, computer-assisted instructional course work, programmed exhibits, and combinations of the above materials, which were prepared or produced in whole or part by a graduate student, and which are used to assist or enhance instruction.

   (d) University Support includes the use of University funds, personnel, facilities, equipment, materials, or technological information, and includes such support provided by other public or private organizations when it is arranged, administered, and/or controlled by a University.

   (e) Student-generated Effort means that the ideas come from the graduate student alone outside the field or discipline for which the graduate student is employed by the University, the work was not made with the use of University support, and the University is not held responsible for any opinions expressed in the effort.

   (f) Research means the inquiry or examination in some field of knowledge undertaken to establish facts or principles that are true. Research, as used in this policy, does not include work done in an internship or coop setting where new knowledge in a field is not actively sought, but rather a setting that offers a real life experience for the graduate student.

3. **Work(s)**

   (a) Student-generated Effort - A work made solely by the graduate student, outside the field or discipline for which the graduate student is employed by the University, is the property of the graduate student, who has the right to determine the disposition of such work and the revenue derived from such work.

   (b) University-supported Efforts - If the work was not made solely in the course of student-generated efforts, the work is the property of the University, and the graduate student shall share in the proceeds therefrom.

   (c) Disclosure

   1. Upon creation of a work that is potentially patentable, and prior to any publication, the graduate student shall disclose to the Vice President for Research, or representative, any work made in the course of University-supported efforts, together with an outline of the project and the conditions under which it was done.

   2. The Vice President for Research, or representative, shall gather information to assess the relative equities of the graduate student and the University in the work.

   3. Within sixty days after such disclosure, the Vice President for Research, or representative, will inform the graduate student whether the University seeks an interest in the work.

   4. The graduate student and the University shall not commit any act which would tend to defeat the University’s or graduate student’s interest in the work and shall take any necessary steps to protect such interests.
4. Invention(s)

(a) Student-generated Efforts
All inventions made outside the field or discipline in which the graduate student is employed by the University and for which no University support has been used are the property of the graduate student.

(b) University-supported Efforts
An invention made in the field or discipline in which the graduate student is employed by the University, or receiving University support, is the property of the University and the graduate student shall share in the proceeds therefrom.

(c) Disclosure
1. A graduate student shall fully and completely disclose to the Vice President for Research, or representative, all inventions which the graduate student may develop or discover while a graduate student of the University, together with an outline of the conditions under which it was done. With respect to inventions made during the course of approved outside employment, the graduate student may delay such disclosure, when necessary to protect the outside employer's interest, until the decision has been made by the outside employer whether to seek a patent.

2. If the University wishes to assert its interest in the invention, the Vice President for Research, or representative, shall inform the graduate student within 120 days of the graduate student's disclosure.

3. The division of proceeds generated by the licensing or assignment of an invention, shall be according to the established royalty division set forth in the patent policy of the University, pp. 1461-2, paragraph (c).

4. The graduate student and the University shall not commit any act which would tend to defeat the University's or graduate student's interest in the invention and shall take any necessary steps to protect such interests.

5. Release of Rights
At any stage of making the patent applications, or in the commercial application of an invention, if it has not otherwise assigned to a third party the right to pursue its interests, the Vice President for Research, or representative, may elect to withdraw from further involvement in the protection or commercial application of the invention. At the request of the graduate student in such case, the University shall transfer the invention rights to the graduate student, in which case the invention shall be the graduate student's property, and none of the costs incurred by the University or on its behalf shall be assessed against the graduate student.

6. University Policy

(a) The University has a policy addressing the division of proceeds between graduate students and faculty when the research is done and results in a dissertation, Department of Education (6C7-2.029 Copyrights and Patents, pp. 1461 and 1462). The University also has a policy addressing the division of proceeds between faculty and the University. It is contained in the Patents and Copyrights Policy of the Office of Sponsored Research. This same division of royalties will apply in the disbursement of royalty income to graduate students, unless this has been negotiated in a contractual agreement at the start of research.

(b) All research done by graduate students enrolled at the University for and with companies must have a contractual agreement negotiated at the start of that research.

(c) The Graduate Studies Faculty and Staff Guide details when dissertation or thesis dissemination can be delayed because of patent concerns. This can only occur when a prior contractual agreement has been entered into including provisions for review and delay for dissertation purposes. (See "Proprietary and Confidential Information" in the University Graduate Regulations section.)
Division of
Student Development &
Enrollment Services

Student Development & Enrollment Services (SDES) refers collectively to the division and its many functional units responsible for the administration and management of programs, services, facilities and activities designed to support and complement the educational mission of the university while simultaneously improving the student's total collegiate experience. In partnership with other university divisions and the community, the division fosters a philosophy that promotes an optimal student learning environment.

The guiding purpose of SDES is to provide excellence in student services integral to the development of a meaningful collegiate experience.

Key values in the division's organizational identity are: caring, commitment, collaboration, honesty, inclusiveness, innovation, integrity, loyalty, operational excellence, respect and trust.

The division administers programs involving orientation, advisement and academic exploration, registration and admissions, financial assistance, multicultural services, personal counseling, housing, health services, career development and placement, student activities and organizations, veterans affairs and a variety of academic development and retention and other special programs. These responsibilities are integral to the mission of the university, addressing the immediate needs of students and faculty while responding to the concerns of other constituencies such as business and industry, parents, alumni, and other educational institutions.

While it is convenient to divide the university and division into units for operational effectiveness and efficiency, students are not so easily compartmentalized. The recognition that each student is a whole and unique person encompasses the basic philosophy of the Division of Student Development and Enrollment Services. Perhaps this philosophy is best reflected in the mission statement of the division:

"The Student Development and Enrollment Services Division provides services through activities, programs and opportunities that establish a meaningful collegiate student learning experience.

This will be developed through a productive work environment that recognizes employee's contributions and teamwork.

The primary activities, programs and opportunities of Student Development and Enrollment Services contribute to enrollment growth, campus life and academic development support services for a diverse and talented student population.

The composition of student services will be based on assessed needs, targeted populations and institutional priorities.

Collaboration and partnerships will be a cornerstone within the Student Development and Enrollment Services Division to ensure broad support and quality outcomes."

Office of the Dean of Students

The Office of the Dean of Students is the primary source for students seeking information on nonacademic areas of the university. Additionally, the Dean and the Associate Dean supervise the judicial affairs process and counsel students confronted with a variety of difficulties, referring students for specialized professional services as necessary. The Division of Student Development and Enrollment Services annually publishes the student handbook, The Golden Rule, which contains more detailed information on student life. Copies may be obtained in the SDES Suite, Room 282, Administration Building. Students are urged to take advantage of the many services and educational programs available through the Dean of Students Office and the Division of Student Development and Enrollment Services.

Student Government

Web address: http://pegasus.cc.ucf.edu/~sga

Student Government's purpose is representing student views on issues affecting UCF and promoting progressive changes to create improvements in campus life. In advocating better communication and understanding among the UCF family, Student Government also provides numerous services that enhance student life. These services currently include legal services, computer labs, discount tickets to movie theaters and theme parks, free local calling on campus telephones, vehicles for club and organization use, and funding for recreational services and Campus Activities Board programming. Money which Student Government allocates for these services comes from the Activity and Service Fees that students pay during registration.

Additionally, UCF clubs and organizations may receive funding for events, projects, and conventions from the Student Government Senate, SG's legislative body. Student Gov-
ernment also coordinates its efforts with the Florida Student Association in lobbying for students’ rights on the local, state, and national government levels.

Student Government’s structure is modeled closely after our federal government system in that there are three branches: Legislative, Judicial, and Executive. The Executive branch, composed of the Student Body President and Vice President and their cabinet and staff, oversees the daily administrative operation of Student Government. The Legislative branch funds campus clubs and organizations and also passes bills and resolutions that benefit the student body. The Judicial branch oversees hearings concerning student rights violations.

All students are encouraged to take an active role with UCF’s Student Government. For information on how to be involved with SG or how your club or organization can receive funding, please call the Student Government Association offices located in the Student Union at (407) 823-2191, or visit the SG website at http://pegasus.cc.ucf.edu/-sga.

Graduate Student Council

Web address: http://pegasus.cc.ucf.edu/-gsa/

Graduate students, regular and non-degree-seeking, belong to the Graduate Student Council upon enrollment at UCF. The Graduate Student Council was formed to provide a voice for graduate students on campus. The Council acts on behalf of all graduate students concerning issues that pertain to them. The Council provides information to new graduate students at college orientations. For more information about this organization, please call Graduate Studies (823-6432) or consult GSC’s website at http://pegasus.cc.ucf.edu/-gsa/.

Student Services

Student Legal Services

Student Resource Center, Room 155 • (407) 823-2538

Student Legal Services provides students with advice and consultation, including court representation, in selected areas of law such as landlord/tenant, consumer, simple wills, and noncriminal traffic. Each eligible student (an undergraduate or graduate enrolled at UCF) is entitled to consult with a Program Attorney about any legal matter not excluded by program guidelines, free of charge. Students in need of legal services should contact Student Legal Services at (407) 823-2538, or Student Resource Center, Room 155. This service is by appointment only. No legal advice is given over the phone.

University Counseling and Testing Center

Student Resource Center, Room 203 • (407) 823-2811

The University Counseling and Testing Center, located in the Student Resource Center, offers a professional staff of psychologists and counselors to assist students through educational, vocational, and career counseling; and personal, social, relationship, marriage, and family counseling.

The Center presents special programs throughout the year, including training in relaxation and coping skills, self-hypnosis training, stress reduction training, and group psychotherapy. All Center services are free to UCF students.

Career Resource Center - Career Planning and Placement

Student Resource Center, Room 185 • (407) 823-2361

KnightLink (24-hour jobline): (407) 823-6200

The Career Resource Center provides a broad range of career-related services to UCF students, alumni, and employers. The center runs five career expos and fairs, offers weekly career planning mini-classes, and hosts several hundred employer recruiting visits each year. To help students navigate the complexities of the job market, the center offers a database information management system which can refer their resumes to interested employers. Full-time and part-time jobs now are listed on a 24-hour telephone jobline called KnightLink (407-823-6200). An employer information library can provide needed information. Career Development Coordinators are available to assist with individual career needs.

Students just beginning studies at UCF are encouraged to begin thinking about careers as soon as possible. For more information, please visit the Center.

Housing

HAB 101 • (407) 823-4663

Regularly enrolled single students paying registration fees for a minimum of nine semester hours may apply for assignment to university residence, consisting of residence halls and apartment-style units. However, in the residence halls, priority is given to incoming freshmen, who occupy approximately 70 percent of the university’s housing capacity, and current residents, who occupy most of the university’s remaining spaces. Upper-level single students are given priority for assignment to the university’s on-campus apartment-style residential facilities on a space-available basis. There is no on-campus married student housing.

Off-Campus Housing

AD 282 • (407) 823-2821

As limited on-campus housing is available to graduate students, most graduate students live in apartments and condominiums located near campus. Rates average $400-$500 for a
one-bedroom apartment. The Graduate Student Handbook has more information concerning off-campus housing. Within a two-mile radius of the UCF campus, there are privately owned residence hall complexes and numerous apartment and duplex communities housing students attending the university. Sidewalks, bike paths, and LYNX bus service connect many of these facilities to the campus. Students living off campus are invited to participate in one of the university meal plans.

**Student Health Services**

Phone: (407) 823-2117

Recognizing the importance of life-style in health and the prevention of disease, Student Health Services (SHS) combines quality care for illness and accidents with an aggressive health education and life-style enhancement program. A Student Wellness Advocate Team (SWAT) enhances the health promotion efforts of the Wellness Center. The Student Health Advisory Committee (SHAC) serves as liaison representing students for health center programs and operation.

The Student Health Center (SHC) is staffed by physicians, advanced registered nurse practitioners, physician assistants, registered nurses, pharmacists, and a full complement of other medical support personnel. Full referral service to Orlando area specialists is established. The effort is always made to refer patients to providers who accept their insurance or meet their HMO requirements.

Each student who pays the UCF health fee is entitled to the benefits provided through the SHS and outlined in the SHS brochure. Copies of the brochure are available in the SHC and are mailed to students along with the optional health and accident insurance materials.

Office consultations and most SHS programs are provided without additional costs. Laboratory tests, x-rays, medications, and some supplies require additional but significantly reduced payments, which may be made with cash, credit card, personal check, or charged to the student’s account.

Optional Health and Accident Insurance may also be purchased by response to the mailers or by contacting the Division of Student Development and Enrollment Services or Student Government. Please remember that optional health and accident insurance is not part of the SHS program, but is designed to provide for health coverage needs which are beyond the scope of the SHS, such as hospital referrals. Charges incurred outside the SHC are the responsibility of the student. Arrangements for highly confidential AIDS testing on campus may be made by calling the HIV AIDS Education office at UCF-AIDS (407-826-2437) or Health Resource Center (407-823-5841).

When the SHC is not open, students can call the Police Department to obtain help for urgent needs.

By Board of Regents regulation, each student must demonstrate Rubella and Rubeola immunity prior to registration. Immunizations are made available within limited hours during orientations to help those who have been unable to receive immunization prior to that time.

Blood drives are held several times annually on campus by the Central Florida Blood Bank. Students, faculty, staff, and family members are eligible for credits from the blood bank simply by identification and demonstrated need, even if they have not donated blood. Contact the Nurse Supervisor at (407) 823-5275 to make arrangements.

**Student Union**

Phone: (407) 823-2117

The UCF Student Union is the center of student life on campus. The Student Union serves the entire campus community with a wide variety of programs, services, and facilities including restaurants, shops, a pub and game room, computer lab, meeting rooms, and student offices. The building is open seven days a week when school is in regular session. The Student Union is partially funded through Activity and Service fees allocated by the Student Government.

Reservations for space in the Student Union can be made at the Student Union information desk, or by calling 823-0001. Student Union administrative offices are located in the Student Union, Room 312.

**Office of Student Activities**

Student Union, Room 208 • (407) 823-6471

Web address: http://pegasus.cc.ucf.edu/~osa

The Office of Student Activities provides programs, resources, and services that enhance student life at the University of Central Florida. The Office of Student Activities registers over 200 student organizations and advises the Campus Activities Board (CAB), the Consultants for Effective Leadership (CEL), Volunteer UCF, Diversity Dialogue Consultants, and Leadership Services. Other programs and services sponsored through this office include the Knights of the Roundtable and Family Weekend. For further information regarding student activities, call (407) 823-6471 or visit the Office of Student Activities, Student Union, Room 208, or visit the office’s website.

**Recreational Services**

Located next to the UCF pool • (407) 823-2408

The Office of Recreational Services offers a variety of sports and recreational opportunities to the students of UCF and their immediate families and the UCF faculty, staff, and Central Florida Research Park recreational members. Recreation memberships may be purchased by the semester or for the year.

These opportunities include intramural sports leagues and tournaments, organized recreation and fitness programs, unstructured open recreation, sports-related special events, and racquet stringing. Students may check out equipment for use on and off campus.
Office of Student Development & Enrollment Services

Multicultural Student Services

Associate Director: Inez M. Ford, AD 145, (407) 823-2716

The office of Multicultural Student Services (MSS) provides comprehensive academic support, cultural enrichment, consultation, and referral services that promote the recruitment, admission, retention, and graduation of African-American, Hispanic American, Asian-American, and Native American students. MSS offers personalized advising and support, monitors academic progress, and designs and coordinates cultural and social activities to assist multicultural students in realizing their academic, career, and personal goals. MSS serves as the focal point of operations in addressing the specific needs, issues, and concerns that confront students of color at UCF.

Student Disability Services

AD 149, P.O. Box 160161, Orlando, FL 32816-0161; (407) 823-2371

Student Disability Services provides information and orientation to campus facilities and services, assistance with classroom accommodations, assistance with course registration, disabled parking decals, counseling, and referral to campus and community services for students with disabilities. Services are available to students whose disabilities include, but are not limited to, hearing impairment, manual dexterity impairment, mobility impairment, specific learning disability (such as dyslexia), speech impairment, visual impairment, or other disabilities which require administrative or academic adjustments.

Students who have a disability that may require special assistance are requested to voluntarily contact the Office of Student Disability Services. All information is confidential and will be used only to assist the student.

Information and assistance are available for faculty members working with students who have disabilities.

A Telecommunication Device for the Deaf (TDD) is available for hearing-impaired or speech-impaired persons with TDD's to contact the university. Telephone (407) 823-2116, for TDD calls ONLY.

Creative School for Children

Phone: (407) 823-2726

The Creative School for Children (Educational Research Center for Child Development) provides an educational program, including kindergarten and first grade, for children two through seven years old. The daily program is planned and conducted by degreed teachers. The program provides 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. Experiences in observation and training in academic areas are made available to university students. Opportunities for educational research are available to university fac-
Office of Veterans’ Affairs

Student Resource Center, Room 132  •  (407) 823-2707

The Office of Veterans’ Affairs (OVA) is a center for all veterans and eligible dependents, including students who are using VA educational benefits to further their education. The office has a professional staff augmented by student veterans to assist in providing information concerning entitlement, filing claims to the Department of Veterans Affairs (DVA), and certifying enrollment at the university. The office also provides counseling for personal and academic concerns, tutorial assistance, and referral to various community agencies. Veterans and eligible dependents must be certified through the Office of Veterans’ Affairs to receive DVA educational benefits. The office monitors the academic progress of all those receiving DVA educational benefits.

All veterans and dependents are urged to contact the office at an early stage in the process of applying for admission, especially post-baccalaureate students and students pursuing a Florida Teachers Certification.

Veterans’ Benefits

Veteran and dependents eligible to receive VA benefits must make initial contact with the Veterans Certification Office. To maintain eligibility for DVA education benefits, students must adhere to the policies and procedures contained in the UCF “Student Veteran Handbook” and DVA rules and regulations. A copy of the “Student Veteran Handbook” can be obtained at the Office of Veterans’ Affairs.

The OVA evaluates and awards transfer credit for military training and education in accordance with Department of Veterans Affairs regulations and UCF policies. Credit is awarded for schools and courses only. Transfer credit is not awarded for experience, military skills level, and/or special certifications. In addition, no credit is awarded for Basic Military Training. Transfer credit is awarded per the recommendations of the ACE (American Council on Education) guide, based upon courses and/or training listed on the DD Form 214 or other official military records. U.S. Air Force veterans are asked to provide official copies of Community College of the Air Force transcripts to the Admissions office.

Students eligible for DVA education benefits may also be eligible for a VA Deferral of Tuition and Fees. The VA Deferral due date is published in the Class Schedule each semester. Students eligible for financial aid adequate to cover tuition and fees are not eligible for this deferment.

Veterans, Reserve, and National Guard members and eligible dependents who are graduate or post-baccalaureate students (including those pursuing the Florida Teaching Certificate) are required to carry 6 semester hours in courses numbered 5000 and above for full-time benefits; 4-5 semester hours in courses numbered 5000 and above for half-time benefits. Students pursuing course work in a post-baccalaureate status can only receive benefits for courses that will be accepted for transfer into a graduate program when they are given graduate status (normally 9 semester hours).

Graduate and post-baccalaureate students may take undergraduate courses, if a required part of the program of study, but must take at least one graduate-level course (5000 level or above) to be paid at the above rate. Students who are taking only undergraduate-level courses must carry at least 12 semester hours for full-time benefits; 9-11 semester hours for three-quarter time benefits; and 6-8 semester hours for half-time benefits. Five (5) semester hours or less will be reimbursed at the cost of tuition and fees or quarter-time depending on the DVA education benefit program. Note that a different method is used to compute training time for the summer semester. Contact the Office of Veterans’ Affairs for clarification and guidance.

In order to receive veterans’ educational benefits, students must maintain satisfactory academic progress and conduct. Accordingly, benefits will be terminated for individuals who are disqualified, excluded, suspended or expelled from the university. If reinstated by the university and college of major following disqualification, exclusion, suspension, or expulsion, the veteran or eligible dependent must contact the Office of Veterans’ Affairs to have their DVA educational benefits restarted. Graduate students will continue to receive education benefits as long as the GPA earned each semester meets the college of major requirement (normally a 3.0). Students who fail to maintain graduate standing and are reverted to post-baccalaureate status can only be certified for courses required by the program and needed to matriculate.

University Ombuds Office

AD 338F, (407) 823-6440

The Office of the Ombuds Officer provides members of the university community assistance and advice regarding concerns related to the university. These services are available to every member of the university community—students, staff, faculty, and others. Any type of concern may be brought to the attention of this office: academic, financial, housing, consumer, work-related, or personal. The University Ombuds Officer is a neutral facilitator and will listen to your concern, help you explore options, offer suggestions and advice, and assist in the resolution of your concern. Referral and direction to appropriate individuals and offices, and clarification of university policies and procedures are services of the office. All proceedings in individual cases will be held confidential by the Ombuds Officer unless otherwise authorized by the complainant, or otherwise required by applicable law, including without limitation, Chapter 119, Florida Statutes.

The University Ombuds Officer is located in the Administration Building, Room 338F. Appointments may be made by calling 823-6440.
UCF Alumni Association

Administration Building, Room 340, (407) UCF-ALUM

The University of Central Florida Alumni Association was developed to maintain awareness and support of the university by our alumni. Membership is open to all alumni and friends of the university. Membership in the Alumni Association provides many benefits, including:

- Subscription to Pegasus, the Alumni Association’s award-winning magazine that keeps you up-to-date on university and alumni happenings
- Career resources and placement opportunities available nationwide
- Discounts on hotels, rental cars, theme parks, and more
- Free borrowing at the UCF Library (main branch)
- 15% discount on UCF logo items at local merchants, including the UCF Bookstore
- Free or discounted admission at Association-sponsored alumni events
- Personal and professional networking opportunities
- Plus more than 40 other benefits and services available only to dues-paying members of the UCF Alumni Association!

In addition, the Alumni Association provides over $40,000 each year in scholarships to UCF students.

For more information on becoming a member of your UCF Alumni Association or to find out about our scholarships, contact the Alumni Association at (407) UCF-ALUM or stop by Administration 340. (For unique activities to take part in while a student at UCF, ask for information about joining the Student Alumni Association.)

University of Central Florida Foundation, Inc.

Phone: (407) 249-4740

The UCF Foundation, Inc. is a nonprofit, tax-exempt corporation directed by a sixty-member community-based Board of Directors that encourages, solicits, receives, and administers private gifts and bequests of property and funds for scientific, educational, and charitable purposes. All gifts to UCF are received and processed through the Foundation for support of the university.

University Bookstore

P.O. Box 16244, Orlando, FL 32816-2444; (407) 823-2665

The University Bookstore is operated under a contractual agreement with Barnes and Noble. The University Bookstore is located in the Student Services Building and is open to the public. In addition to textbooks and school supplies, this facility offers a complete line of UCF insignia clothing and gift items. The UCF Graduate Catalog is available at the Bookstore. It costs $3.00 at the store or $6.00 if it is mailed.

Campus Security Information and Reports

Police Department, UCF, P.O. Box 163550, Orlando, FL 32816-3550; (407) 823-5555

The UCF Police Department is a full-service law enforcement agency. The Patrol Division consists of police officers providing police services twenty-four hours a day, seven days a week. The officers patrol the campus on foot and in marked patrol cars. They are supplemented by additional police officers patrolling on mountain bikes and motorcycles.

The Investigations Unit consists of detectives that investigate all unsolved criminal cases. The Crime Prevention Unit presents Crime Prevention seminars for property protection and personal safety for the community. The Community-Oriented Policing program (COP) consists of five officers assigned to the UCF Housing areas. These officers work closely with the residents and housing staff in a “partnership” to reduce crimes in these areas. The Student Escort Patrol Service (SEPS) is an evening escort service for all individuals on campus. The Victim Services Unit helps victims with emotional support and practical assistance, informational and referrals, and also provides educational services.


For general, nonemergency police information, call (407) 823-5555.
For emergency fire, medical, or police response, call 911.
Crime Prevention Unit—(407) 823-2165
Student Escort Patrol Service (SEPS)—(407) 823-2424
Victim Services Unit—(407) 823-6332 or (407) 823-6069
Interdisciplinary Graduate Studies

The University of Central Florida strives to promote interdisciplinary cooperation across all aspects of the institution in order to create new and innovative partnerships that effectively respond to societal needs and appropriately prepare graduate students for a dynamic work environment. Currently, interdisciplinary graduate studies are offered in optics, gender studies, gerontology, and Maya studies.

School of Optics

The School of Optics offers a graduate program in optics, photonics, and laser education and research. It is one of only three independent optics academic departments in the nation. The School of Optics offers interdisciplinary graduate programs leading to master's and doctoral degrees in optics. The Center for Research and Education in Optics and Lasers (CREOL) is integrated in the school as its research arm. The School of Optics and faculty are the primary resources for the optical physics option in the M.S. and Ph.D. program in Physics and the electro-optics option in the M.S. and Ph.D. programs in Electrical Engineering. These two option programs are offered in partnership with academic departments. The faculty also actively participate in undergraduate and graduate teaching in the Physics, Electrical and Computer Engineering (ECE), Mechanical, Materials, and Aerospace Engineering (MMAE), and Chemistry Departments.

For more information about graduate programs in optics, refer to the School of Optics section of this catalog. For additional description of the Center for Research and Education in Optics and Lasers, see the "Research Opportunities" chapter in this catalog.

Women's Studies Program

In coordination with the Department of Sociology and Anthropology and the Department of English, the Women's Studies Program offers an interdisciplinary graduate certificate program in gender studies. This program provides a foundation in feminist theory and research focusing on the study of gender as a demographic and social variable affecting systems of meaning and the formation of social institutions. The program is open to both degree-seeking and non-degree-seeking graduate students. Most courses are offered at times that will accommodate part-time and working students.

Gender Studies Faculty
Program Coordinator: Shelley M. Park, FA201H, (407) 823-2269.
E-mail: spark@pegasus.cc.ucf.edu

Gender studies faculty are affiliated with the Women's Studies Program and include faculty in Art, English, History, Philosophy, Psychology, Political Science, Sociology and Anthropology, and Women's Studies. For a full list of affiliated faculty, visit the website for the Women's Studies Program at http://pegasus.cc.ucf.edu/~womenst.

Graduate Certificate in Gender Studies
The graduate certificate in gender studies requires 15 semester hours at the graduate level, including courses from both the humanities and the social sciences. Admission is through application to Graduate Studies for admission to a certificate program. For details of the program, please refer to the program description in the College of Arts and Sciences section of this catalog.

Gerontology

In recognition of the special needs of elderly citizens, the University of Central Florida offers an interdisciplinary program leading to a Graduate Certificate in Gerontology. The Graduate Certificate in Gerontology is administered by the School of Social Work.

The program may be of particular interest to people presently employed in the aging field who have a baccalaureate or higher degree and who wish to increase their knowledge of gerontology. Graduate students who are enrolled in health sciences, psychology, social work, nursing, communicative disorders, or sociology, as well as in other areas, such as liberal arts, music education, physical education, or art education, may also find the certificate valuable.

Gerontology Faculty
Graduate Program Coordinator: Margaret Sauer, M.S.W., School of Social Work, HPA 204, (407) 823-2114.
E-mail: msauer@mail.ucf.edu
Web address: www.cohpa.ucf.edu/gerontology/
Phone: (407) 823-2215
Fax: (407) 823-5697

Gerontology faculty specialize in this field and are from the Department of Social Work in the College of Health and Public Affairs.
Graduate Certificate in Gerontology
The graduate certificate in gerontology requires 12 semester hours (4 courses) at the graduate level. Admission is through application to Graduate Studies for admission to a certificate program. For the details of the program, please refer to the program description in the College of Health and Public Affairs section of this catalog.

Maya Studies
Maya studies focuses on an area of growing local, national, and international concern—the ancient and contemporary peoples of Mexico, Guatemala, and Belize. The program is interdisciplinary with cognate offerings from History, Political Science, and Spanish. The program is further strengthened by a community partnership with the Orlando Museum of Art. The Maya Studies Graduate Certificate Program provides detailed and specialized knowledge of the ancient and contemporary Maya through a series of well-integrated courses.

Maya Studies Faculty
Graduate Program Coordinators: Diane Chase, HFA 406F, (407) 823-2227, Fax (407) 823-3026. E-mail: chase@mail.ucf.edu
Jay Corzine, HFA 402, (407) 823-2227, Fax (407) 823-3026. E-mail: hcorzine@pegasus.cc.ucf.edu
Web address: http://www.caracol.org/maya_certificate.htm

Arlen F. Chase, Ph.D., Professor of Anthropology
Diane Z. Chase, Ph.D., Professor of Anthropology
Marcela Del-Rio, Ph.D., Associate Professor of Foreign Languages and Literatures
Jose Fernandez, Ph.D., Professor of Foreign Languages and Literatures, Professor of History, and Interim Associate Dean of the College of Arts and Sciences
Waltraud Morales, Ph.D., Professor of Political Science
Allyn Stearman, Ph.D., Professor of Anthropology and Dean of the Honors College
Diana Velez, Ph.D., Assistant Professor of History
Bruce Wilson, Ph.D., Assistant Professor of Political Science
Elayne Zorn, Ph.D., Assistant Professor of Anthropology
Andrea Kalis, M.A., Curator, Orlando Museum of Art

Graduate Certificate in Maya Studies
The graduate certificate in Maya studies requires 15 semester hours (5 courses) at the graduate level. Admission is through application to Graduate Studies for admission to a certificate program. For details of the program, please refer to the program description in the College of Arts and Sciences section of this catalog.

Teaching English to Speakers of Other Languages
Graduate Program Coordinator: Consuela Stebbins, HFA 523, (407) 823-0087. E-mail: stebbins@pegasus.cc.ucf.edu

The College of Arts and Sciences and the College of Education offer an interdisciplinary master's degree in Teaching English to Speakers of Other Languages (TESOL). This program provides a strong foundation in language acquisition, use, and pedagogy. The curriculum incorporates the five required courses for the ESOL Endorsement and offers electives in applied linguistics, research, and multicultural education. Graduate students also expand their knowledge of technology by utilizing the multimedia language classroom equipped with the latest software programs for second language learners.

For more information about the graduate program in TESOL, refer to the program description provided by the Department of Foreign Languages and Literatures in the College of Arts and Sciences section of this catalog.
College of Arts & Sciences

The College of Arts and Sciences consists of seventeen academic departments, thirteen of which offer graduate degrees: Biology, Chemistry, Communication, Computer Science, English, Foreign Languages and Literatures, History, Mathematics, Physics, Political Science, Psychology, Sociology and Anthropology, and Statistics. The specific programs for the various degrees are listed below.

College Administration

K. L. Seidel, Dean
B. B. Morgan, Jr., Associate Dean
T. Frederick, Interim Associate Dean
H. Sweet, Associate Dean
J. Fernández, Interim Associate Dean
L. Brodie, Assistant Dean

Advisement

The Graduate Studies Office in the College of Arts and Sciences assists students in matters concerning college and university requirements and procedures. Admission materials, acceptance notification, program of study, graduate committee memberships, thesis and dissertation approvals, fellowship and financial aid information, waiver and petition forms, graduation certifications, etc., are processed through this office for all graduate students in the college. Questions concerning university and college graduate policies affecting Arts and Sciences majors should be directed to the Graduate Studies Office in CAS 190K or by calling (407) 823-5167.

Programs

Doctor of Philosophy
  Computer Science
  Mathematics
  Physics
    Optical Physics Track
  Psychology
    Clinical and Human Factors Tracks

Master of Science
  Biology
  Chemistry, Industrial
  Forensic Science Track
  Computer Science
  Mathematical Science

PhD Programs
  Optical Physics Track
  Psychology, Clinical and Industrial/Organizational
  Statistical Computing

Master of Arts
  Communication
  English
    Creative Writing, Literature, and Technical Writing Tracks
  History
  Political Science
    Political Analysis and Public Policy Tracks
  Psychology, Clinical
  Sociology, Applied
  Spanish
  Teaching English to Speakers of Other Languages (TESOL)

Graduate Certificate
  Domestic Violence
  Gender Studies
  Maya Studies
  Professional Writing

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 admissions consideration in all graduate programs.

Each department is headed by a chair who reports to the dean of the college. A graduate program coordinator within each department is designated for each graduate program and can provide advice on questions about admission and degree requirements. Consult the individual degree program listings for detailed descriptions of requirements and courses.

Course Descriptions

The "Course Descriptions" section at the back of the catalog describes Florida's Statewide Course Numbering System. Graduate courses in directed/individual research, special topics, and thesis/dissertation preparation are listed under "Special Courses" on page 214. Other graduate courses are listed alphabetically by course prefix beginning on page 219.
Interdisciplinary Studies

The College of Arts and Sciences offers two interdisciplinary graduate certificate programs in Gender Studies and Maya Studies.

Graduate Certificate in Gender Studies

Graduate Program Coordinator: Shelley M. Park, HFA 201H, (407) 823-2269. E-mail: spark@pegasus.cc.ucf.edu

Gender Studies Faculty
Gender Studies Faculty are affiliated with the Women's Studies Program and include faculty in Art, English, History, Philosophy, Psychology, Political Science, Sociology and Anthropology, and Women's Studies. For a full list of affiliated faculty, visit the website for the Women's Studies Program at http://pegasus.cc.ucf.edu/~womenst.

Certificate Program

Gender Studies is an interdisciplinary graduate certificate program administered by the Women's Studies Program in coordination with the Department of Sociology and Anthropology and the Department of English. This program provides a foundation in feminist theory and research focusing on the study of gender as a demographic and social variable affecting systems of meaning and the formation of social institutions. The program is open to both degree-seeking and non-degree-seeking graduate students. Most courses are offered at times that will accommodate part-time and working students.

Certificate Requirements

The graduate certificate in Gender Studies requires 15 semester hours at the graduate level, including courses from both the humanities and the social sciences. Students may include only 3 hours (one course) from those marked with an asterisk toward meeting the certificate requirements. Other courses may be approved as meeting requirements as new courses are added to the curriculum. Please check with the graduate program coordinator.

Required Course—3 Semester Hours

WST 5XXX Research Seminar in Gender Studies (3 hours)

Humanities—6 Semester Hours

AMH 5478 Colloquium: Women in American History (3 hours)
ARH 5478 Contemporary Women Artists (3 hours)
CRW 5XXX Studies in Gender and Fiction Writing (3 hours)
ENC 5XXX Gendered Rhetoric (3 hours)
*EUH 5937 Social Theory and Social History (3 hours)
*LIT 5097 Studies in Contemporary Fiction (3 hours)
LIT 5XXX Gender and the Medieval Text (3 hours)
LIT 5XXX Captives, Housewives, and Coquettes (3 hours)
LIT 5XXX Advanced Feminist Theories (3 hours)

Social Sciences—6 Semester Hours

CLP 6459C Sexuality, Marriage and Family (3 hours)
POS 6324 Women and Public Policy (3 hours)
SOW 5625 Social Work with Women (3 hours)
SYD 5562 Seminar on Domestic Violence (3 hours)
SYD 5653 Reactions to Domestic Violence (3 hours)
*SYD 5655 Elder Abuse and Neglect (3 hours)
*SYD 6561 Child Abuse in Society (3 hours)
SYD 6XXX Seminar: Gender Issues (3 hours)

Minimum Hours Required for the Certificate—15 Semester Hours

* Students may include only three hours from those courses marked with an asterisk toward meeting the certificate requirements.

Note: Enrollment in EUH 5937, CLP 6459C, and SOW 5625 may be restricted. Please check with the instructor prior to registration.

Graduate Certificate in Maya Studies

Graduate Program Coordinators: Diane Chase, HFA 406F, (407) 823-2227, Fax (407) 823-3026. E-mail: chase@mail.ucf.edu
Jay Corzine, HFA 402, (407) 823-2227, Fax (407) 823-3026. E-mail: hcorzine@pegasus.cc.ucf.edu
Web address: http://www.caracol.org/maya_certificate.htm

Maya Studies Faculty

Arlen F. Chase, Ph.D., Professor of Anthropology
Diane Z. Chase, Ph.D., Professor of Anthropology
Marcela Del-Rio, Ph.D., Associate Professor of Foreign Languages and Literatures
Jose Fernandez, Ph.D., Professor of Foreign Languages and Literatures, Professor of History, and Interim Associate Dean of the College of Arts and Sciences
Waltraud Morales, Ph.D., Professor of Political Science
Allynn Stearman, Ph.D., Professor of Anthropology and Dean of the Honors College
Diana Velez, Ph.D., Assistant Professor of History
Bruce Wilson, Ph.D., Assistant Professor of Political Science
Elayne Zorn, Ph.D., Assistant Professor of Anthropology
Andrea Kalis, M.A., Curator, Orlando Museum of Art

Certificate Program

The certificate program in Maya Studies focuses on an area of growing local, national, and international concern—the ancient and contemporary peoples of Mexico, Guatemala, and Belize. The program is interdisciplinary with cognate offerings from History, Political Science, and Spanish. The program is further strengthened by a community partnership with the Orlando Museum of Art. The Maya Studies Graduate Certificate Program provides detailed and specialized knowledge of the ancient and contemporary Maya through a series of well-integrated courses. Admission is through application to Graduate Studies for admission to a certificate program.
UCF students and faculty uncover Maya artifacts in the Temple of the Wooden Lintel at Caracol, Belize.

Below: Excavation of a 7th century royal Maya tomb at Caracol, Belize.
Certificate Requirements

The Certificate Program in Maya Studies requires five courses (15 hours) at the graduate level. Students must take two core (required) courses and three additional courses selected from a pool of 7 elective courses. Before taking an elective course, students must have taken at least one of the required courses or must have the instructor’s consent to take the elective course.

Required Courses—6 Semester Hours
ANT 5XXX The Ancient Maya (3 hours)
ANT 5XXX Contemporary Maya (3 hours)

Elective Courses—9 Semester Hours
ANT 5XXX Maya Hieroglyphs (3 hours)
ANT 5XXX Problems in Maya Studies (3 hours)
ANT 5XXX Field Research in Maya Studies (3 hours)
ANT 5XXX Maya Iconography (3 hours)
LAH 5937 Latin America’s Colonial Legacy: The Maya (3 hours)
CPO 5XXX Contemporary Politics in the Maya Region (3 hours)
SPW 5XXX Modern Maya Literature (3 hours)

Minimum Hours Required for Certificate—15 Semester Hours

Biology

Chair of the Department: D. H. Vickers
Graduate Program Coordinator: D. T. Kuhn, BIO 110, (407) 823-2141.
E-mail: dkuhn@pegasus.cc.ucf.edu

Faculty
Professors Emeritus: L. L. Ellis, Ph.D.; J. L. Kooevenig, Ph.D.
H. C. Sweet, Ph.D.; W. K. Taylor, Ph.D.; H. O. Whittier, Ph.D.
Associate Professors: D. H. Vickers, Ph.D.
Assistant Professors: C. A. Bayer, Ph.D.; Research; G. A. Lindbeck, Ph.D.; L. D. Rea, Ph.D.; L. H. von Kalm, Ph.D.;
L. J. Walters, Ph.D.; J. F. Weishampel, Ph.D.

Master of Science in Biology

Application Deadlines
Fall admission March 1
Spring admission October 15

Admission

The deadline for application material for fall semester is March 1st with notification in April. The application deadline for spring semester is October 15th.

The Graduate Record Examination (GRE) is required of all graduate students. Entering and exiting graduate students are required to take the Biology Field Test, which will be administered on the UCF campus. Minimal requirements for consideration for graduate status in either of the M.S. options in Biology are a grade point average (GPA) of at least 3.0 for the last 60 attempted semester hours of undergraduate study and a score of at least 1000 on the combined quantitative-verbal sections of the GRE. In addition, the department requires three letters of recommendation and a written statement of past experience and research, area of interest, and immediate and long-range goals. Personal interviews are strongly encouraged but not required. The department requires international students and students whose native language is not English to have a minimum score of 230 (computer-based test) or 573 (paper-based test) on the Test of English as a Foreign Language (TOEFL).

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 five years be accepted.

Applicants must have an undergraduate degree in a biological science but are expected to have 18 hours of biological sciences; organic chemistry with laboratory; and a course in calculus and statistics. After acceptance, minor deficiencies must be remedied by enrollment in the appropriate course at the first opportunity. Students receiving teaching or research assistantships are expected to maintain a minimum of 6 semester hours of approved graduate credit every term for departmental support.

Examinations

A comprehensive examination is required of all students in the program. The comprehensive exam must be taken no later than the semester preceding that of thesis defense. If a student fails the comprehensive examination, a minimum of four weeks must elapse before reexamination. The comprehensive exam may be taken a maximum of two times. In addition, an oral thesis defense is required in the thesis option. A minimum of four weeks must elapse between the comprehensive and thesis defense examinations.

Programs in Biology

The Master of Science degree in Biology is offered with the following areas of specialization: biology, botany, cell biology, development, genetics, limnology, conservation biology, and zoology. There are two options available: (1) a thesis option which includes a minimum of 30 semester hours of courses; and (2) a non-thesis option which includes a minimum of 40 semester hours of courses.
Degree Requirements

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

Group A—12-14 Semester Hours
(one course in three of the five areas)
1. PCB 6046C Advanced Ecology (5 hours)
2. PCB 6675C Evolutionary Biology (4 hours)
3. PCB 6585C Advanced Genetics (5 hours)
4. PCB 6721 Comparative Animal Physiology (3 hours) OR PCB 6365 Environmental Physiology (3 hours)
5. PCB 5107C Advanced Cell Biology (4 hours) OR PCB 5256C Advanced Developmental Biology (4 hours)

Group B—8 Semester Hours
(b both courses)
BSC 6938 Biology Seminar (2 hours)
BSC 6971 Thesis (6 hours)

Group C—6-10 Semester Hours
Restricted electives acceptable to the student’s graduate advisory committee.

Minimum Hours Required for M.S.—30 Semester Hours

Non-Thesis Option
A student selecting the biology non-thesis option will take the following courses:

Group A—12-14 Semester Hours
(one course in three of the five areas)
1. PCB 6046C Advanced Ecology (5 hours)
2. PCB 6675C Evolutionary Biology (4 hours)
3. PCB 6585C Advanced Genetics (5 hours)
4. PCB 6721 Comparative Animal Physiology (3 hours) OR PCB 6365 Environmental Physiology (3 hours)
5. PCB 5107C Advanced Cell Biology (4 hours) OR PCB 5256C Advanced Developmental Biology (4 hours)

Group B—4 Semester Hours
(b both courses)
BSC 6909 Research Report (2 hours)
BSC 6938 Biology Seminar (2 hours)

Group C—22-24 Semester Hours
Restricted electives acceptable to the student’s graduate advisory committee.

Minimum Hours Required for Non-Thesis M.S.—40 Semester Hours

Chemistry

Chair of the Department: G. N. Cunningham
Web address: http://www.cas.ucf.edu/chemistry/
Industrial Chemistry Graduate Program Coordinator: D. Howard Miles, Ph.D., CH 117, (407) 823-2246.
E-mail: hmiles@pegasus.cc.ucf.edu
Forensic Science Graduate Track Coordinator: Jack Ballantyne, Ph.D., CH 223, (407) 823-0163. E-mail: jballant@pegasus.cc.ucf.edu
Web address: http://reach.ucf.edu/~forensic

Faculty
Professors: C. A. Clausen, Ph.D.; G. N. Cunningham, Ph.D.; B. G. Fookes, Ph.D.; F. E. Juge, Ph.D., Associate Vice President; B. C. Madsen, Ph.D.; W. W. McGee, Ph.D.; D. H. Miles, Ph.D.; W. J. Tilstone, Ph.D.; R. Y. Ting, Ph.D.
Associate Professors: J. Ballantyne, Ph.D.; K. D. Belfield, Ph.D.; K. A. Cerqua-Richardson, Ph.D.; S. R. Elsheimer, Ph.D.; M. D. Hampton, Ph.D.
Assistant Professors: C. L. Geiger, Ph.D.; H. Matsui, Ph.D.; O. Phanstiel IV, Ph.D.; H. L. Price, Ph.D.

Master of Science in Industrial Chemistry

The Department of Chemistry offers a master’s program in Industrial Chemistry and a track in Forensic Science.

Application Deadlines
Fall admission July 15
Spring admission December 1
Summer admission April 15

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 attempted 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. The department requires international students and students whose native language is not English to have a minimum score of 173 (computer-based test) or 500 (paper-based test) on the Test of English as a Foreign Language (TOEFL). In addition, the departmental evaluation requires two letters of recommendation. Proficiency examinations are given to all incoming graduate students. The results of these exams are used in planning the student’s program of study. Deficiencies may require remedial course work.
One of the newer buildings on campus, the Computer Science Building is home to the super computer (shown below). Under the direction of Dr. Narsighn Deo, computer science graduate students step outside the classroom for hands-on experience.
Industrial Chemistry Program

The Master of Science degree at the University of Central Florida is aimed at preparing students for careers in the chemical industry. The curriculum for the industrial chemistry program 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.

Degree Requirements for Industrial Chemistry Program

Required Core Courses—12 Semester Hours
- CHM 6440 Kinetics and Catalysis (2 hours)
- CHM 6710 Applied Analytical Chemistry (2 hours)
- CHM 6938 Graduate Seminar (2 hours)
- CHS 6240 Chemical Thermodynamics (2 hours)
- CHS 6251 Applied Organic Synthesis (2 hours)
- CHS 6260 Chemical Unit Operations and Separations (2 hours)

Electives for Industrial Chemistry—12 Semester Hours
At least 9 of the total 12 semester hours must be taken from the following list (All elective courses must be approved by the student’s advisory committee):
- CHM 5225 Advanced Organic Chemistry (3 hours)
- CHM 5235 Applied Molecular Spectroscopy (3 hours)
- CHM 5305 Applied Biological Chemistry (3 hours)
- CHM 5450 Polymer Chemistry (3 hours)
- CHM 5451L Polymer Chemistry Lab (2 hours)
- CHM 5580 Advanced Physical Chemistry (3 hours)
- CHM 5711 The Chemistry of Materials (2 hours)
- CHS 5262 Industrial Chemical Processes (2 hours)
- CHS 6261 Chemical Process and Product Development (2 hours)
- CHM/CHS Special topics courses

Thesis (CHM 6971)—6 Semester Hours

Examination Requirements
Satisfactory completion of a final examination (oral defense of thesis) is required.

Forensic Science Track

A track in Forensic Science is provided to practicing professionals and full-time students who desire an advanced program of study in the forensic analysis of biological materials. The Forensic Science Track has a strong biochemistry-DNA focus to serve the needs of supervisory personnel in DNA sections of crime laboratories. The DNA Advisory Board has mandated that such personnel have advanced degrees.

The forensic science core courses are unique and were designed by practicing professionals for presentation as distributed learning courses using the World Wide Web. For more information, visit the Forensic Science Track website at: http://reach.ucf.edu/~forensic.

Degree Requirements for Forensic Science Track

Required Core Courses—12 Semester Hours
These courses are web-based with the exception of CHS 6535L and CHM 6938, which require approximately two weeks of on-campus residency at UCF.
- CHS 5262 Quality Assurance and Bioinformation (3 hours)
- CHS 6535 Forensic Analysis of Biological Materials (2 hours)
- CHS 6535L Forensic Analysis of Biological Materials Lab (3 hours)
- CHS 6536 Forensic Analysis of DNA Data (2 hours)
- CHM 6937 Special Topics (2 hours)

Required Foundation Core Courses—12 Semester Hours*
These courses are offered at UCF. Working professionals taking the program part-time may, after checking with a program adviser, take these courses at a nearby university.
- Category 1—Crime - Criminal Justice Courses** (3 hours)
- Category 2—Forensic Data Analysis - Statistics/Experimental Design** (3 hours)
- Category 3—Biological Chemistry - Biochemistry/Laboratory** (3 hours)
- Category 4—Chemistry - Molecular Spectroscopy/Applied Biological Chemistry/Polymer Chemistry** (3 hours)

* Minimum number of hours needed to satisfy degree requirement. Students must take one advanced level (4000/5000) course in each of the four categories. Courses taken will be selected in conjunction with the Advisory Board.

** Students must satisfy prerequisite course requirements before taking foundation core courses. Consultation with an assigned faculty adviser should occur before registering for foundation core courses.

Directed Research (CHS 6918)—6 Semester Hours
A research project will be selected in conjunction with the student's advisory committee.

Minimum Hours Required for M.S.—30 Semester Hours
Nicholson School of Communication

Director of the School: M. D. Meeske
Graduate Program Coordinator: B. Pryor, COMM 248, (407) 823-5670 or 823-2681. E-mail: apryor@pegasus.cc.ucf.edu

Faculty

Degree Requirements

Students must select either the thesis or the comprehensive exam option. The thesis option requires 10 courses (30 hours) and the thesis (4 hours), for a total of 34 credits. The comprehensive exam option requires 11 courses (33 hours) and the comprehensive exams. The decision whether to write a thesis and defend it in an oral examination or to take the comprehensive exams should be made in consultation with the School of Communication graduate program coordinator. Typically, students entering or continuing professional careers following the M.A. would select the comprehensive exam option, while those who plan to enter doctoral programs would elect the thesis option.

Required Courses—12 Semester Hours
MMC 6402 Mass Communication Theory (3 hours)
MMC 6445 Mass Media Research I (3 hours)
MMC 6446 Mass Media Research II (3 hours)
EDF 6401 Statistics for Educational Data (3 hours)

Restricted Electives—18 Hours, Thesis Option; 21 Hours, Comprehensive Exam Option
COM 6121 Communication Management (3 hours)
COM 6303 Communication Research I (3 hours)
COM 6304 Communication Research II (3 hours)
COM 6468 Communication and Conflict (3 hours)
COM 6106 International Communication (3 hours)
MMC 6202 Legal and Ethical Issues for Communication (3 hours)
MMC 6407 Visual Communication Theory (3 hours)
MMC 6567 Seminar in New Media (3 hours)
MMC 6600 Media Effects and Audience Analysis (3 hours)
MMC 6606 Advertising and Society (3 hours)
MMC 6607 Communication and Society (3 hours)
MMC 6612 Communication and Government (3 hours)
SPC 6219 Modern Communication Theory (3 hours)
SPC 6442 Small Group Communication (3 hours)

Special topics, independent studies, 5000-level courses, and courses taken outside the Nicholson School of Communication may be counted as restricted electives, as approved by the graduate program coordinator.

Thesis (4 Semester Hours) or Comprehensive Exams

Application Deadlines
Fall admission July 15
Spring admission December 1
Summer admission April 15

Admission

The Graduate Record Examination is required of all graduate students. Minimum requirements for admission are a grade point average (GPA) of 3.0 for the last 60 attempted semester hours of undergraduate study and a score of at least 1000 on the verbal-quantitative sections of the General (Aptitude) test of the GRE. All applicants are required to submit a statement of academic and professional goals. The department requires international students and students whose native language is not English to have a minimum score of 213 (computer-based test) or 550 (paper-based test) on the Test of English as a Foreign Language (TOEFL).

Programs in Communication

The curriculum focuses on theoretical and applied perspectives of communication theory and research, with emphasis on mass communication. Graduates derive benefits in a variety of academic and career directions, including entry into doctoral programs, advancement within existing career contexts, and the procurement of new career directions in the public and private sectors.
School of Computer Science

Director: Erol Gelenbe
Associate Director and Graduate Program Coordinator: Ronald D. Dutton, CSB 263, (407) 823-2341. E-mail: dutton@cs.ucf.edu

Faculty
Professors: M. A. Bassiouni, Ph.D.; R. C. Brigham, Ph.D.; N. Deo, Ph.D., Millican Endowed Chair in Computer Science; R. D. Dutton, Ph.D.; F. J. Frederick, Ph.D.; E. Gelenbe, Ph.D.; F. Gomez, Ph.D.; R. K. Guha, Ph.D.; C. E. Hughes, Ph.D.; J. M. Mosshill, Ph.D.; A. Mukherjee, Ph.D.; M. A. Shah, Ph.D.
Assistant Professors: R. Parsons, Ph.D.; J. Rogers, Ph.D.
Lecturer: U. Vemulapati, Ph.D.

The School of Computer Science offers Master of Science and Doctor of Philosophy degrees in Computer Science. Students receive a broad background in the areas of programming systems and languages, computer architecture, and computer science theory before specializing in a research area.

Research interests of the faculty include computer architecture, VLSI systems, parallel processing, design and analysis of algorithms, graph theory, microprocessors, programming languages, operating systems, natural language processing, computer vision, machine learning, database management systems, computer graphics, interactive graphic systems of instruction, distributed processing/networking, and computational complexity.

The School of Computer Science houses the Center for Parallel Computation, directed by Dr. N. Deo, containing a BBN Butterfly 64 processor machine and a DECnpp 12000.

Application Deadlines

Fall admission (priority) March 1*
Fall admission July 15
Spring admission December 1
Summer admission April 15

* Students applying for fellowships or assistantships must apply for the fall semester by the priority date.

Admission

Admission is based on satisfying the regular university requirements. Additional requirements are:

- 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 4150 Computer Architecture
  - COP 4020 Programming Languages I
  - COP 4600 Operating Systems
  - COP 4210 Discrete Computational Structures

- 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 percent of this GRE deals directly with the material covered in these courses.

- International students must obtain a minimum score of 213 (computer-based test) or 550 (paper-based test) on the Test of English as a Foreign Language (TOEFL).

- Applicants desiring financial support (assistantships or fellowships) are advised to take the Computer Science Graduate Record Examination in order to receive favorable consideration.

Master of Science in Computer Science

Degree Requirements

Required Courses—9 Semester Hours
(Students must receive an “A” or “B” grade in these courses.)
CDA 5106 Advanced Computer Architecture I (3 hours)
COT 5405 Design and Analysis of Algorithms (3 hours)

Select One:
COP 5111 Operating Systems Design Principles (3 hours)
COP 5021 Program Analysis (3 hours)
COT 5310 Formal Languages and Automata Theory (3 hours)

Restricted Electives—21-27 Semester Hours
Restricted electives must include two 6000-level Computer Science courses taught by Computer Science faculty, exclusive of independent study, and may not include any courses for which the grade received is below a “B.” Additional credits will normally be taken from 5000- and 6000-level Computer Science courses. Approval may be granted for at most 6 semester hours to be taken from graduate courses outside Computer Science.

Two options are available. The Non-Thesis option is a 36-semester-hour program that allows at most 6 hours of independent study. The Thesis option is a 30-semester-hour program exclusive of independent study. The thesis is intended to span two semesters, and students are to enroll in 3 credit hours of thesis (XXX 6971) each semester. After appropriate research the student is required to prepare and defend a formal thesis in accordance with university requirements. The final thesis will be bound with two copies provided to the library and one copy provided to the School of Computer Science.

Regardless of the electives or option chosen, the plan of study for each student must satisfy the following:

- Contain 30-36 semester hours depending on the option selected.
- Grades “C” or better with no more than 6 hours of “C” work and a grade point average of 3.0 or better.
- No courses below the 5000 level.
- No more than 6 hours (or two courses) of independent study in the Non-Thesis option and none in the Thesis option.
- Two 6000-level courses, with grades of “B” or better, taught by the School of Computer Science.
• Six credits of thesis (XXX 6971) for those in the Thesis option

Minimum Hours Required for M.S.—30-36 Semester Hours

Doctor of Philosophy in Computer Science

Admission

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 and the minimal M.S. admission requirement, the applicant must pass Phase I of the Ph.D. qualifying examination. 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.

Ph.D. Qualifying Examination

Outstanding students with a bachelor’s degree are encouraged to apply directly into the doctoral program. Phase I of the qualifying examination, normally taken within the first two semesters of graduate work, determines whether a student will be allowed to continue for the Ph.D. Phase I consists of a written examination in which students must successfully pass questions covering at least four areas from a list of areas supplied by the program. To pass the questions of an area requires that the student must clearly convey at least a strong undergraduate knowledge of the area. These written examinations will be offered twice per academic year, normally in September and January. Students are allowed two attempts to pass the Phase I examination. Upon passing, students are officially placed in the Ph.D. program.

Phase II of the qualifying examination consists of the acceptance of a professional paper, normally under the supervision of the student’s adviser, by a peer-reviewed conference or journal. It is expected that the Phase II goal should be satisfied within the first eighteen months of graduate work.

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.

Plan of Study

The Ph.D. plan of study will consist of a minimum of 15 semester hours of Ph.D. dissertation (CAP, CDA, COP, or COT 7980) credits and at least 57 semester hours of non-dissertation graduate (5000-level or above) credits. The latter must include CDA 5106, COT 5310, COT 5405, at least 15 semester hours of advanced (6000-level) computer science courses, exclusive of Special Topics courses, and 6 graduate hours from outside computer science. The remaining credits are normally selected from computer science regularly scheduled courses, Special Topics courses, seminar courses, and Independent Study. No more than 12 credits of Independent Study can be used.

Candidacy Examination

The candidacy examination consists 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 chair in consultation with the members of the research committee, and (2) the presentation of a written doctoral research prospectus to the committee with an oral review of the proposal. Students cannot register for dissertation credit (XXX 7980) until the term following successful passing of the candidacy examination.

Residence Requirement

Students in the Ph.D. program are normally expected to be, for at least two consecutive semesters, registered for a minimum of 9 hours in each of the two terms.

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

Students are expected to demonstrate competency in an area relevant to their research. This must be carefully defined by each student’s committee and approved by the Computer Science Graduate Committee and Office of the Dean.

Dissertation and Oral Defense

Students must write a dissertation on their 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 the dissertation advisor and committee, the school director or designee, and the dean of the college or designee. Final approval is required from the Thesis and Publications Editor and Graduate Studies.
**English**

Chair of the Department: Dawn Trouard
Graduate Program Coordinator: John Schell, HFA 302D, (407) 823-2287. E-mail: schell@pegasus.cc.ucf.edu

Faculty

**Professors:** D. R. Jones, Ph.D.; S. E. Omans, Ph.D.; J. F. Schell, Ph.D.; G. J. Schiﬀhorst, Ph.D.; K. L. Seidel, Ph.D., Dean of the College of Arts and Sciences; D. L. Stap, Ph.D.; D. Trouard, Ph.D.


**Master of Arts in English**

Application Deadlines

- Fall admission: June 15
- Spring admission: December 1
- Summer admission: May 1

Admission

Minimum requirements for admission are a grade point average (GPA) of 3.0 for the last 60 attempted semester credit hours earned as an undergraduate and a total score of 1000 on the verbal-quantitative section of the Graduate Record Examination (GRE). International students must score at least 233 (computer-based test) or 577 (paper-based test) 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. Literature 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.

An applicant for the concentration in creative writing must submit a portfolio of poetry, drama, creative nonfiction, or fiction to be approved by the faculty. 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 Advanced GRE Test in Literature or by completing survey courses in British and American literature.

Applicants are urged to apply for the program and take the GRE before June 15 for the subsequent fall term, before December 1 for the spring term, and before May 1 for the summer term.

**English—Literature Track**

Each student must complete at least 33 hours, including one course in linguistics and five core courses. Near the end of the degree program, each candidate will write a comprehensive examination based on a prescribed reading list and (a) write a thesis, (b) take an oral examination on a specific area of literature, or (c) complete 6 additional hours in 6000-level literature courses.

**Required Courses—21 Semester Hours**

- ENG 5009 Methods of Bibliography and Research (3 hours)
- ENG 5018 Literary Criticism (3 hours)
- LIN 5137 Linguistics (or an equivalent)* (3 hours)
- LIT 6009 Literary Genres (3 hours)
- LIT 6105 World Literature (3 hours)
- LIT 6365 Movements in Literature (3 hours)
- LIT 6506 Major Authors (3 hours)

* May be waived if student has completed a course in linguistics at the 4000 level or above with a grade of "A" or "B."

**Electives—6 Semester Hours**

**Comprehensive Examination**

**Specialization — Choose A, B, or C—6 Semester Hours**

**A. Thesis Option**
The candidate will complete a formal thesis on a topic selected in consultation with an advisory committee and will meet both departmental and university requirements for the thesis. The student will also enroll in LIT 6971, Thesis.

**B. Extended Research and Oral Examination Option**
The candidate will enroll once in LIT 6908, Directed Independent Study, and read extensively in an area of specialty—English romantic poetry, for example. The student will then complete a formal oral examination on the area of expertise. The candidate will also complete 3 additional hours in 6000-level literature courses.

**C. Course Option**
The candidate will also complete 6 additional hours in 6000-level literature courses.

**Minimum Hours Required for M.A.—33 Semester Hours**

**English—Creative Writing Track**

Each student must complete at least 33 hours, including 6 hours of writing workshops. Near the end of the degree program, each candidate will write a creative thesis.

**Required Courses—12 Semester Hours**

- CRW 5020 Graduate Writers' Workshop (3 hours)
- CRW 6025 Graduate Writing Workshop (3 hours)
- LIT 5039 Studies in Contemporary Poetry (3 hours)
- LIT 5097 Studies in Contemporary Fiction (3 hours)

**Restricted Electives—9 Semester Hours**

- LIT 6009 Literary Genres (3 hours)
- LIT 6105 World Literature (3 hours)
Minimum Hours Required for M.A.—33 Semester Hours

English—Technical Writing Track

Each student must complete at least 33 hours, as outlined below. Near the end of the degree program, each candidate will write a comprehensive examination and enroll in ENC 6971 or ENC 6908 (3 hours), completing a formal thesis or project approved by the faculty.

Required Courses—15 Semester Hours
ENC 5214 Production and Publication Methods (3 hours)
ENC 5337 Modern Rhetorical Theory (3 hours)
ENC 6217 Technical Editing (3 hours)
ENC 6261 Technical Writing: Theory and Practice (3 hours)
ENG 5009 Methods of Bibliography and Research (3 hours)

Restricted Electives—9 Semester Hours
ENC 5219 Graphics in Technical Writing (3 hours)
ENC 5306 Persuasive Writing (3 hours)
ENC 5344 Proposal Writing (3 hours)
ENC 6244 Teaching Technical Writing (3 hours)
ENC 6292 Project Management for Technical Writers (3 hours)
ENC 6296 Computer Documentation (3 hours)

Advised Electives—6 Semester Hours
Two courses from outside the Department of English or other graduate-level English courses.

Comprehensive Examination

Specialization—Choose A or B—3 Semester Hours

A. Thesis Option
The candidate will complete a formal thesis selected in consultation with an advisory committee and will meet both departmental and university requirements for the thesis. The student will enroll in ENC 6971, Thesis for 3 hours of credit.

B. Special Project
The candidate will enroll in ENC 6908, Directed Independent Study, and complete a research project approved by an advisory committee. This project will be on a topic in technical communication and in a format other than that of a traditional thesis.

Minimum Hours Required for M.A.—33 Semester Hours

Graduate Certificate in Professional Writing

Graduate Program Coordinator: Dr. John Schell, HFA 302D, (407) 823-2287. E-mail: schell@pegasus.cc.ucf.edu

The Certificate Program in Professional Writing is open to all students who meet the requirements for entry into the UCF graduate program. The fifteen-hour program, which can be completed in four semesters, studies the theory and practice of organizational writing. The program of study includes expert individual instruction in the effective production of business texts.

Required Courses—9 Semester Hours
ENC 5337 Modern Rhetorical Theory (3 hours)
ENC 5237 Writing for the Business Professional (3 hours)
ENC 5XXX Editing Professional Writing (3 hours)

Electives—6 Semester Hours
ENC 5306 Persuasive Writing (3 hours)
ENC 5344 Proposal Writing (3 hours)
ENC 5XXX Current Topics in Professional Writing (3 hours)
ENC 5XXX Developing Professional Writing Projects (3 hours)
ENC 5XXX The Writer’s Marketplace (3 hours)
ENC 5XXX Teaching Professional Writing (3 hours)
ENC 5XXX Writing/Consulting: Theory and Practice (3 hours)
ENG 5009 Methods of Bibliography and Research (3 hours)
LIN 5XXX English Grammar and Usage (3 hours)

Graduate Certificate in Gender Studies
See College of Arts & Sciences, Interdisciplinary Studies.

Foreign Languages & Literatures

Chair of the Department: TBA
Graduate Program Coordinator, Spanish: Delmarie Martinez, HFA 523, (407) 823-3431.
E-mail: dmartine@pegasus.cc.ucf.edu
Graduate Program Coordinator, TESOL: Consuelo E. Stebbins, TR 547, Rm. 120, (407) 823-0088.
E-mail: stebbins@pegasus.cc.ucf.edu

Faculty
Professor Emeritus: C. N. Micarelli, Ph.D.
Professors: A. V. Cervone, Ph.D.; J. B. Fernández, Ph.D.
Associate Professor: M. Del-Río, Ph.D.; K. Smith, Ph.D.
Assistant Professors: H. López-Cruz, Ph.D.; D. Martinez, Ph.D.; C. Stebbins, Ph.D.

The Department of Foreign Languages and Literatures offers two master’s degrees: a Master of Arts degree in Spanish and a Master of Arts degree in Teaching English to Speakers of Other Languages (TESOL). Research interests of the TESOL faculty include second language learning, cross cultural studies, and second language acquisition.
Master of Arts in Spanish

Application Deadlines

Fall admission: June 1
Spring admission: December 1
Summer admission: March 1

Admission

Minimum requirements for admission are a grade point average (GPA) of 3.0 for the last 60 attempted semester credit hours earned as an undergraduate or a total score of 1000 on the verbal-quantitative section of the Graduate Record Examination (GRE). International students must score at least 213 (computer-based test) or 550 (paper-based test) on the Test of English as a Foreign Language (TOEFL). All applicants must also submit three letters of recommendation.

Other criteria for admission are a baccalaureate degree in Spanish or a related field and approval by the Graduate Committee of the Department of Foreign Languages and Literatures. Students are expected to have read widely in Hispanic literature and to be competent in understanding, reading, and writing Spanish. They should also be familiar with the vocabularies of literary criticism and grammar.

Applicants are urged to apply for the program before June 1 for the fall term and before December 1 for the spring term. Those enrolling for the summer session should apply before March 1. Applicants should have taken the GRE before these dates.

Degree Requirements

The master's degree program in Spanish has both thesis and non-thesis options. A total of 36 semester hours of course work for the non-thesis option or 30 semester hours of course work plus 6 hours for the thesis option is required of students seeking the master's degree in Spanish. A minimum grade of "B" must be earned in each course. Students are allowed to transfer 6 semester hours of corresponding graduate courses with the grade of "A" or "B" from an accredited university. University policies and procedures will be followed for all degree requirements. Courses are to be chosen from the following categories in accordance with the number of hours designated in each.

Research Methods—3 hours
Spanish Language Study—6 hours
Hispanic Culture and Civilization—6 hours
Hispanic Literature—9 hours
Total—24 Semester Hours

The remaining elective hours of course work are 6 hours for the thesis option and 12 for the non-thesis option. Students must choose electives from the additional, available courses listed below in conjunction with their faculty adviser. The aim of the selections should be to complement the acquisition of knowledge in the particular area of Hispanic studies chosen.

Course Requirements

Part I—Research Methods—3 Semester Hours
SPN 5937 Research Methods (3 hours)

Part II—Spanish Language Study—6 Semester Hours
SPN 5705 Introduction to Spanish Linguistics (3 hours)
SPN 5825 Spanish Dialectology (3 hours)
SPN 5845 History of the Spanish Language (3 hours)
SPN 6805 Spanish Morphosyntax (3 hours)

Part III—Hispanic Culture and Civilization—6 Semester Hours
SPN 5502 Hispanic Culture of the United States (3 hours)
SPN 5505 Spanish Peninsular Culture and Civilization (3 hours)
SPN 5506 Spanish American Culture and Civilization (3 hours)

Part IV—Hispanic Literature—9 Semester Hours
*SPW 5825 Seminar Series (May be repeated for credit with different topics) (3 hours)
SPW 6405 Medieval Spanish Literature (3 hours)
SPW 6217 Spanish American Prose I (3 hours)
SPW 6218 Spanish American Prose II (3 hours)
SPW 6269 Nineteenth Century Spanish Novel (3 hours)
SPW 6306 Spanish American Drama I (3 hours)
SPW 6307 Spanish American Drama II (3 hours)
SPW 6315 Golden Age Drama (3 hours)
SPW 6216 Golden Age Prose (3 hours)
SPW 6356 Spanish American Poetry (3 hours)
SPW 6585 Contemporary Peninsular Literature (3 hours)
SPW 6725 The Generation of 98 (3 hours)
SPW 6971 Thesis (6 hours)

* Examples of Seminar Series Topics: Don Quixote, Spanish American Literature Written by Women, Gabriel García Márquez

Part V—Methodology (Elective Courses)
FLE 5870 Methods of Teaching Spanish (3 hours)
FLE 5875 Computer Application in Teaching the Spanish Language (3 hours)

Comprehensive Examination and Reading List

Students must pass a comprehensive examination in order to qualify for the master's degree in Spanish. This examination is based on a knowledge of the civilization and literature of Spain and Latin America and on basic concepts of linguistic theory and analysis.

Since this examination will be given toward the end of the course work, it is expected that the student will have developed an ability to analyze literature, culture, and linguistics at a high level, and understand the forces that affected civilization. It is also expected that the responses, both written and oral, will show an excellent command of the Spanish language.

The Graduate Committee has developed a reading list made up of the major Peninsular and Latin American works with which the student must be familiar. The comprehensive examination will be based on the reading list and the courses which the student has taken. A one-hour oral examination will follow a written examination. This examination will allow the student to expand more readily on particular points.
of culture, literature, and linguistics, and also to show ability in the use of the spoken language.

**Master of Arts in TESOL**

The Master of Arts in TESOL (Teaching English to Speakers of Other Languages) is an interdisciplinary graduate program offered by the College of Arts and Sciences and the College of Education. It provides a strong foundation in language acquisition, use, and pedagogy. The curriculum incorporates the five required courses for the ESOL Endorsement and offers electives in applied linguistics, research, and multicultural education. Graduate students also expand their knowledge of technology by utilizing the multimedia language classroom equipped with the latest software programs for second language learners.

**Application Deadlines**

<table>
<thead>
<tr>
<th>Fall admission</th>
<th>June 15</th>
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<tr>
<td>Spring admission</td>
<td>November 1</td>
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<tr>
<td>Summer admission</td>
<td>March 15</td>
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</table>

**Admission**

The Graduate Record Examination (GRE) is required of all graduate students. Minimal requirements for admission are (1) a grade point average (GPA) of 3.0 for the last 60 attempted semester hours of undergraduate study and a minimum score of at least 850 on the GRE or (2) a GPA of less than 3.0 combined with a GRE of 1000 or above. International students must score at least 213 (computer-based test) or 550 (paper-based test) on the Test of English as a Foreign Language (TOEFL). In addition, the department requires three letters of recommendation and a written statement of past experience, area of interest, and immediate and long-range goals.

**Degree Requirements**

Degree-seeking students in the TESOL program may elect to follow either a thesis (TSL 6971; 30 semester hours) or a non-thesis (36 semester hours) course of study. The thesis requirement is appropriate for those wishing to pursue a doctoral program in TESOL or for those wishing to research current issues in the discipline. The thesis requirement may be replaced by 9 semester hours of approved course work so that the non-thesis option requires a total of 36 hours.

All students must take a comprehensive written examination covering the core TSL courses. This examination is normally taken in the second year of graduate work and will be reviewed by members of the TESOL Graduate Committee in their areas of expertise.

**Core Courses**

The seven core courses provide a strong foundation in the content of the discipline. The electives provide for three distinct areas of interest: linguistics, multicultural education, and research. Students may opt to take their elective credit in one of these areas depending on their interests. A strong research base is available for those students wishing to pursue the thesis option and advanced graduate degrees.

**Required Courses—21 Semester Hours**

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<thead>
<tr>
<th>Course</th>
<th>Hours</th>
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<tbody>
<tr>
<td>EDF 6481 Fundamentals of Graduate Research in Education</td>
<td>3</td>
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<tr>
<td>TSL 5345 Methods of ESOL Teaching</td>
<td>3</td>
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<tr>
<td>TSL 5525 ESOL Cultural Diversity</td>
<td>3</td>
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<tr>
<td>TSL 6142 Critical Approaches to ESOL</td>
<td>3</td>
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<tr>
<td>TSL 6250 Applied Linguistics in ESOL</td>
<td>3</td>
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<tr>
<td>TSL 6440 Problems in Evaluation in ESOL</td>
<td>3</td>
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<tr>
<td>TSL 6540 Issues in Second Language Acquisition</td>
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**Electives—6 Semester Hours**

**Linguistics:**

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<th>Course</th>
<th>Hours</th>
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<tbody>
<tr>
<td>LIN 5137 Linguistics</td>
<td>3</td>
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<tr>
<td>LIN 6932 Problems in Linguistics</td>
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**Multicultural Education:**

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<th>Course</th>
<th>Hours</th>
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<tbody>
<tr>
<td>EDF 6155 Lifespan Human Development and Learning</td>
<td>3</td>
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<tr>
<td>EDF 6886 Multicultural Education</td>
<td>3</td>
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<tr>
<td>FLE 5875 Computer Application in Teaching the Spanish Language</td>
<td>3</td>
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<tr>
<td>SPN 5502 Hispanic Culture of the United States</td>
<td>3</td>
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<tr>
<td>TSL 6940 ESOL Practicum</td>
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**Research:**

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<td>EDF 6401 Statistics for Educational Data</td>
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</tr>
<tr>
<td>EDF 6486 Research Design in Education</td>
<td>3</td>
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<tr>
<td>TSL 6640 Research in Second Language</td>
<td>3</td>
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<tr>
<td>TSL 6971 Thesis</td>
<td>3</td>
</tr>
</tbody>
</table>

**Graduate Certificate in Maya Studies**

See College of Arts & Sciences, Interdisciplinary Studies.
History

Chair of the Department: R. C. Crepeau
Graduate Program Coordinator: Shirley A. Leckie, HFA 554, (407) 823-2224 or 823-6467. E-mail: sleckie@pegasus.cc.ucf.edu

Faculty
Associate Professors: C. E. Adams, Ph.D.; J. L. Evans, Ph.D.
Assistant Professors: S. P. Adams, Ph.D.; C. Austin, Ph.D.; R. J. Beiler, Ph.D.; M. S. Doran, Ph.D.; T. D. Greenhaw, Ph.D.; J. S. Perry, Ph.D.; D. Velez, Ph.D.; E. Walker, Ph.D.; H. Zhang, Ph.D.
Visiting Instructor: A. Iacono, M.A.

The Master of Arts in History is designed to serve the needs of a variety of students. Some will one day seek admittance into a Ph.D. program at a doctoral-granting institution. Others enter the program to improve their proficiency as secondary school teachers. Still others are adults who wish to enrich their intellectual lives. These students will be served by departmental members whose areas of research include American cultural and social history, local history, the South, the American frontier, women and gender roles, twentieth-century mass movements, Nazism and anti-Semitism in Central Europe, Latin American history, British history, and Russian history, as well as other areas.

Master of Arts in History

Application Deadlines

Fall admission: July 15
Spring admission: December 1
Summer admission: April 15

Admission

The Graduate Record Examination (GRE) is required of all graduate students. Minimal requirements for admission to the program are an undergraduate degree in history (or an equivalent), a grade point average (GPA) of 3.0 for the last 60 attempted semester hours of undergraduate study, and a score of 1000 on the combined verbal-quantitative sections of the Graduate Record Examination (GRE), with a score of 500 or higher on the verbal section of this test. International students and students whose native language is not English must score at least 233 (computer-based test) or 577 (paper-based test) on the Test of English as a Foreign Language (TOEFL).

Applicants who meet all of the above requirements but do not have an undergraduate degree in history must complete 12 hours of history course work at the 3000 and 4000 level, with a GPA in these courses of at least 3.25 before entering the graduate program. These courses will not count toward the graduate degree. The History Department Graduate Committee can waive this requirement, in whole or in part, when applicants present evidence that they are capable of successfully completing graduate history courses, either by submitting a portfolio documenting relevant past work or volunteer experience or by providing a sample of their own written work, which indicates that they have the research and writing skills needed to do graduate-level work in history.

If, in addition, applicants do not meet one of the other requirements for entry, such as a GPA of 3.0 for the last 60 semester hours of attempted undergraduate course work or a score of 1000 on the combined verbal-quantitative sections of the GRE and a score of 500 on the verbal portion of the GRE, they must complete 12 hours of course work at the 3000 and 4000 level with a GPA of 3.5 before they can be admitted to the graduate program.

Applicants who hold an undergraduate degree in history but do not have a GPA of 3.0 in the last 60 attempted semester hours or do not score 1000 or more on the combined verbal-quantitative sections of the GRE with a score of 500 in the verbal portion may take up to 9 hours of graduate courses as non-degree-seeking students. To be admitted into the graduate program, however, they must earn a GPA of 3.5 or better in the history courses they have taken under this status.

All applicants to the program must submit a written statement describing their personal goals and objectives in seeking a graduate degree in history. In addition, they must submit three letters of recommendation from former professors who can address their ability to undertake graduate-level history courses.

Degree Requirements

The Master of Arts in History requires 36 semester hours with no graduate credit given for any grade lower than "B." Specific requirements are:

HIS 6159 Historiography (3 hours)
HIS 6971 Thesis (6-9 hours)

Area of Concentration—18 Semester Hours
(Eastern or Western Hemisphere)

Outside Area of Concentration in History—6-9 Semester Hours

Electives—0-3 Semester Hours

Students will also be expected to demonstrate a reading competency in one foreign language or to display a proficiency in statistical methods. The foreign language competence must be completed one semester prior to the thesis defense.

The statistical option is open only to those in American history. Students selecting this option must meet with the Chair of the Statistics Department to determine a sequence of courses that will help them achieve their stated research objectives. Upon satisfactory completion of that sequence, they must pass a proficiency examination administered by the Statistics Department, no later than one semester prior to their thesis defense.
Examination Requirements

Each candidate for the Master of Arts in History must pass a written examination upon the conclusion of regular coursework. Each candidate will also be expected to conduct a thesis defense.

Minimum Hours Required for M.A.—36 Semester Hours

Graduate Certificate in Maya Studies
See College of Arts & Sciences, Interdisciplinary Studies.

Mathematics

Chair of the Department: J. R. Cannon
Graduate Program Coordinator: David Rollins, PH 403D, (407) 823-5239. E-mail: drollins@pegasus.cc.ucf.edu

Faculty
Instructor: R. Pyle, M.S.
Joint Appointees: T. Clarke, Ph.D., Associate Faculty; R. Dutton, Ph.D., Professor of Computer Science; A. J. Kassab, Ph.D., Associate Professor of Engineering; D. W. Nicholson, Ph.D., Professor of Engineering; R. L. Phillips, Ph.D., Professor of Engineering

The Department of Mathematics offers a Master of Science degree in Mathematical Science and a Doctor of Philosophy degree in Mathematics. Both degrees are intended to provide a broad base in applied and industrial mathematics. Research interests of the faculty include applied analysis, differential equations, methods of mathematical physics, probability and mathematical statistics, functional analysis, numerical analysis, approximation theory, nonlinear dynamics, fluid mechanics, wave propagation, algebra, number theory, and combinatorics and graph theory.

Application Deadlines

<table>
<thead>
<tr>
<th>Term</th>
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</thead>
<tbody>
<tr>
<td>Fall admission</td>
<td>July 15</td>
</tr>
<tr>
<td>Spring admission</td>
<td>December 1</td>
</tr>
<tr>
<td>Summer admission</td>
<td>April 15</td>
</tr>
</tbody>
</table>

Admission

Admission to Ph.D. Program

Admission to the Ph.D. Program in Mathematics is formalized by the university upon the recommendation of the Department of Mathematics. To be eligible to take the Ph.D. Qualifying Examination, the student must have a minimum grade point average of 3.0 (out of 4.0) in all work beyond baccalaureate.

Master of Science in Mathematical Science

Degree Requirements

There are two options for the master’s degree, thesis and non-thesis. In either option, a student should find an adviser who participates in designing a program of study. A program of study is presented to either the Graduate Curriculum Committee or the graduate program coordinator for approval. Electives

Electives should be chosen in consultation with the graduate program coordinator or the student’s thesis adviser and may be chosen from the suggested options: discrete mathematics, numerical analysis, approximation theory, nonlinear differential equations, methods of mathematical physics, probability and mathematical statistics, functional analysis, numerical analysis, approximation theory, nonlinear dynamics, fluid mechanics, wave propagation, algebra, number theory, and combinatorics and graph theory.
general applied mathematics, image processing and computer graphics, mathematical optics, mathematical physics, pure mathematics, rational mechanics, signal analysis, and statistics. A list of courses for these elective options can be obtained from the graduate program coordinator. Approved graduate courses outside the department may also be used. The student can take up to six credit hours of approved 4000-level mathematics courses.

**Thesis Option**

In this option, the Mathematical Science degree requires a total of at least 30 semester hours composed of at least 27 semester hours of course work and 3 semester hours of thesis.

A typical plan of study:
- MAA 5210 Topics in Advanced Calculus (4 hours)
- MAA 5405 Complex Variables (3 hours)
- MAP 5336 Ordinary Differential Equations and Applications (3 hours)
- MAP 5385 Applied Numerical Mathematics (3 hours)
- MAP 5407 Applied Mathematics I (3 hours)
- MAS 5145 Advanced Linear Algebra and Matrix Theory (3 hours)
- Electives (9 hours)
- MAP 6971 Thesis (3 hours)

**Minimum Hours Required for M.S.—30-31 Semester Hours**

**Thesis**

Three semester hours of credit will be given for the writing of a thesis. An oral defense of the thesis will be required. It is strongly recommended that the student select a thesis adviser by the completion of 18 semester hours of course work.

**Non-Thesis Option**

In this option the student takes 36 semester hours of course work with at least 21 in the Department of Mathematics. The student must pass a comprehensive examination given in the final semester of the student's program, based on the program of study. The examination will be supervised by a committee composed of the adviser and at least two other faculty members from the Department of Mathematics. A "P" or "NP" (or "S" or "U") grade is given on the examination. The examination may be repeated twice if necessary.

A typical plan of study:
- MAA 5210 Topics in Advanced Calculus (4 hours)
- MAA 5405 Complex Variables (3 hours)
- MAP 5336 Ordinary Differential Equations and Applications (3 hours)
- MAP 5385 Applied Numerical Mathematics (3 hours)
- MAP 5407 Applied Mathematics I (3 hours)
- MAS 5145 Advanced Linear Algebra and Matrix Theory (3 hours)
- Electives (18 hours)

**Minimum Hours Required for M.S.—36-37 Semester Hours**

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**Doctor of Philosophy in Mathematics**

**Degree Requirements**

The Doctor of Philosophy (Ph.D.) program consists of at least 75 semester hours of course work, of which a minimum of 15 hours are required for the dissertation. In addition to the dissertation hours, the program requirements include 18 hours of core courses, 6-12 hours of course work at the graduate level outside the department, and the remainder made up of electives and independent study courses. No more than 12 semester hours of independent study may be credited toward the degree.

Electives should be chosen in consultation with the student's advisory committee and may be chosen from the suggested options: Discrete Mathematics, General Applied Mathematics, Image Processing and Computer Graphics, Mathematical Optics, Mathematical Physics, Pure Mathematics, Rational Mechanics, Signal Analysis, and Statistics. A list of courses for these elective options can be obtained from the graduate program coordinator.

Courses taken outside the department are to be in a single area of application of mathematics that is related to the student's doctoral work. These courses are to be selected in consultation with the student's advisory committee. Students are encouraged to include in their plan of study a maximum of 12 semester hours of course work outside the department. Students can take up to 6 semester hours of approved 4000-level mathematics courses. In addition to the 75 semester hours of the program, a minimum of 3 hours of an approved computer language are required. The language and computer courses may have been taken at any point in the student's post-secondary career.

**Core Courses—18-19 Semester Hours**
- MAA 5210 Topics in Advanced Calculus (4 hours)
- MAA 6404 Complex Analysis (3 hours)
- MAA 6306 Real Analysis (3 hours)
- MAP 5336 Ordinary Differential Equations and Applications (3 hours)
- MAP 5407 Applied Mathematics I (3 hours)
- MAS 5145 Advanced Linear Algebra and Matrix Theory (3 hours)

**Electives—42 Semester Hours**

**Dissertation—15 Semester Hours**

**Minimum Hours Required for Ph.D.—75-76 Semester Hours**

**Examinations**

In accordance with university requirements, a prospective doctoral student has to successfully pass the following examinations:
- Qualifying Examination
- Candidacy Examination
- Dissertation Defense
There are two master’s programs available in music education: a Master of Arts in Teaching (M.A.T.) and a Master of Education (M.Ed.). These degrees are offered through the College of Education in cooperation with the Department of Music. For specifics about courses, see the Music Education listing in the College of Education section.

The M.A.T. program is for people who have a Bachelor of Arts and wish to attain certification to teach music in the Florida public schools along with a master’s degree. People entering this program without a B.A. in music will be expected to complete undergraduate requirements for a music major in addition to the requirements for the master’s degree. Undergraduate courses in music education may also be required as corequisites for all students who are missing key courses necessary to meet a standard of excellence as a music educator.

The M.Ed. program is for people who are already certified teachers and wish to develop advanced skills and understandings in the field of music education. All students take a range of courses in education, music, and music education. A written examination and an action research study are required at the completion of the degree.

Physics

Chair of the Department: Brian P. Tonner
Graduate Program Coordinator: Michael Johnson, MAP 310, (407) 823-5199. E-mail: graduate@physics.ucf.edu

Faculty

Professors: S. K. Bose, Ph.D.; J. J. Brennan, Ph.D.; L. Chow, Ph.D.; R. A. Llewellyn, Ph.D.; J. E. Neighbor, Ph.D., Associate Vice President for Academic Affairs; H. P. Saha, Ph.D.; B. T. Tonner, Ph.D.


Assistant Professor: N. G. Barlow, Ph.D.

Visiting Assistant Professor: M. Dogariu, Ph.D.

Adjunct Professors: N. Baranova, Ph.D.; I. Kimel, Ph.D.; J. Shvamoggi, Ph.D.

Joint Appointees: M. Bass, Ph.D., Professor of Optics; B. H. T. Chai, Ph.D., Professor of Optics; L. R. Elias, Ph.D., Professor of Optics; M. C. Richardson, Ph.D., Professor of Optics; S. Shvamoggi, Ph.D., Professor of Mathematics; W. T. Silfvast, Ph.D., Professor of Optics; M. J. Soileau, Ph.D., Director of CREOL and Professor of Electrical Engineering; G. I. Stegeman, Ph.D., Cobb-Hooker Eminent Scholar Chair of Optical and Laser Sciences and Engineering; E. W. Van Stryland, Ph.D., Professor of Optics; B. Zel’dovich, Ph.D., Professor of Optics; P. Delfyett, Ph.D., Associate Professor of Optics; D. J. Hagan, Ph.D., Associate Professor of Optics; A. Kar, Ph.D., Associate Professor of Optics; G. Li, Ph.D., Associate Professor of Optics

The Department of Physics offers a Master of Science degree and a Doctor of Philosophy degree. Research opportunities are available in condensed matter physics, nanostructures, surface science, optical physics, complex sys-
items, biophysics, elementary particle theory, gravitation, and atomic and molecular physics. The graduate degree program has a track in optical physics.

Application Deadline

Fall admission (priority)  February 15*
Fall admission  July 15

* Students applying for fellowships or assistantships must apply for the fall semester by the priority date. For those not requiring financial assistance, the application deadline is July 15.

Admission

The Graduate Record Examination (GRE) is required of all applicants, and the Physics Subject Test of the GRE is recommended of all applicants. Minimum requirements in order to be considered for admission to the graduate program in Physics are the standard university criteria of a 3.0 (A=4) grade point average (GPA) for the last 60 attempted semester hours of credit earned toward the baccalaureate, or a GRE score of at least 1000 on the combined verbal-quantitative sections of the General (Aptitude) Test. The GRE subject test in physics is required for admission to the doctoral program. International students and students whose native language is not English must score at least 213 (computer-based test) or 550 (paper-based test) on the Test of English as a Foreign Language (TOEFL).

All admissions to graduate status are competitive and based on availability of faculty for sponsoring research. Students entering the graduate program with regular status are normally expected to have completed course work generally required for a bachelor's degree in physics, including mechanics, electricity and magnetism, thermodynamics, and quantum mechanics. The admission deadline for the fall semester of each academic year is July 15.

Master of Science in Physics

Minimum Hours Required for M.S.—33 Semester Hours

The Master of Science in Physics degree requires a total of 33 semester hours. The student has the option of choosing a track in optical physics. In both the program and track, there are a thesis and non-thesis options for the master's degree. All master's students must take 18 semester hours of core courses, identical to the Ph.D. core courses. The thesis option requires 9 additional semester hours of electives, plus 6 semester hours of thesis. The non-thesis option instead requires 15 semester hours of electives and a written comprehensive exit examination. All electives must be approved by the student's advisory committee. Courses titled "for teachers" do not satisfy elective requirements for the Master of Science in Physics.

Core Courses—18 Semester Hours

All students are required to take:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>PHY 5606</td>
<td>Quantum Mechanics I</td>
</tr>
<tr>
<td>PHY 5346</td>
<td>Electrodynamics I</td>
</tr>
<tr>
<td>PHY 6347</td>
<td>Electrodynamics II</td>
</tr>
</tbody>
</table>

The remaining core courses depend on whether the program or track is selected:

General Physics Program

<table>
<thead>
<tr>
<th>Course</th>
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<tbody>
<tr>
<td>PHY 5524</td>
<td>Statistical Physics</td>
</tr>
<tr>
<td>PHY 6246</td>
<td>Classical Mechanics</td>
</tr>
<tr>
<td>PHY 6624</td>
<td>Quantum Mechanics II</td>
</tr>
</tbody>
</table>

Optical Physics Track

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>EEL 5441</td>
<td>Introduction to Wave Optics</td>
</tr>
<tr>
<td>PHY 5446</td>
<td>Laser Principles</td>
</tr>
<tr>
<td>PHY 6447</td>
<td>Quantum Optics</td>
</tr>
</tbody>
</table>

Electives—9 to 15 Semester Hours

Thesis—6 Semester Hours

The Master of Science in Physics candidate who has chosen the thesis option is required to conduct a program of original scientific research or some investigation involving a creative element and to submit a written thesis detailing these investigations. An oral defense and examination of the thesis is required.

Doctor of Philosophy in Physics

A student has the option of choosing the track in optical physics. Both the program and the optical physics track require a total of 72 semester hours for completion and specify a set of six required core courses (18 hours), four electives (12 hours), and a minimum of 15 hours of dissertation. The remaining twenty-seven hours may consist of appropriately selected research, dissertation, and elective courses. The electives are advanced courses in physics or other fields and are chosen by the student in consultation with the student's advisory committee. At least 3 hours of the electives must be outside the student's research specialty. In addition, each student is required to participate in the Physics Colloquium/Seminar program. No more than 12 semester hours of independent study may be credited toward the Doctor of Philosophy degree.

Minimum Hours Required for Ph.D.—72 Semester Hours

Core Courses—18 Semester Hours

All students are required to take:

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</tr>
</tbody>
</table>
Optical Physics Track
EEL 5441 Introduction to Wave Optics
PHY 5446 Laser Principles
PHY 6447 Quantum Optics

Elective Courses—12 Semester Hours
PHY 5431 Optical Properties of Materials (3 hours)
PHY 6353 Accelerator Physics (3 hours)
PHY 6355 Physics of Free Electrons (3 hours)
PHY 6434 Nonlinear Optics (3 hours)
PHY 6435 Nonlinear Guided Wave Optics (3 hours)
PHY 6448 Specific Laser Systems (3 hours)
PHY 6667 Advanced Quantum Mechanics (3 hours)
PHY 6918 Directed Research (3 hours)
PHY 6938 Special Topics/Seminars (3 hours)
PHY 7423 Physics of Nanostructures (3 hours)
PHZ 5304 Nuclear and Particle Physics (3 hours)
PHZ 5405 Condensed Matter Physics (3 hours)
PHZ 5505 Plasma Physics (3 hours)
PHZ 6156 Advanced Computational Physics (3 hours)
PHZ 6204 Atomic and Molecular Spectroscopy (3 hours)
PHZ 6234 Atomic Physics (3 hours)
PHZ 6425 Condensed Matter Physics II (3 hours)
PHZ 6426 Condensed Matter Physics I (3 hours)

Courses from the program or track core courses may be used as electives, as may approved graduate courses from other departments. Courses titled "for teachers" do not satisfy elective requirements for the M.S. or Ph.D. degree in physics.

Additional Electives—27 Semester Hours

Dissertation—15 Semester Hours

Qualifying Examination
Continuation in doctoral status is contingent upon passing a qualifying examination consisting of written and oral portions that cover all material included in the core courses and undergraduate preparation in physics. The written examination is divided into two sections appropriate to either the program or track, and also covers statistical mechanics and classical mechanics at the advanced undergraduate level. Students are required to take the qualifying exam after three semesters (excluding summers). A second and final opportunity must follow at the next available exam. A student failing at the second attempt may continue toward a master's degree.

Candidacy Examination and Dissertation Proposal
The student writes a proposal of the research planned for the dissertation and then is orally examined on it and the general research area by the dissertation committee. This examination can be attempted anytime after passing the qualifying examination, and after the student has begun research. Typically it should be taken a semester or two after the qualifying examination. After passing the candidacy examination, the student can register for official dissertation hours (PHY 7980). Before passing the candidacy, research credit can be earned as PHY 6918.

Dissertation Defense
The final oral defense of the dissertation is administered by the student's dissertation committee following completion of a written dissertation describing the student's research.

Political Science

Chair of the Department: Robert L. Bledsoe
Graduate Program Coordinator: Dwight Kiel, HFA 415, (407) 823-2608. E-mail: ps@pegasus.cc.ucf.edu

Faculty
Professors: R. Bledsoe, Ph.D.; R. Handberg, Ph.D.; P. H. Pollock, Ph.D.; W. Q. Morales, Ph.D.
Associate Professors: T. S. Fine, Ph.D.; D. Kiel, Ph.D.; J. R. Lilie, Ph.D.; S. A. Lilie, Ph.D.; M. E. Vittes, Ph.D.
Assistant Professors: K. Hamann, Ph.D.; A. Jewett, Ph.D.; D. Lanier, Ph.D., J.D.; D. McCoy, Ph.D.; H. Sadri, Ph.D; B. Wilson, Ph.D.

Master of Arts in Political Science
The Master of Arts in Political Science degree program is designed to accommodate a range of professional and intellectual needs. These include: (1) preparing students to enter positions in government and the private sector in which the ability to comprehend, influence, and respond to government policy is critical; (2) preparing students, through the M.A., for pursuit of a Ph.D. degree in political science at other institutions; and (3) providing a well-rounded substantive curriculum for secondary school teachers seeking higher degrees and for teachers in community colleges.

Application Deadlines
Fall admission July 15
Spring admission December 1
Summer admission April 15

Admission
In addition to the minimum requirements for admission to UCF, any student wishing to enroll in graduate courses in political science must meet the department's requirements for graduate status (either regular or conditional graduate status) or must hold regular graduate status in another program at UCF.

Requirements for regular status are:
- At least 12 semester hours of undergraduate course work in political science, including Scope and Methods of Political Science (POS 3703) or its equivalent. Students must have a grade of "B" or better in this course work. AND
Three letters of recommendation from individuals who can attest to the applicant's potential for graduate work. These letters should address the applicant's ability to think analytically and to communicate clearly. These letters should be sent directly to the graduate program coordinator.

AND

• Three letters of recommendation from individuals who can attest to the applicant's potential for graduate work. These letters should address the applicant's ability to think analytically and to communicate clearly. These letters should be sent directly to the graduate program coordinator.

• An undergraduate grade point average of at least 3.0 overall.

OR

• A combined (quantitative and verbal) GRE score of at least 1000.

International students and students whose native language is not English must score at least 173 (computer-based test) or 500 (paper-based test) on the Test of English as a Foreign Language (TOEFL).

Note: All applicants are required to take the GRE. Admission generally will be denied to any applicant whose GRE score is below 650 (quantitative plus verbal), regardless of his or her undergraduate grade point average.

Conditional Graduate Status

Applicants who are not qualified for regular graduate status may petition by letter the department’s Graduate Committee for admission to conditional graduate status. The applicant’s petition must address the specific reasons behind the failure to qualify for regular status. Students holding conditional graduate status must meet the following requirements before applying for regular status:

• Removal of any deficiencies in undergraduate preparation. Undergraduate preparation includes completion of Scope and Methods of Political Science (POS 3703), or its equivalent, and at least one upper division course in each of the following areas: American politics, international or comparative politics, and political theory. Students must complete these courses with a grade of “B” or better.

• For persons otherwise not qualified for regular graduate status, completion of three graduate courses, with grades of “B” or better.

• Completion of any other requirements determined by the Graduate Committee and stated on the student's Program of Graduate Study form.

Degree Requirements

The Department of Political Science offers students two tracks toward the master's degree: the political analysis track and the public policy track. The political analysis track provides an in-depth understanding of political life in the American case and in comparative perspective: The nature of institutions, the role of political organizations, and the effect of mass political behavior. The political analysis track is recommended for students who want to enter community college teaching or who wish to seek a doctorate at another institution. The public policy track prepares students to handle complex questions arising from key areas of government activity: Issues in science and technology, health and environmental regulation, foreign and defense policy, and other important areas. The public policy track is recommended for students most interested in developing professional expertise in a policy specialty or enhancing their current sphere of knowledge.

After being admitted (either as regular or conditional), students must meet with one of the graduate advisers to discuss their plans for graduate study and to obtain permission to enroll in graduate courses in the department. After completing nine hours of course work, all students must determine a preliminary program of study, either in the political analysis track or the public policy track. Both tracks require 30 semester hours of credit (24 hours of course work plus 6 hours of thesis), and both share the same core requirements.

Core Requirements—12 Semester Hours

POS 6746 Quantitative Methods in Political Research (3 hours)
POS 6045 Seminar in American National Politics (3 hours)
POT 6007 Seminar in Political Theory (3 hours) AND
INR 6007 Seminar in International Politics (3 hours) OR
CP 6091 Seminar in Comparative Politics (3 hours)

Political Analysis Track

30 Semester Hours

A program of study in the political analysis track consists of:

Core Requirements—12 Semester Hours

Three special topics courses—9 Semester Hours
POS 6938 American Politics (3 hours)
POS 6938 Political Theory (3 hours)
POS 6938 International Relations (3 hours)
POS 6938 Comparative Politics (3 hours)
POS 6938 Political Analysis (3 hours)

Elective—3 Semester Hours

Thesis—6 Semester Hours

Public Policy Track

30 Semester Hours

A program of study in the public policy track consists of:

Core Requirements—15 Semester Hours
PUP 6007 Public Policy Analysis (3 hours)

Two special topics courses—6 Semester Hours
INR 6086 International Public Policy (3 hours)
POS 6324 Women and Public Policy (3 hours)
PUP 6938 Science Policy (3 hours)
PUP 6938 Social Policy (3 hours)
PUP 6938 Foreign and Defense Policy (3 hours)

Elective—3 Semester Hours

Thesis—6 Semester Hours

The political science seminars provide the common core of knowledge for students in both tracks. The specific subject matter of the topics courses will vary, depending on the spe-
specialization of the instructor or the interests of the students in each track. Upon approval of the Graduate Committee, topics courses may be repeated for credit.

Ordinarily, elective credits will be taken within political science. Students wishing to earn elective credits from another department must obtain the approval from the Graduate Committee.

After completion of the 24 hours of course work in the chosen track, the student will form a committee of three advisers and submit a written thesis prospectus which, upon acceptance by the committee, will become a part of the student's permanent file. Guidelines for the prospectus are available from the graduate program coordinator. The completed thesis must be submitted to the thesis committee at least eight weeks prior to the date on which the degree is to be awarded. The student will then orally defend the thesis.

Examination
All candidates for a master's degree must take a comprehensive written examination. The examination will usually be administered after satisfactory completion of 24 hours. The examination will be based on the political science course work contained in the student's program of study. In addition, all students will be tested in the area of quantitative methods. The examination will be offered two times each academic year, during the final examination period for the fall and spring semesters. Students must inform the graduate program coordinator of their intention to take the examination at least six weeks prior to its scheduled date. A committee, consisting of all political science faculty from whom the student has taken courses, will develop questions for the comprehensive examination. Students not passing the examination may take it a second time within one calendar year, but no student will be allowed to take the examination more than twice.

Graduate Certificate in Maya Studies
See College of Arts & Sciences, Interdisciplinary Studies.

Psychology

Chair of the Department: John M. McGuire
Associate Chair: D. W. Abbott
E-mail: bjensen@pegasus.cc.ucf.edu
Industrial/Organizational Psychology Graduate Program Coordinator: William Wooten, Ph.D., (407) 823-2552.
E-mail: wwooten@pegasus.cc.ucf.edu
Human Factors Psychology Graduate Program Coordinator: Clint Bowers, Ph.D., (407) 823-5607.
E-mail: bowers@pegasus.cc.ucf.edu
Graduate Program Coordinator, Daytona Beach Area Campus: J. B. Rollins

Faculty
Assistant Professors: M. E. Dunn, Ph.D.; S. T. Dunn, Ph.D.; C. Frederick, Ph.D.; B. A. Fritzsche, Ph.D.; C. Negy, Ph.D.; V. Sims, Ph.D.; J. L. Weaver, Ph.D.
Instructors: M. H. Newlin, Ph.D.; M. J. Lavooy, Ph.D.; K. Mottarella, Psy.D.
Visiting Instructor: M. Chin, Ph.D.

The Psychology Department offers graduate programs in three areas: Industrial and Organizational, Human Factors, and Clinical Psychology. Terminal master’s degree programs are offered in Clinical psychology and Industrial and Organizational psychology. The Ph.D. degree in psychology has two tracks: Clinical and Human Factors psychology.

Master of Arts in Clinical Psychology

The Master of Arts degree program in clinical psychology is concerned with the application of psychological principles to individuals. Major areas of emphasis include 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 clinical services through community agencies. Graduates have been involved in mental health service delivery through individual, marital, family, and group psychotherapy, as well as crisis intervention and other specialized therapeutic procedures. Graduates have met the education criteria for licensure as Mental Health Counselors in the state of Florida.
Admission into the clinical master's program is highly competitive, with all information that might be available to the committee (e.g., GRE scores, GPA, letters of reference, personal statement, clinical experience, research experience, or interview performance) considered in admission decisions. Many applicants who meet minimum university requirements may not be admitted to the program.

Application Deadline
Fall admission only    February 15

Admission

The Graduate Record Examination (GRE) is required of all graduate students. Applicants must satisfy the university minimum admission criterion of a quantitative-verbal score of 1000 on the GRE or a GPA of 3.0 for the last 60 semester hours of attempted work for the baccalaureate degree. International students and students whose native language is not English must score at least 173 (computer-based test) or 500 (paper-based test) on the Test of English as a Foreign Language (TOEFL).

To be considered for admission, applicants must present in a single packet to Graduate Studies, University of Central Florida, P.O. Box 160112, Orlando, FL 32816-0112:

- A completed UCF graduate degree program application form
- Evidence of successful completion of undergraduate courses in statistics and in the general area of experimental psychology
- Official scores on the Graduate Record Examination (taken within the last five years)
- Completed transcripts showing a baccalaureate degree (and master's degree, if conferred) and grades for all undergraduate and graduate work
- A resume and written statement outlining the student's academic and professional goals
- Three letters of reference, with at least two furnished by college or university professors who are acquainted with the applicant.

A file of all requested material must be submitted by February 15. Acceptance decisions are made only in the spring semester for admission in the fall of each year. A department admissions committee reviews the student's credentials and may invite a group of candidates for an interview. Final selection is based on both paper credentials and the interview, if held.

Competency/Prerequisite Requirements

Applicants must have either a baccalaureate degree with a major in psychology or a baccalaureate degree in another area and completion of undergraduate psychology courses in the following areas prior to matriculation: introductory psychology; abnormal psychology; developmental (lifespan preferred) or child psychology; personality theories; learning; physiological psychology; and one course in research methods or statistics.

Degree Requirements

The M.A. degree program in Clinical Psychology is a two-year, six-semester program for full-time students, with summer course work both years. The program consists of a minimum of 61 semester hours of work as follows:

Academic Course Work—49 Semester Hours
CLP 6181 Psychological Theories of Substance Abuse Treatment (3 hours)
CLP 6191 Cross-Cultural Psychotherapy (3 hours)
CLP 6321 Psychotherapy in Community Settings (3 hours)
CLP 6441C Individual Psychological Assessment I (3 hours)
CLP 6445C Individual Psychological Assessment II (3 hours)
CLP 6456C Individual Counseling - Theory and Practice (3 hours)
CLP 6457C Group Psychotherapy (3 hours)
CLP 6459C Human Sexuality, Marriage, and Sex Therapies (3 hours)
CLP 6460C Introduction to Child, Adolescent, and Family Therapies (3 hours)
CLP 6932 Ethical and Professional Issues in Mental Health Practices (3 hours)
DEP 5057 Developmental Psychology (3 hours)
MHS 6020 Mental Health Care Systems (3 hours)
PPE 5055 Personality Theories (3 hours)
PSB 6446 Advanced Abnormal and Clinical Psychopharmacology (3 hours)
PSY 6216 Advanced Research Methodology I (4 hours)
SDS 6330 Career Development (3 hours)

Internship (See Description Below)—12 Semester Hours
CYP 6948 Psychology Internship (12 hours)

Minimum Hours Required for M.A.—61 Semester Hours

Clinical Internship Requirement

The purpose of the internship requirement is to provide the M.A. candidate in Clinical Psychology with a comprehensive, practical-based experience under direct supervision. A public agency or nonprofit institution with nondiscriminatory practices (including ability to assume financial responsibilities) that offers services to individuals is the prototype. The intern is assigned to an acceptable agency for three consecutive academic semesters (20-30 hours per week), for a total of 1000 hours of university-sponsored clinical experience. An additional commitment of 2 hours per week is required for the intern to meet as a group with a departmental faculty member for review, feedback, and discussions. A major portion of intern training is in the area of psychotherapy/counselling. The intern also engages in differential diagnosis and participates in a wide variety of psychological assessment procedures.

It is believed that supervision by qualified and experienced personnel is the primary learning mode by which the intern develops professional expertise and augments the classroom material previously acquired. Satisfactory completion of all first-year clinical course work (i.e., grades of “A” or “B”) and concurrent registration in all second-year clinical course work are the prerequisites for internship placement.

Interns are provided with a system for maintaining accurate accounts of their activity during the week. In addition, an
The English department proudly displays the work of graduate student Peter Telep, a science fiction writer.

The new Communication Building is equipped with research facilities such as this one-way mirror for non-intrusive observation.
Internship Evaluation form is completed by both the intern and supervisor(s) each semester.

Examination
The culminating academic experience in this non-thesis program may be completed in one of the following ways:

- **Research Paper.** Students may write a research paper that reviews state-of-the-art theories and techniques for treatment and assessment. This paper may consist of a broad overview of contemporary approaches to therapy and assessment, or it may involve a well-developed, more narrowly defined topic related to treatment or assessment. In addition, students are required to orally present the paper to a committee of three evaluators for final approval. At least two of the committee members must be members of the Clinical Committee in the Department of Psychology.

- **Case Presentation.** Students may present a case from their internship experience. The presentation is to include a comprehensive description of the case that incorporates an integration of: assessment data and its interpretation, theoretical conceptualization, treatment planning, course of therapy, and available outcome data. Students are to complete a written paper on the case (ensuring ethical consideration of confidentiality issues) and orally present it to a committee of three evaluators for final approval. At least two of the committee members must be members of the Clinical Committee in the Department of Psychology.

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Master of Science in Industrial/Organizational Psychology

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, applied theories of organizational behavior including models of motivation, job satisfaction, and productivity; test theory and construction; assessment center technology; statistics and experimental design and a variety of current topics.

Industrial/Organizational graduates are involved in many issues of critical importance to society including fairness in the selection and treatment of employees, the creation of work environments that maximize the satisfaction and productivity of employees, and the study of technological influences on human performance.

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**Application Deadline**

Fall admission only  February 1

**Admission**

The Graduate Record Examination (GRE) is required of all graduate students. Applicants must satisfy the university minimum admission criterion of a quantitative-verbal score of 1000 on the GRE or a GPA of 3.0 for the last 60 semester hours of attempted work for the baccalaureate degree. International students and students whose native language is not English must score at least 173 (computer-based test) or 500 (paper-based test) on the Test of English as a Foreign Language (TOEFL).

To be considered for admission, applicants must present in a single packet to Graduate Studies, University of Central Florida, P.O. Box 160112, Orlando, FL 32816-0112:

- A completed UCF graduate degree program application form
- Evidence of successful completion of undergraduate courses in statistics and in the general area of experimental psychology
- Official scores on the Graduate Record Examination (taken within the last five years)
- Completed transcripts showing a baccalaureate degree (and master's degree, if conferred) and grades for all undergraduate and graduate work
- A resume and written statement outlining the student’s academic and professional goals
- Three letters of reference, with at least two furnished by college or university professors who are acquainted with the applicant.

A file of all requested material must be submitted by February 1. Acceptance decisions are made only in the spring semester for admission in the fall of each year.

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**Competency/Prerequisite Requirements**

Applicants must have either a baccalaureate degree with a major in psychology or a baccalaureate degree and completion of undergraduate psychology courses in statistics and research methods, and four additional upper division courses (12 semester hours) in the core content areas of psychology, for a minimum of 18 upper division hours in psychology.

**Degree Requirements**

The M.S. degree program in Industrial/Organizational Psychology is a four-semester program for full-time students with no summer course work; however, practicum placements and thesis research may be completed in the summer. The program consists of a minimum of 37 semester hours of work. The required courses, which are scheduled primarily in the evenings to accommodate working students, are as follows:

**Academic Course Work—29 Semester Hours**

INP 6058 Job and Task Analysis (3 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 6XXX Current Topics in Industrial/Organizational Psychology (3 hours)

INP 6939 Applied Problems in Industrial/Organizational Psychology (3 hours)

PSY 6216 Advanced Research Methodology I (4 hours)

PSY 6308 Psychological Testing I (4 hours)

PSY 6318 Applied Testing and Selection (3 hours)
Practicum—3 Semester Hours
INP 6946 Industrial Psychology Practicum I (3 hours)

Thesis—8 Semester Hours
PSY 6938 Research Planning Seminar I (1 hour)
PSY 6939 Research Planning Seminar II (1 hour)
PSY 6971 Thesis (6 hours)

Minimum Hours Required for M.S.—40 Semester Hours

Comprehensive Examination
All students in the Industrial/Organizational (I/O) program must pass a comprehensive examination, which is administered in March of the second year and covers all course work to that point.

Practicum
Practicum 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. Practicum 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.

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

Practicum placements are initiated with a behavioral agreement between the graduate student and the organization. Behavioral agreements and performance objectives are jointly decided by the supervising faculty member, the organization representative, and the student. Full-time students are typically assigned practicum projects for the fall or spring terms of their second year.

Treatise (Thesis - PSY 6971)
The I/O program requires that the student complete an empirical research thesis with an oral defense.

Doctor of Philosophy in Psychology

The Psychology Department offers a Ph.D. in Psychology with two tracks. One track, Clinical Psychology, emphasizes the ability of psychologists to design, conduct, and apply clinical research in administration, treatment, teaching, and supervision. The other track, Human Factors, seeks to develop the capacity to design, conduct, and apply human factors research in a variety of professional settings.

Clinical Psychology Track

A Clinical Psychology doctoral track is offered to those with a baccalaureate or master’s degree in psychology or an allied area. Admission to the Ph.D. program is based on an overall assessment of an applicant’s potential for successfully completing the program and making a contribution to the discipline of Clinical Psychology.

The advent of managed care has resulted in significant changes in the mental health care delivery system and the role of clinical psychologists in that system. It is believed that Ph.D. psychologists will be utilized less for the delivery of psychotherapy and more for performing professional duties such as administration, development of programmatic treatments, program evaluation, supervision, and research. Thus, there is a need to change the training for the professional roles of the clinical psychologist of the twenty-first century. The Ph.D. track in Clinical Psychology is designed to respond to these changing roles by inclusion of unique, niche course work and practice in the areas of administration, supervision, treatment development, and teaching. In combination with these unique emphases, traditional training in research methods, experimental psychology, psychotherapy and psychological assessment prepares students for their careers in the changing mental health care field.

Consistent with the mission of a major metropolitan university, the Clinical Psychology Ph.D. track at UCF takes advantage of, and builds upon, a multitude of community partnerships. One specific example of programmatic efforts to develop partnerships with community agencies is our "clinic without walls." This concept utilizes existing public and private health service delivery resources in the Central Florida area as training sites.

Accreditation by the American Psychological Association is not immediately available to new programs. Therefore, this program, which admitted its first students in the fall of 1996, is not yet accredited. However, the Department of Psychology will move toward full accreditation of the Clinical Ph.D. as soon as possible.

Application Deadline

Fall admission only January 15

Admissions

The Graduate Record Examination (GRE) is required of all applicants. The Psychology Subject Test portion of the GRE is not required. To be considered for acceptance, all applicants must meet the university minimum admission criteria of a quantitative-verbal score of 1000 on the GRE or a GPA of at least 3.0 for the last 60 semester hours of attempted work for the baccalaureate degree. Due to the competitive nature of the application process (we receive many applications but can only accept a small number of students each year), strong candidates are likely to meet criteria that are more stringent than those listed here. Strong candidates are also likely to have both research and fieldwork experience. Students whose native language is not English will be required to submit scores of at least 213 (computer-based test) or 550 (paper-based test) on the Test of English as a Foreign Language (TOEFL).

Previous graduate work will be considered on a case-by-case basis (including acceptance of a previously completed master’s thesis). A maximum of 30 semester hours may be transferred for credit.

To be considered for admission, applicants must present in a single packet to: Graduate Studies, University of Central Florida, P.O. Box 160112, Orlando, FL 32816-0112:
• A completed UCF graduate degree application form
• Evidence of successful completion of undergraduate coursework in statistics and general areas of psychology noted below
• Official scores on the Graduate Record Examination (GRE; taken within the last five years)
• Completed transcripts showing a baccalaureate degree (and master’s degree, if conferred) and grades for all undergraduate and graduate course work
• A resume and written statement outlining the applicant’s academic and professional goals
• Three letters of reference, with at least two furnished by college or university professors who are acquainted with the applicant

A file of all requested material must be submitted by January 15. Acceptance decisions are made only in the spring semester for admission in the following fall of each year. A department admissions committee reviews the applicants’ application forms, and may invite a group of candidates for an interview. Final selection is based on both paper credentials and the interview, if held.

Competency/Prerequisite Requirements

Applicants must have either a baccalaureate degree with a major in psychology or a baccalaureate degree and completion of undergraduate or graduate courses in statistics/research methods, and six additional upper division courses in core content areas of psychology (i.e., personality theories, abnormal psychology, learning, physiological psychology, developmental psychology, social psychology).

Degree Requirements

The Clinical Ph.D. track is designed to be completed in five years and includes a one-year predoctoral internship to be completed off-campus. It is designed to be a full-time program, with some summer enrollment expected. There are a total of 106 semester hours of courses, practica, and research requirements in the track as detailed below. Courses are presented in sequential fashion and students entering with a baccalaureate degree will earn the M.S. degree en route to the Ph.D. A master’s thesis and a dissertation, which represents a significant contribution to the discipline, are both required. Successful completion of the Candidacy Examination is required prior to initiation of dissertation research.

Psychology Foundation Courses—12 Semester Hours
- DEP 5057 Developmental Psychology (3 hours)
- SOP 5059 Advanced Social Psychology (3 hours)
- PSY 5604 History and Systems of Psychology (3 hours)
- PSB 5005 Physiological Psychology (3 hours)

Research Courses—35 Semester Hours
- PSY 6216 Advanced Research Methodology I (4 hours)
- PSY 6217 Advanced Research Methodology II (4 hours)
- PSY 6946 Research Practicum (taken 3 times @ 2 hours; 6 hours)
- PSY 6971 Thesis (6 hours)
- PSY 7980 Doctoral Dissertation (15 hours)

Clinical Courses—35 Semester Hours
- CLP 6441C Individual Psychological Assessment I (3 hours)
- CLP 6445C Individual Psychological Assessment II (3 hours)
- CLP 6456C Individual Counseling - Theory and Practice (3 hours)
- PSB 6446 Advanced Abnormal and Clinical Psychopharmacology (3 hours)
- CLP 6932 Ethical and Professional Issues in Mental Health Practices (3 hours)
- CLP 6943 Clinical Practicum (taken 4 times @ 2 hours; 8 hours)
- CLP 6949 Predoctoral Internship (6 hours)

Clinical Treatment Electives (2 @ 3 hours; 6 hours)

Unique/Niche Courses—12 Semester Hours
- EXP 6938 Teaching Seminar (3 hours)
- CLP 6491C Treatment Development (3 hours)
- CLP 6944 Clinical Supervision Seminar/Practicum (3 hours)
- PSY 6933 Administration Seminar/Practicum (3 hours)

Electives—12 Semester Hours
- Non-Psychology Electives (2 @ 3 hours; 6 hours)
- Other Electives—Psychology or Non-Psychology (6 hours)

Minimum Hours Required for the Ph.D.—106 Semester Hours

Examinations

The Candidacy Examination will consist of a major area paper. The purpose of the paper is to enable students to develop and demonstrate a broad understanding of course material and an ability to apply the concepts and knowledge acquired in the first two years of the Ph.D. program. The major area paper will be a comprehensive review of the literature in the student’s primary area of interest. The paper will include a broad overview and integration of applicable theoretical concepts and relevant empirical literature. Students will be required to orally present and defend the paper to a committee of at least three members, one of whom will be the student’s major adviser. The Candidacy Examination will normally be completed in the fall semester of the third year. There will be no Qualifying Examination in the Clinical Ph.D. track.

The American Psychological Association requires that graduate training tracks undertake student evaluation procedures at least annually, and provide written feedback to students. Because clinical psychology involves the provision of mental health services to the public, special care must be taken to ensure that students possess the requisite interpersonal sensitivity and skill. As a result, evaluation procedures within this track will focus not only on academic performance but also on: clinical proficiency; ethical and professional conduct; response to supervision; interpersonal behavior; and intrapersonal functioning. The Clinical Psychology Committee reserves the right to drop from the track students who continue to exhibit serious difficulties in these behavioral domains and do not respond to feedback and efforts at remediation.
Human Factors Psychology Track
A Ph.D. professional's degree track in Human Factors Psychology is offered to those with a baccalaureate or master's degree in psychology or an allied area. The track seeks to develop the capacity to design, conduct, and apply human factors research in a variety of professional settings. It is patterned on the scientist-practitioner model of the American Psychological Association (APA) and adheres to guidelines established by the committee for Education and Training of APA's Division 21 (Applied Experimental and Engineering Psychology). The track has been accredited by the Human Factors and Ergonomics Society. A variety of research, consulting, and internship arrangements are included in the track.

Students receive training in the content and techniques of human factors psychology—including statistical and quantitative procedures, experimental design, survey methods, computer techniques, and other research methodologies. Students must also select a concentration area, which may be in human-computer interaction, human-machine-environment interface, human performance, human factors in simulation and training, or other areas of interest with the adviser's authorization. A dissertation representing a significant research contribution to the field is required.

Admissions Policy
The Graduate Record Examination (GRE) is required of all applicants. To be considered for acceptance as a regular graduate student, successful applicants are expected to have a minimum cumulative GRE score of about 1100 on the combined verbal-quantitative sections and an undergraduate GPA of about 3.20 in the last two years of study. However, the final admission criteria will normally be more stringent because of the competitiveness of the application process. Students whose native language is not English will be required to submit scores of at least 213 (computer-based test) or 550 (paper-based test) on the Test of English as a Foreign Language (TOEFL).

In addition, students will not normally be admitted to the track without having completed a minimum amount of basic preparation in content related to experimental psychology. This preparation will be judged on an individual basis but would typically consist of at least 18 semester hours including the following:

- Courses in research methods, computer applications, and statistical methods.
- General experimental psychology courses, e.g., learning, physiological, perception, human learning, cognition, motivation, and measurement. Applicants will be evaluated for program prerequisites and advised of any needs for additional preparation. Previous graduate work will be evaluated for credit on a case-by-case basis.

Application Deadline
Fall admission only February 1

Admission Requirements
To be considered for admission, applicants must present in a single packet to Graduate Studies, University of Central Florida, P.O. Box 160112, Orlando, FL 32816-0112:

- A completed UCF graduate degree program application form
- Evidence of successful completion of undergraduate courses in statistics and in the general area of experimental psychology
- Official scores on the Graduate Record Examination (taken within the last five years)
- Completed transcripts showing a baccalaureate degree (and master's degree, if conferred) and grades for all undergraduate and graduate work
- A resume and written statement outlining the student's academic and professional goals
- Three letters of reference, with at least two furnished by college or university professors who are acquainted with the applicant.

A file of all requested material must be submitted by February 1. Acceptance decisions are made only in the spring semester for admission in the fall of each year.

Residency Requirements
A minimum of one year full-time student status is required. (Full-time is defined as UCF as a minimum of 6 hours per semester for two contiguous semesters.) Students are advised that the degree is designed to be obtained in 3-4 years of full-time study from the baccalaureate level and in 2-3 years from the master's level.

Required Courses
The Doctor of Philosophy degree in Psychology, Human Factors requires a total of 90 semester hours of graduate study.

Fall (Year 1)—13 Semester Hours
EXF 5256 Human Factors I (3 hours)
PSY 6216 Advanced Research Methodology I (4 hours)
EXP 6506 Human Cognition and Learning (3 hours)
SOP 5059 Advanced Social Psychology (3 hours)

Spring (Year 1)—13 Semester Hours
EXF 5257 Human Factors II (3 hours)
PSY 6217 Advanced Research Methodology II (4 hours)
EXP 5208 Sensation and Perception (3 hours)
PSB 5005 Physiological Psychology (3 hours)

Fall (Year 2)—12 Semester Hours
EXP 6255 Human Performance (3 hours)
INP 6317 Organizational Psychology and Motivation (3 hours)
EIN 5248C Ergonomics (3 hours)
Elective* (3 hours)

Spring (Year 2)—9 Semester Hours
Elective* (3 hours)
Elective* (3 hours)
Elective* (3 hours)
Fall (Year 3)—10 Semester Hours
EIN 6258 Human Computer Interaction (3 hours)
EXP 5258 Human Factors III (3 hours)
PSY 6218 Advanced Research Methodology III (4 hours)

Spring (Year 3)—9 Semester Hours
EXP 6938 Teaching Seminar (3 hours)
EXP 6116 Visual Performance (3 hours) OR
EXP 6126 Psychoacoustics (3 hours)

Elective*(3 hours)

Fall (Year 4)—7 Semester Hours
PSY 7980 Doctoral Dissertation (6 hours)
EXP 6XXX Professional Issues Seminar (1 hours)

Spring (Year 4)—9 Semester Hours
PSY 7980 Doctoral Dissertation (9 hours)

Internship—6 Semester Hours
Sometime during the last two years students will be required to complete an internship.
EXP 6946 Human Factors Internship (6 hours)

Ph.D. Awarded in Human Factors Psychology

* Elective Course Groupings for Selected Concentration Areas: Students should choose electives in concentrated course groupings: for example, human-machine systems, performance measurement and evaluation, or simulation and training. Other elective course groupings may be developed for the specific interests of the student.

Electives
DEP 5007 Developmental Psychology (3 hours)
EIN 6938 Human-Computer Interaction: Usability Evaluation (3 hours)
EIN 6938 Ergonomics in Virtual Environments (3 hours)
EXP 6XXX Human Factors in an Aging Society (3 hours)
EXP 6XXX Aviation Psychology (3 hours)
EXP 6541 Advanced Human-Computer Interaction (3 hours)
EXP 6XXX Team Training (3 hours)
PPE 5055 Personality Theories (3 hours)
PSY 5937 HCI Design: Team Approach (3 hours)

Mathematics and Computer Skills
Students must demonstrate for graduation proficiency in both mathematics and computer skills; equivalent to first-level calculus and to a programming language beyond basic, respectively.

Candidacy Examinations
A candidacy examination will be required prior to registering for dissertation courses. Failure to successfully complete the candidacy examination in two attempts will result in removal from the program.

Sociology & Anthropology

Chair of the Department: Jay Corzine
Graduate Program Coordinator: David Gay, HFA 417D, (407) 823-2227. E-mail: dgay@pegasus.cc.ucf.edu
Web address: http://pegasus.cc.ucf.edu/~appsocio/

Faculty
Professor: J. Corzine, Ph.D.

The Department of Sociology and Anthropology offers a master’s degree program in applied sociology and a graduate certificate program in domestic violence.

Master of Arts in Applied Sociology

The Department of Sociology and Anthropology offers a graduate program leading to the Master of Arts degree in Applied Sociology. In addition to concentrated studies in deviant behavior and community policy, the program offers a specialty area in Domestic Violence. A primary focus of the program is the variety of deviant behaviors in society with special attention given to the Central Florida area and the different community policies that have evolved to confront these problems. Toward this objective, the program promotes the application of sociological and social psychological knowledge, principles, and research skills in a variety of organizational, community, and institutional settings. Beyond a curriculum appropriate for general applied sociology, the program offers instruction and opportunity pertaining to deviant behavior, social disorganization, domestic violence, and social problems.

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

Application Deadlines
Fall admission
Spring admission
Summer admission
July 15
December 1
April 15

Admission

The Graduate Record Examination (GRE) is required of all applicants. To be considered for acceptance as a regular graduate student, applicants must have a minimum GRE score of
1000 (quantitative and verbal sections only) or an undergraduate GPA of 3.0 or better in the last 60 attempted semester hours of their undergraduate degree. In addition, the department requires three letters of reference, including at least one from an academic source familiar with the applicant’s abilities. The Graduate Record Examination scores should be no more than seven years old. International students and students whose native language is not English must score at least 173 (computer-based test) or 500 (paper-based test) on the Test of English as a Foreign Language (TOEFL).

The applicant's record 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 non-degree-seeking student and acceptance into this degree-granting program. Consult the graduate program coordinator whenever questions arise.

Degree Requirements

Degree-seeking students in the Applied Sociology Program may elect to follow either a thesis or a non-thesis course of study. The degree of Master of Arts is conferred when students have fulfilled the requirements of either the thesis or non-thesis option. Both options require 30 hours of course work.

Required Courses—12 Semester Hours
SYA 5625 ProSeminar (3 hours)
SYA 6126 Social Theory (3 hours)
SYA 6305 Social Research (3 hours)
SYA 6455 Research Analysis (3 hours)

Electives—12 Semester Hours
Students will select a minimum of 12 semester hours of (non-restricted) electives in consultation with their faculty adviser. No more than 6 hours may be taken in UCF graduate programs outside the department.

Thesis Option—6 Semester Hours
A minimum of 6 semester hours of thesis credit and a successful defense of a thesis is required. The thesis option is highly recommended for students interested in community college teaching and/or graduate work beyond the Master of Arts degree.

Non-Thesis Option—6 Semester Hours
All of the department’s graduate courses are research-oriented seminars; however, in lieu of the thesis, students must take additional courses (6 hours) in a chosen area of specialization. Non-thesis students may substitute up to 6 hours of their elective course work by completing a graduate practicum/internship (SYA 6946). The practicum must be approved by the student’s advisory committee.

Examination Requirements—Thesis Option
Mandatory requirements include the successful completion of a two-part written comprehensive examination and a final oral defense of thesis.

Non-Thesis Option
Mandatory requirements include the successful completion of a two-part comprehensive written examination and an additional specialty project in the selected area of specialization.

Minimum Hours Required for M.A.—30 Semester Hours

Graduate Certificate in Domestic Violence

Graduate Program Coordinators: David A. Gay, HFA 417F, (407) 823-2227. E-mail: dgay@pegasus.cc.ucf.edu
Jay Corzine, HFA 402, (407) 823-2227.
E-mail: hcorzine@pegasus.cc.udf.edu

The Department of Sociology and Anthropology offers a Sociology Graduate Certificate in Domestic Violence for persons working or planning to work in the domestic violence field or whose occupational responsibilities include contacts with the victims or perpetrators of domestic violence. The program addresses domestic violence definitions, causes, consequences, and prevention strategies from a sociological perspective. By analyzing the social forces contributing to domestic violence, professionals working in social service, mental health, medical, law enforcement, legal, and educational fields will increase their knowledge and skills in developing, implementing, and evaluating intervention strategies.

Certificate Requirements

All required courses are offered regularly in the evenings or on Saturdays on the main campus of UCF as well as on the Daytona Beach and South Orlando area campuses. By taking one course per term, students may complete the graduate certificate program in any four consecutive terms. Non-degree-seeking students as well as those in other graduate programs can enroll in any of the Domestic Violence Certificate courses without needing to be admitted into the M.A. Program in Applied Sociology. All courses, however, will be accepted as part of the master's degree.

Required Courses—6 Semester Hours
SYP 5937 Seminar in Domestic Violence: Theory, Research and Social Policy (3 hours)
SYP 6563 Reactions to Domestic Violence (3 hours)

Electives—6 Semester Hours
Choose two of the following courses:
SYP 6657 Program Design and Evaluation (3 hours)
SYP 6565 Seminar in Elder Abuse and Neglect (3 hours)
SYP 6561 Child Abuse in Society (3 hours)

Minimum Hours Required for Certificate—12 Semester Hours

Graduate Certificate in Maya Studies

See College of Arts & Sciences, Interdisciplinary Studies.
Statistics

Chair of the Department: Ibrahim Ahmad
Graduate Program Coordinator: James R. Schott, CCII 205, (407) 823-2797. E-mail: jschott@pegasus.cc.ucf.edu

Faculty
Professors: I. A. Ahmad, Ph.D.; M. E. Johnson, Ph.D.; G. D. Richardson, Ph.D.; J. R. Schott, Ph.D.
Associate Professors: L. L. Hoffman, Ph.D.; D. Nickerson, Ph.D.; M. Wang, Ph.D.
Assistant Professor: M. Jamshidian, Ph.D.; Y. Zhang, Ph.D.
Instructors: C. E. Cutchins, M.S.; S. C. Schott, M.S.
Associate in Statistical Computing: J. W. Pepe, M.S.

Master of Science in Statistical Computing

The master’s program provides a sound foundation in statistical theory, statistical methods, numerical methods in statistical computing, and the application of computer methodology to statistical analyses. 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. Most graduate courses are offered during the late afternoon or evening hours in order to accommodate part-time and working students.

Application Deadlines

Fall admission: July 15
Spring admission: December 1
Summer admission: April 15

Admission

The Graduate Record Examination (GRE) is required of all graduate students. Minimum requirements in order to be considered for admission to the graduate program in Statistical Computing are the standard university criteria of a grade point average (GPA) of 3.0 for the last 60 attempted semester hours of credit earned toward the baccalaureate or a GRE score of at least 1000 on the combined verbal-quantitative sections of the General (Aptitude) Test. The GRE score must be less than five years old. International students and students whose native language is not English must score at least 173 (computer-based test) or 500 (paper-based test) on the Test of English as a Foreign Language (TOEFL).

Students entering the graduate program should have a good working knowledge of at least one programming language, and should have taken undergraduate courses in calculus, matrices (or linear algebra), and statistical methods. Those students who are not adequately prepared in these areas may need to complete some undergraduate course work before beginning their graduate program. Applicants not qualified for regular graduate status may be initially admitt-
The College of Business Administration offers four master's programs and one doctoral program. All graduate programs in business administration are accredited by the American Assembly of Collegiate Schools of Business (AACSB). The four professional programs leading to the master's degree are: Master of Business Administration, Master of Science in Accounting, Master of Science in Taxation, and Master of Arts in Applied Economics. The Master of Business Administration program is conveniently available to Brevard County and Daytona residents. Some foundation courses are offered at UCF's Brevard Campus in Cocoa, while other foundation and all the professional core courses are taught by UCF College of Business Administration faculty in Brevard County. Classes in Daytona are taught at the UCF Building on the campus of Daytona Beach Community College. Also offered is a Doctor of Philosophy (Ph.D.) in Business Administration. The doctoral program will be accepting new students for the 1999 Fall semester.

The mission of the College of Business Administration at the University of Central Florida is to provide quality business education programs, at the undergraduate, graduate, and executive levels, to the citizens of the state of Florida and to selected clientele nationally and internationally. In delivering these programs, the college places primary emphasis on excellent teaching and research with a strong commitment to developing mutually supportive relationships with the business community of Central Florida.

In pursuit of its mission, the College of Business Administration affirms its commitment to the university's focus on excellence and accent on the individual. Furthermore, the college pledges to deliver innovative and progressive programs to its clientele. As the college enters the twenty-first century, it has adopted “Driven by Excellence” as a motto and guiding force in achieving its goals and objectives.

### Faculty

### School of Accounting

**Director of the School:** A. J. Judd

**Professors:** H. Anderson, Ph.D.; C. D. Bailey, Ph.D.; D. D. Bandy, Ph.D.; C. G. Avery Professor; R. Roberts, Ph.D.; Burnett Eminent Scholar Professor; T. G. Evans, Ph.D.; J. H. Potts, Ph.D.; J. H. Salter III, Ph.D.; Ernst & Young Professor


**Assistant Professors:** D. Bobek, Ph.D.; L. Mahoney, Ph.D.; M. T. Zarzeski, Ph.D.

### Economics

**Chair of the Department:** R. A. Hofler, Ph.D.

**Professors:** W. W. McHone, Ph.D.; F. A. Raffa, Ph.D.; B. Rungeling, Ph.D.


**Assistant Professors:** R. Agarwal, Ph.D.; C. Co, Ph.D.; J. A. Elston, Ph.D.; C. Gallett, Ph.D.; J. List, Ph.D.; B. Sen, Ph.D.; K. M. Tomlin, Ph.D.

### Finance

**Chair of the Department:** J. M. Cheney

**Professors:** D. F. Scott, Jr., Ph.D.; Chair in American Private Enterprise; S. D. Smith, Ph.D., SunTrust Banking Chair


**Assistant Professors:** A. K. Byrd, Ph.D.; Y. Choi, Ph.D.; J. H. Gilkeson, Ph.D.; G. E. Porter, Ph.D.

### Hospitality Management

**Interim Chair of the Department:** E. T. Ellis, Ph.D., Associate Professor

**Professor:** A. Pizam, Ph.D.

**Associate Professors:** S. M. LeBruto, Ed.D.; A. Milman, Ph.D.; R. Upchurch, Ph.D.

### College Administration

**T. L. Keon,** Dean

**R. E. Michaels,** Interim Associate Dean

**R. C. Ford,** Associate Dean

**E. Odisho,** Brevard Campus Coordinator, (407) 632-0098

**J. H. Potts,** Daytona Campus Coordinator, (904) 255-7423, ext. 4071
Management

Interim Chair of the Department: H. R. Jones

Professors: L. W. Fernald, Jr., D.B.A.; R. C. Ford, Ph.D. and Associate Dean; J. S. Harrison, Ph.D.; R. C. Huseman, Ph.D.; H. R. Jones, Ph.D.; T. L. Keon, Ph.D., Dean of the College of Business Administration; W. Leigh, Jr., Ph.D.; D. L. Stone, Ph.D.


Assistant Professors: B. Barringer, Ph.D.; D. O. Neubaurm, Ph.D.; R. Purvis, Ph.D.; T. L. Roberts, Ph.D.; M. Uhl-Bien, Ph.D.; L. West, Ph.D.

Marketing

Chair of the Department: R. E. Michaels


Associate Professors: J. Allen, Ph.D.; D. A. Fuller, Ph.D.


Instructor: B. Quaintance, M.B.A.

Programs

Doctor of Philosophy in Business Administration

Master of Arts in Applied Economics

Master of Business Administration

Executive M.B.A.

Master of Science in Accounting

Master of Science in Taxation

Priority Application Deadlines

Fall admission: June 15
Spring admission: November 1
Summer admission: March 15

NOTE: Students applying for fellowships should contact the Fellowships Coordinator in the Office of Graduate Studies for more information (gradaid@mail.ucf.edu or 407/823-6497).

Admission to Master’s Programs

Before candidates will be considered for admission, all required application documents—application, official transcripts, GMAT test score (or GRE test score for the program in Applied Economics only) and for M.B.A. and M.A.E. only, two essays and three recommendations—must be received in the College of Business Graduate Office by admission deadline. 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. Thus, all graduate programs are open to graduates in education, engineering, arts, sciences, and other fields as well as business.

Admissions are restricted each semester to an allotted number of individuals showing high promise of success in postgraduate studies. Admission criteria include academic achievement as an upper-division undergraduate student and satisfactory performance on the GMAT (minimum score of 500). For the M.A. in Applied Economics degree only, scores on either the GRE or GMAT may be submitted. Both GMAT and GRE scores have a limit of 5 years. Other indicators of promise include the applicant’s extracurricular activities, work experience and job responsibilities, and leadership experience. Foreign students whose native language is not English are required to achieve a score of at least 233 (computer-based test) or 577 (paper-based test) on the Test of English as a Foreign Language (TOEFL). The TSE may be required if deemed necessary by faculty recommendation.

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, M.S. in Taxation, or M.A. in Applied Economics, and to other students with regular graduate status elsewhere in the university. Graduate-level courses may not be taken unless a student is accepted into a graduate program. Under special circumstances, and with the permission of the Associate Dean for Graduate Studies, six (6) hours in one semester may be taken as a non-degree-seeking student. The student must have a 3.25 GPA from an AACSB accredited school, and must take the GMAT during that semester.

An applicant will not be considered for admission to any graduate course until an official 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.

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 (grades of “B” or better) is then not obtained in the subsequent nine (9) semester hours of course work, the graduate student will be disqualified from the program. Students in all graduate programs must achieve a minimum grade of “C” in all foundation and professional core courses. Further, if graduate students accumulate grades of “C” or lower or unresolved “I” grades in more than three (3) foundation core courses, they will be disqualified from the program. If graduate students accumulate more than six (6) hours of “C” or lower and/or unresolved “I” grades on course work in the professional core, then they will be disqualified from the graduate program. Grade forgiveness policy does not apply to any courses (graduate or undergraduate) taken by graduate students in the College of Business Administration.
Master of Business Administration

Graduate Program Coordinator: R. C. Ford, BA 241, (407) UCF-2385
Brevard Campus Graduate Program Coordinator: E. Odisho, (407) 632-0098
Daytona Campus Graduate Program Coordinator: J. H. Potts, (904) 255-7423, ext. 4071

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 on the Orlando Campus. For Brevard County residents, the program is available on a part-time basis in the evening with some foundation course work offered on UCF's Brevard Campus in Cocoa, with the remaining foundation and all professional core course work taught by College of Business Administration faculty in Brevard County. The program is also offered on a part-time basis, evenings, at the UCF Building on the Daytona Beach Community College campus.

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. 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—28 Semester Hours
ACG 5005 Financial and Managerial Accounting Concepts (3 hours)
BUL 5125 Legal and Social Environment of Business (3 hours)
ECO 5005 Economic Concepts (3 hours)
ECO 5415 Statistics for Business and Economics (3 hours)
FIN 5405 Financial 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. In addition, through the selection of nine credit hours of approved electives, the student has the opportunity to develop some degree of emphasis in one of the following academic areas: accounting, economics, finance, hospitality management, management, marketing; or specialized areas of information systems, entrepreneurship, or international business.

Professional Core—24 Semester Hours
ACG 6425 Managerial Accounting Analysis (3 hours)
ECO 6115 Economic Analysis of the Firm (3 hours)
ECO 6416 Statistical Methods for Business Decisions (3 hours)
FIN 6406 Financial Analysis and Management (3 hours)
MAN 6245 Organizational Behavior and Development (3 hours)
MAN 6546 Quantitative Models for Business Decisions (3 hours)
MAN 6721 Business Policy and Responsibility (3 hours)
MAR 6816 Marketing Policy (3 hours)

Accounting undergraduate majors may not take ACG 6425, but must take an elective in any other business area.

Electives—9 Semester Hours
Electives may be taken in accounting, economics, finance, hospitality management, marketing, management, or information systems management. One elective course may be taken outside the College of Business Administration with permission of the graduate program coordinator. The M.B.A. program does not require a thesis. Students may not take more than 9 total semester hours in Accounting or Tax courses in the M.B.A. degree.

M.B.A. Specializations

Entrepreneurship
The entrepreneurship specialization requires nine hours of restricted electives within the M.B.A. degree. Students should take three of the four classes listed below:

FIN 6475 Business Valuation (3 hours)
GEB 6115 Entrepreneurship (3 hours)
MAN 6299 Creative and Innovative Management (3 hours)
MAR 5941 Small Business Consulting (3 hours)

In addition, students may apply to take GEB 6946, the graduate Internship in Entrepreneurship, as a substitute for one of the three required courses in the specialization.
Finance
An M.B.A. specialization in finance requires a minimum of nine hours of restricted graduate electives chosen from the list below. Undergraduate finance majors must choose an additional restricted elective instead of taking FIN 6406 (one of the Professional Core courses).

- FIN 6314 Management of Financial Institutions (3 hours)
- FIN 6326 Commercial Bank Management (3 hours)
- FIN 6425 Asset Management and Financial Decisions (3 hours)
- FIN 6475 Business Valuation (3 hours)
- FIN 6506 Analysis of Investment Opportunities (3 hours)
- FIN 6507 Seminar in Investments (3 hours)
- FIN 6627 International Financial Management (3 hours)

Hospitality Management
An M.B.A. specialization in hospitality management requires a minimum of nine hours of graduate electives chosen from the list below.

- FSS 6365 Management of Food Service Operations (3 hours)
- HFT 6240 Managing Hospitality and Guest Services Organizations (3 hours)
- HFT 6251 The Management of Lodging Operations (3 hours)
- HFT 6710 International Tourism Management (3 hours)

International Business
An M.B.A. specialization in international business requires six hours of restricted graduate electives in addition to GEB 6365. Students may take their six hours from the following courses.

- ACG 6255 International and Multinational Accounting (3 hours)
- ECO 6705 Seminar in International Economics (3 hours)
- FIN 6627 International Financial Management (3 hours)
- INR 6007 Seminar in International Politics (3 hours)

Marketing
Students seeking a specialization in marketing must be enrolled in the M.B.A. program. A specialization in marketing requires a minimum of nine hours of graduate electives in addition to MAR 6816. Students may take their nine hours of elective courses in marketing from the following courses.

- MAR 6077 Contemporary Marketing Problems (3 hours)
- MAR 6406 Sales Management and Control (3 hours)
- MAR 6456 Advanced Industrial Marketing Management (3 hours)
- MAR 6616 Marketing Research Methods (3 hours)
- MAR 6845 Services Marketing (3 hours)

Examination
The end-of-program requirement for the Master of Business Administration degree will include the following:

- Students completing the program in three (3) consecutive years (no interruptions) or less will complete the capstone, integrative course MAN 6721, Business Policy and Responsibility, with a grade of "B" or better.
- Students requiring more than three (3) years to complete the professional core and those who do not complete MAN 6721 with a "B" or better must pass a comprehensive, integrative examination consisting of four (4) equal parts covering the areas of economics, finance, management, and marketing. Each part of the test must be passed. If any part of the examination is failed on the initial attempt, the student will prepare a plan of study in cooperation with that department chair and the M.B.A. graduate program coordinator in order to be eligible to retake that part of the exam the following term. Each section may be taken a maximum of two times.

Minimum Hours Required for M.B.A.—33-63 Semester Hours

Executive MBA Program

Graduate Program Coordinator: Sylvia Caseres, BA 237, (407) UCF-2448. E-mail: sylvia.caseres@bus.ucf.edu

The Executive MBA Program offered by the University of Central Florida is designed to prepare executives and managers for the challenges they will face as they continue their career progression to positions of top leadership. The skills they develop and refine during this program will help them to achieve their full career potential and become an increasingly valuable organizational member.

The EMBA program is comprised of eleven courses and two off-campus residencies. The courses, delivered in the executive classroom at the Center for Executive Development in the College of Business Administration, are designed to expose participants to new methods, concepts, and tools that will enhance their business and leadership skills. Innovative teaching methodologies such as team-based projects, inter-disciplinary case studies, simulations, debating-the-issues activities, and self-assessment exercises are used to enhance the learning experience.

Each of the off-campus residencies is designed for very specific purposes. The first residency, at the beginning of the program, prepares participants for the academic and intellectual challenges of the EMBA faculty. The mid-program residency provides participants a rejuvenating change of pace and includes special sessions and guest speakers from around the country.

Residency I—Kick-Off Retreat

Session I—Economic Analysis of the Firm (ECO 6115)
Statistical Methods for Business Decisions (ECO 6416)

Session II—Managerial Accounting Analysis (ACG 6425)
Planning and Control Analysis (MAN 6055)

Session III—Financial Analysis and Management (FIN 6406)
Marketing Policy (MAR 6299)

Residency II—Mid-Program Retreat

Session IV—Organizational Behavior and Development (MAN 6245)
International Business Environment (GEB 6365)
Session V
Creative and Innovative Management (MAN 6299)
Business Policy and Responsibility (MAN 6721)
Contemporary Strategic Issues (GEB 6918)

NOTE: The EMBA curriculum is constantly being revised and improved to reflect the demands and expectations of the business community, and courses and subjects may be different for future classes.

Master of Science in Accounting

Graduate Program Coordinator: L. J. Savage, BA 433, (407) UCF-5661 or UCF-2871. E-mail: linda.savage@bus.ucf.edu

The Master of Science in Accounting degree 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 public practice, financial institutions, governments, industry, and nonprofit organizations. The program also prepares students to qualify for the CPA examination. (This program satisfies the requirements of the State Board of Accounting.)

The Master of Science in Accounting degree is awarded upon satisfactory completion of a graduate program of 30 semester hours. At least 15 of the 30 hours must be made up of courses at the 6000 level. Students, with the assistance and approval of the program adviser, may select an area of specialization in Management, Public, Tax, General, or Not-for-Profit Accounting. Following is a list of required courses and restricted electives.

Degree Requirements

Required Courses—15 Semester Hours
ACG 5346 Cost Accounting II (3 hours)
ACG 5636 Advanced Auditing Topics (3 hours)
ACG 6405 Accounting Information Systems II (3 hours)
ACG 6805 Seminar in Accounting Theory (3 hours)
TAX 5015 Federal Income Tax II (3 hours)

Restricted Electives—15 Semester Hours
Two graduate courses from within the School of Accounting. Three graduate courses from other disciplines in the College of Business Administration.

Foundation Core—49 Semester Hours
The courses included in the foundation core are listed below. A recent UCF accounting undergraduate degree satisfies the foundation core requirement. Other recent related business administration course work may partially or fully satisfy this requirement. Any deficiencies must be satisfied before advanced course work can be taken.

ACG 3101 Intermediate Financial Accounting I (3 hours)
ACG 3111 Intermediate Financial Accounting II (3 hours)
ACG 3361 Cost Accounting I (3 hours)
ACG 4203 Advanced Accounting (3 hours)
ACG 4401 Accounting Information Systems (3 hours)
ACG 4651 Auditing (3 hours)
ACG 5005* Financial and Managerial Accounting Concepts (3 hours)
BUL 3320 Business Law I (3 hours)
BUL 3321 Business Law II (3 hours)
CGS 2100C Computer Fundamentals for Business (3 hours)
ECO 5005* Economic Concepts (3 hours)
ECO 5415* Statistics for Business and Economics (3 hours)
FIN 5405* Financial Concepts (3 hours)
MAN 5050* Management Concepts (2 hours)
MAN 5501* Introduction to Production/Operations Management (2 hours)
MAR 5055* Marketing Concepts (3 hours)
TAX 6845 Seminar in Tax Planning (3 hours)

Students who have not completed ACG 3501 Financial Accounting for Governmental and Nonprofit Organizations, or equivalent, must complete ACG 6519 Seminar in Governmental and Nonbusiness Accounting and Auditing prior to graduation.

Students must show clear evidence of proficiency in oral and written communication and computer usage.

Examination
Satisfactory completion of an end-of-program comprehensive examination is required. The M.S. in Accounting program does not require a thesis.

Master of Science in Taxation

Graduate Program Coordinator: Dale Bandy, BA 435, (407) UCF-2964 or UCF-2871. E-mail: dbandy@bus.ucf.edu

The Master of Science in Taxation degree program provides candidates with an opportunity to specialize in taxation. The program emphasis is on the preparation of individuals for careers as professional accountants in public practice, government, and industry. This program satisfies the requirements of the State Board of Accounting to qualify for the CPA examination. The Master of Science in Taxation degree is awarded upon completion of a graduate program with a minimum of 30 semester hours. The program consists of 18 hours of required graduate tax courses and 12 hours of restricted electives. Electives are selected with the assistance and approval of the adviser. Required courses and available electives are described below.

Degree Requirements

Required Courses—18 Semester Hours
TAX 5015 Federal Income Tax II (3 hours)
TAX 6065 Seminar in Tax Research (3 hours)
TAX 6135 Seminar in the Taxation of Corporations and Shareholders (3 hours)
TAX 6205 Seminar in Taxation of Partnership Income (3 hours)
TAX 6405 Seminar in Taxation of Estates, Gifts, and Trusts (3 hours)
TAX 6845 Seminar in Tax Planning (3 hours)
Restricted Elective Courses—12 Semester Hours
A total of 12 semester hours of electives must be selected with adviser approval. Master of Science in Taxation electives may be selected from either the required courses or any category of elective courses available in the Master of Science in Accounting degree program (other than the 18 semester hours of tax courses listed above).

Foundation Core—49 Semester Hours
The courses included in the foundation core are listed under the Master of Science in Accounting degree requirements. A recent UCF accounting undergraduate degree satisfies the foundation core requirement. Other recent related business administration course work may partially or fully satisfy this requirement. Any deficiencies must be satisfied before advanced course work can be taken.

Examination
Satisfactory completion of the end-of-program comprehensive examination is required.

Minimum Hours Required for M.S.—30 Semester Hours

Master of Arts in Applied Economics

Graduate Program Coordinator: T. L. Martin, BA 325, (407) UCF-2870. E-mail: thomas.martin@bus.ucf.edu

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.

Degree Requirements

The Master of Arts in Applied Economics degree 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 3401 Quantitative Business Tools I (3 hours)
- ECO 5005 Economic Concepts (3 hours)
- ECO 5415 Statistics for Business and Economics (3 hours)
- MAC 1105 College Algebra (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. in Applied Economics degree.

Required Courses—9 Semester Hours

- ECO 6115 Economic Analysis of the Firm (3 hours)
- ECO 6206 Aggregate Economic Conditions and Analysis (3 hours)
- ECO 6416 Statistical Methods for Business Decisions (3 hours)

Economics Electives—12-21 Semester Hours
A minimum of twelve additional hours of economics electives is required.

Non-Economics Electives—0-9 Semester Hours
A maximum of nine hours of approved non-economics electives may be completed in disciplines such as accounting, finance, management, marketing, mathematics, statistics, public administration, and computer science. Career-oriented elective specializations are presented below; however, no more than 6 hours outside the College of Business Administration may be used.

Thesis or Internship—6 Semester Hours
Six credit hours of thesis or internship may be used to complete the M.A. in Applied Economics degree. The candidate may fulfill this requirement by completing: (1) a formal thesis on a topic selected in consultation with the candidate’s advisory committee and meeting both departmental and university requirements or (2) an internship consisting of work in a business or governmental agency and an end-of-project, thesis-quality report.

Final Examination
Candidates must satisfactorily complete a comprehensive final examination. If the thesis or internship option is chosen to complete the degree, the examination will normally consist of an oral examination over the thesis or internship project. The candidate’s supervisory committee will have discretion to determine the extent of this requirement. Candidates choosing the non-thesis option will be required to pass a written or oral examination covering economic theory and six hours of elective course work.

Minimum Hours Required for M.A.A.E.—30 Semester Hours

Career-Oriented Elective Specializations
Candidates for the Master of Arts in Applied Economics degree 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 suggested career-oriented elective specializations that follow are representative of some of the possibilities for packaging electives.

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 6226 Seminar in Money, Banking, and Monetary Policy (3 hours)
ECO 6266 Business Cycles and Forecasting (3 hours)
ECP 6705 Managerial Economics (3 hours)
FIN 6406 Financial Analysis and Management (3 hours)
FIN 6425 Asset Management and Financial Decisions (3 hours)
FIN 6506 Analysis of Investment Opportunities (3 hours)
FIN 6627 International Financial Management (3 hours)

Public Sector Economics
For candidates seeking careers in the public sector as planners, policy analysts, or regulators, selection among the following electives is recommended:
ECO 6226 Seminar in Money, Banking, and Monetary Policy (3 hours)
ECO 6505 Public Finance and Fiscal Policy (3 hours)
ECP 6205 Labor Economics (3 hours)
ECP 6405 Industrial Organization and Performance (3 hours)
ECP 6605 Economics of Urban and Regional Problems (3 hours)
ECP 6705 Managerial Economics (3 hours)
REE 6306 Corporate Real Estate Investment Decision-Making (3 hours)
Approved electives in Public Administration
Approved electives in Political Science
Approved electives in Political Theory

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 6226 Business Cycles and Forecasting (3 hours)
ECO 6424 Econometrics (3 hours)
ECP 6705 Managerial Economics (3 hours)
MAN 6546 Quantitative Models for Business Decisions (3 hours)
MAR 6616 Marketing Research Methods (3 hours)

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 (3 hours)
ECS 6015 Economic Development (3 hours)
FIN 6627 International Financial Management (3 hours)
INR 6007 Seminar in International Politics (3 hours)

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 (3 hours)
ECS 6015 Economic Development (3 hours)
EIN 5117 Management Information Systems I (3 hours)
EIN 6258 Human Computer Interaction (3 hours)
EVT 6267 Vocational Program Planning, Development, and Evaluation (2-4 hours)

ISM 6121 Systems Analysis and Development (3 hours)
MAN 6245 Organizational Behavior and Development (3 hours)
MAN 6305 Personnel Resources Administration (3 hours)
PAD 6417 Human Resource Management (3 hours)

Doctor of Philosophy in Business Administration

Contact the Office of Student Support, BA 240, (407) UCF-2184
The objective of the doctoral program in Business Administration is to prepare students for academic careers in higher education and management careers in profit and nonprofit organizations. Success in the program is judged by the student's understanding of the issues and methodologies essential to the advancement of knowledge. Doctoral work is based on the achievement of academic and research competencies, rather than a specific number of courses. A student who participates in a doctoral program of study is expected to strive for the knowledge and skills necessary to develop excellence in teaching and to conduct quality research, and should at all times maintain the highest ideals of academic integrity and scholarship.

Application Deadline
Fall admission only May 15*
* Students applying for financial assistance should apply by February 1.

Admissions
Students applying for admission to the doctoral program in Business Administration will be required to submit scores on the Graduate Management Admission Test (GMAT). International students must submit a score of 233 (computer-based test) or 577 (paper-based test) on the Test of English as a Foreign Language (TOEFL) if they are not a graduate from an accredited college or university in the United States. International students must also submit a minimum score of 240 on the Test of Spoken English (TSE). Admission decisions are made on the recommendation of the faculty of the appropriate department or school. Admissions will be made only for Fall semesters, every other year.

All required application documents including application, official transcripts, and GMAT test scores must be received in the Office of Graduate Studies (AD 144) by the university's deadline, May 15. Consideration for financial assistance will begin for applications received by February 1.

Degree Requirements
Upon admission to the doctoral program, the student will be assigned an advisory committee. The student, with the approval of the student's advisory committee, will complete a program of study, which will consist of the following:
120 Business Administration

Area and Range of Semester Hours Required

Preparation and Courses:
- MBA degree or equivalent — 30 hours
- Major — 12-21 hours
- Minor/Support Area — 6-9 hours
- Research Tools — 12-15 hours
- Teaching — 0-3 hours

Candidacy Examination — 12 hours
Dissertation — 24 hours

Total Semester Hours Required — 84-96 hours

1. Each major may specify different requirements for this category. Consult the doctoral graduate program coordinator for a specific major.
2. All doctoral students are required to take two applied statistics courses. Other research tool courses will be specified by the major.
3. Each major will require some education related to teaching. It may take the form of classes, noncredit seminars, mentoring, or a teaching requirement. Consult the doctoral graduate program coordinator for a specific major.
4. The student must successfully complete a comprehensive Candidacy Examination. This examination has written and oral parts, and covers the candidate's program of study. Students are admitted to candidacy after satisfying all general degree requirements, passing the comprehensive exam, and fulfilling the residency requirement.
5. The student must successfully defend a written dissertation proposal in an oral examination conducted by the student's advisory/dissertation committee. The final defense of the successful dissertation will require a final oral examination that concentrates on, but is not limited to, the student's dissertation defense.

The general expectations for each major follow. Each program is tailored to the needs of the individual student and may require work that is not included in the following descriptions.

Accounting Major

Foundation Body of Knowledge — 30 Semester Hours
For Accounting, this requirement may be satisfied in any of these ways: (a) M.S.A., (b) M.S.T., (c) master's degree from an accredited program plus CPA, or (d) a Florida 150-hour CPA that includes certain accounting courses deemed essential by the Accounting Ph.D. graduate program coordinator or the student's advisory committee.

Accounting Major Concentration — 16 Semester Hours
ACG 7157 Seminar in Financial Accounting Research (3 hours)
ACG 7887 Accounting Research Forum (4 hours) (Workshop, 1 hour credit per semester)
ACG 7915 Directed Research in Accounting (3 hours)

Two other seminars from the following:
ACG 7399 Seminar in Behavioral Accounting Research (3 hours)
ACG 7699 Seminar in Auditing Research (3 hours)
TAX 7066 Seminar in Doctoral Tax Research (3 hours)

Minor/Support Area — 9 Semester Hours
Students must select a minimum of nine hours in a unified area approved by the student's doctoral study advisory committee. Each student's program of study is individually tailored to accommodate student interests whenever possible, and this course work may be developed from offerings in the following disciplines with the advice and consent of the respective departments and advisory committee:

Computer Science    Marketing
Economics            Mathematics
Engineering          Political Science
Finance              Psychology
Management           Sociology
Marketing            Statistics

Research Tools — 15 Semester Hours
The research tools requirement is intended to ensure a thorough exposure to research methods. All candidates are expected to demonstrate knowledge of mainframe and personal computers. Knowledge and use of available databases and software are also expected. The required course work must include two of the following (a total of 6 semester credit hours):

FIN 7807 Corporate Finance Theory (3 hours)
GEB 7910 Research Methods in Business (3 hours)
QMB 7565 Applied Statistical Business Decision Models (3 hours)

The remaining nine semester hours (in addition to the minor concentration) typically are selected from offerings in the following disciplines:

Computer Science    Mathematics
Economics            Psychology
Engineering          Sociology
Management Science   Statistics

Candidacy Examination
The student must successfully complete a comprehensive Candidacy Examination. This examination has written and oral parts, and covers the candidate's program of study. Students are admitted to candidacy after satisfying all general degree requirements, passing the comprehensive examination, fulfilling the residency requirement, and successfully defending a written dissertation proposal in an oral examination conducted by the student's advisory/dissertation committee.

Dissertation — 24 Semester Hours

Minimum Hours Required for Ph.D. — 85 Semester Hours

Final Defense
The successful completion of a final oral examination is required. This examination concentrates on, but is not limited to, the student's dissertation defense.
Finance Major

Foundation Body of Knowledge—30 Semester Hours
In Finance, the foundation body of knowledge includes (a) the Common Body of Knowledge of the master's degree in Business Administration, or its equivalent, and (b) graduate credit hours (6 semester hours total) in macro and microeconomic theory, and (c) graduate courses in financial management, investments, financial institutions, and international finance.

Finance Major Concentration—12 Semester Hours
FIN 7807 Corporate Finance Theory (3 hours)
FIN 7813 Seminar in Financial Markets and Institutions (3 hours)
FIN 7816 Investment Theory (3 hours)
FIN 7930 Seminar in Finance (3 hours)

Minor/Support Area—6 Semester Hours
ECO 7116 Microeconomic Theory (3 hours)
ECO 7205 Macroeconomic Theory (3 hours)

Research Tools—12 Semester Hours
ECO 7433 Econometrics (3 hours)
ECO 7424 Applied Models I (3 hours)
ECO 7425 Applied Models II (3 hours)
ECO 7428 Time Series (3 hours)

Teaching Requirement—0-3 Semester Hours
The requirements for the teaching component of the doctoral degree will be developed with the doctoral graduate program coordinator based on the student's experience.

Candidacy Examination
The student must successfully complete a comprehensive Candidacy Examination. This examination has written and oral parts, and covers the candidate's program of study. Students are admitted to candidacy after satisfying all general degree requirements, passing the comprehensive examination, fulfilling the residency requirement, and successfully defending a written dissertation proposal in an oral examination conducted by the student's advisory dissertation committee.

Dissertation—24 Semester Hours

Management Major

Foundation Body of Knowledge—30 Semester Hours
In Management, the foundation body of knowledge includes the Common Body of Knowledge in an MBA degree or its equivalent from an AACSB-accredited school.

Management Major Concentration—21 Semester Hours
Students must select a major concentration from Management with a 21 hour minimum.

MAN 7275 Organizational Behavior (3 hours)
MAN 7207 Organization Theory (3 hours)
MAN 7776 Business-level Strategic Management (3 hours)
OR
MAN 7777 Corporate-level Strategic Management (3 hours)

MAN 7XXX Directed Readings in Management (to be determined by the student's doctoral study advisory committee) (3 hours; taken two times for a total of 6 hours)

In addition, two courses from the following are required:
ISM 7029 Doctoral Seminar in MIS (3 hours)
MAN 7776 Business-level Strategic Management (if not taken to satisfy one of the requirements listed above) (3 hours)
MAN 7777 Corporate-level Strategic Management (if not taken to satisfy one of the requirements listed above) (3 hours)
Other management electives as they are developed for the program

Minor/Support Area—6 Semester Hours
Students may select a minimum of six hours, typically within a unified area, approved by the student's doctoral study advisory committee. Each student's program of study is individually tailored to accommodate student interests whenever possible, and this course work may be developed from offerings in the following disciplines with the advice and consent of the respective departments and advisory committee:

Accounting
Communication
Economics
Finance
Marketing
Psychology
Sociology
Statistics

Research Tools—12 Semester Hours
The research tools requirement is intended to ensure a thorough exposure to research methods. All candidates are expected to demonstrate knowledge of statistical methods as well as usage of statistical packages, including design, analysis, and interpretation of results.

ECO 7424 Applied Models I (3 hours)
ECO 7425 Applied Models II (3 hours)
An additional 6 hours of research tools courses must be approved by the student's advisory committee. Examples of courses that will satisfy this requirement include GBB 7910, STA 5205, PSY 6216, PSY 6217, PSY 6308, and ECO 6424.

Teaching Requirement—3 Semester Hours
Students are required to teach a minimum of 3 semester hours of class instruction under the direct supervision of a faculty member. As appropriate, students will also be required to attend teaching development workshops and seminars.

Candidacy Examination
The student must successfully complete a comprehensive Candidacy Examination. This examination has written and oral segments covering the candidate's program of study. Students are also subject to examination within the minor
Dissertation—24 Semester Hours

Minimum Hours Required for Ph.D.—93 Semester Hours

Final Defense
The successful completion of a final oral examination is required. This examination concentrates on, but is not limited to, the student’s dissertation defense.

Marketing Major

Foundation Body of Knowledge—30 Semester Hours
In Marketing, the foundation body of knowledge includes the Common Body of Knowledge of the master’s in Business Administration or its equivalent from an AACSB-accredited school.

Marketing Major Concentration—12 Semester Hours
MAR 7575 Seminar in Consumer Behavior (3 hours)
MAR 7638 Seminar in Marketing Theory, Scaling, and Measurement (3 hours)
MAR 7666 Seminar in Marketing Models (3 hours)
MAR 7807 Seminar in Marketing Strategy (3 hours)

Minor/Support Area—6 Semester Hours
Advanced Research Concentration:
MAR 7919 Doctoral Research

The Marketing doctoral curriculum requires advanced work in an area of concentration. This work will be done after the student is admitted to candidacy. The minimum number of hours required is six. The purpose of this advanced work is to allow students to focus on an area of interest, which optimally will be the focal area and/or the catalyst for the dissertation research. Students may repeat the course for credit and may take multiple 3-hour courses simultaneously within a semester. Prior to taking MAR 7919 students are required to have completed the four marketing doctoral major concentration courses and the marketing comprehensive examination. Likely topical areas are:

Advanced Marketing Strategy
Advanced Consumer Behavior
International Marketing
Business to Business Marketing
Behavioral Models in Sales Force Management

Research Tools—15 Semester Hours
CLP XXXX Quasi Experimental Design (3 hours)
CLP XXXX Causal Modeling (3 hours)
ECO 6424 Econometrics (3 hours)
ECO 7424 Applied Models I (3 hours)
ECO 7425 Applied Models II (3 hours)
Graduate programs through the College of Education are provided for students who have completed at least baccalaureate degrees. Both degree and non-degree 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 and Master of Arts degrees are awarded in many fields. Education Specialists are offered in School Psychology, Curriculum and Instruction, and Educational Leadership. Doctor of Education degrees are available in Educational Leadership and Curriculum/Instruction. The Doctor of Philosophy degree is available in Curriculum/Instruction. All programs in the College of Education are accredited by NCATE (National Council for the Accreditation of Teacher Education). School Psychology is accredited by the National Association of School Psychologists (NASP/NCATE). Exceptional Student Education is accredited by the Council for Exceptional Education.

College Administration
Sandra L. Robinson, Dean
Jennifer M. Platt, Associate Dean
Michael C. Hynes, Associate Dean
Helen Stewart-Dunham, Brevard Campus Coordinator, (407) 632-1111, ext. 65533
Anne Wimmer, Daytona Beach Campus Coordinator, (904) 255-7423, ext. 4058
Karen Hatcher, Lake/Sumter Campus Coordinator, (352) 787-3747, ext. 633

Faculty

Educational Foundations
Chair of the Department: K. L. Biraimah
Associate Graduate Faculty, Florida Gulf Coast University: D. A. Pataniczek, Ph.D.; C. M. Hewitt-Gervais, Ph.D.

Educational Services
Chair of the Department: TBA
Associate Graduate Faculty, Florida Gulf Coast University: C. F. Carter, Ed.D.; T. C. Valesky, Ed.D.

Instructional Programs
Interim Chair of the Department: J. W. Cornett
Assistant Professors: S. Atkins, Ph.D.; T. Brewer, Ph.D.; E. F. Clifford, Ph.D.; P. Crawford, Ph.D.; A. Sweeney, Ph.D.

Exceptional and Physical Education
Chair of the Department: TBA
Professors: J. L. Olson, Ph.D.; J. M. Platt, Ed.D., Associate Dean; F. D. Rohter, Ph.D.
Associate Graduate Faculty, Florida Gulf Coast University: M. S. Green, Ed.D.
Programs

Master's Degrees
Art Education
Counselor Education
  Mental Health Counseling Track
  School Counseling Track
Educational Leadership
  Student Personnel Administration in Higher Education Track
  Curriculum and Instruction Track
Elementary Education
  Primary Track
  Mathematics Education Track
English Language Arts
Exceptional Child Education
  Varying Exceptionalities Track
Instructional Technology
  Educational Media Track
  Educational Technology Track
  Instructional Systems Track
Mathematics Education
Music Education
Physical Education
Reading Education
Science Education
  Biology Track
  Chemistry Track
  Physics Track
Social Science Education
Vocational Education

Education Specialist Degrees
Curriculum and Instruction
Educational Leadership
School Psychology

Doctoral Degrees
Curriculum and Instruction (Ed.D. and Ph.D.)
Educational Leadership (Ed.D.)

Master's Programs

Programs are offered in a wide variety of areas within the general field of education. Master of Education programs are open only to qualified students who have completed a baccalaureate degree and have completed course work for regular Florida State Teaching Certification. This degree is appropriate for the practicing educator who wishes to update and extend knowledge of their present teaching field.

Master of Arts programs leading to initial certification are open to qualified individuals who are seeking both a master's degree and a new teaching certification. Students who are presently teaching with a valid Florida Teaching Certificate may add a teaching field to their certificate by completing a Master of Arts degree. Those students without previous certification and who are seeking initial certification in a teaching area may be required by the program area to complete an internship to complete the state-approved program. M.A. candidates must complete a portfolio as part of the requirements of an internship.

NOTE: All Master of Arts programs at UCF leading to initial certification are state-approved programs. Completion of the prescribed program results in the affixing of a state-approved program stamp to the transcript. This stamp ensures that certification will be issued by the Florida Department of Education in the indicated area. Failure to complete the prescribed state-approved program through petitions, waivers, or unauthorized course substitutions will be cause to not affix the stamp of approval on the transcript. While the student may graduate with a Master of Arts, a transcript without the stamp will be evaluated for certification on a course-by-course basis. UCF and the College of Education do not guarantee that any non-stamped program transcript will lead to certification by the Florida Department of Education.

Admission

The Graduate Record Examination (GRE) is required of all graduate students. Minimal requirements for admission are (1) a grade point average (GPA) of 3.0 for the last 60 attempted semester hours of undergraduate study and a minimum score of at least 840 on the verbal-quantitative sections of the GRE or (2) a GPA of less than 3.0 combined with a GRE of 1000 or above. A score of 213 (computer-based test) or 550 (paper-based test) on the Test of English as a Foreign Language (TOEFL) is required if the applicant is an international student. 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, may be planned without the student’s having previously completed certification courses.

Education programs at the area campuses are limited access programs. Acceptance to the university and/or the College of Education does not constitute admission to the UCF Brevard or Daytona education program. A separate application must be made directly to the Daytona or Brevard Campus.

Provisional Admission

The College of Education has a separate provisional application process. The provisional deadline is earlier in the semester for all programs with the exception of School Psychology, Counselor Education, and the doctoral programs. Students who fail to meet university admissions standards have the opportunity to apply for admission via the provisional category. To be considered for provisional admission in the College of Education, students must file an application for provisional status in the Education Student Services Office (ED 109; 823-3723) upon being denied regular admission. Department committees make recommendations to the College Graduate Standards and Curriculum Committee. The following criteria are applied in evaluating applications:

- Ranking of undergraduate grade point average
- Ranking of GRE score
- Contribution, current and projected, to the profession
- Number of years of professional experience
- Number of non-degree-seeking hours taken
- Grade point average on any non-degree-seeking work
- Recommendations by college faculty and other professionals.
Provisional students who do not maintain a 3.0 GPA during their first nine hours of enrollment will be reverted to non-degree-seeking status. Those who are accepted as provisional students by one program are not accepted into another, but must reapply for provisional admittance into another program.

Program of Study

Students are officially assigned formal academic advisers upon admission to a College of Education graduate degree program. It is the student's responsibility to seek advisement and finalize a program of study early in the degree program. Students are advised to file a program of study within the first nine hours of their graduate study. The acceptability and application of non-degree/transfer hours toward a degree is contingent upon the recommendation of the academic adviser and is approved only after a program of study has been officially filed through all university channels.

Academic advisers are not assigned to individuals admitted as non-degree-seeking students. Non-degree-seeking students may seek information and general advisement in the Education Student Services Office (ED 109; 823-3723). Non-degree-seeking students seeking certification in the state of Florida and who have been initially certified elsewhere are not eligible for financial assistance from the university. In general, non-degree-seeking students cannot receive financial assistance unless enrolled for at least half-time and they have not previously been certified. Students should check their specific circumstances with the Office of Student Financial Assistance.

Performance Standards

Minimum university-wide standards and regulations are applicable in addition to the specific College of Education requirements and regulations described in this section. In addition to the minimum university standard of maintaining a “B” (3.0 GPA) on all graduate work and earning no more than six hours of “C” work, unresolved “I” (incomplete) grades must be resolved within one year or prior to graduation. College of Education students must maintain at least a 2.5 GPA in all co-requisite work prescribed in concert with a graduate degree program.

Students whose grade point average on degree work falls below 3.0 will be placed on academic provisional status for a nine semester-hour period of enrollment. During this time, the GPA must reach or exceed the 3.0 minimum to remain in the program. Only one academic provisional period is permitted, and no transfer credit may be applied.

Culminating Experience

Prior to graduation, all students are required to successfully complete an academic culminating experience which is planned and evaluated by each student's program area. Comprehensive examinations are the most common form of culminating experience. Failure on a comprehensive examination requires re-enrollment and reexamination during a subsequent semester. Students are required to be enrolled during the semester in which they take examinations to satisfy this requirement and must be enrolled the term they plan to graduate.

Thesis, Research Report, and Non-thesis Options

In most programs, master's degree students in education, with adviser consultation, may select one of three options: Thesis, a research paper with a formal faculty committee and defense; Research Report, a research paper supervised by the student's adviser; or the non-thesis option, course substitution for the research papers. Both the thesis and research report options result in programs with a minimum of 33 semester hours. In the non-thesis option the courses selected must be approved in advance by the student's adviser and result in a program of at least 36 semester hours. For specific options within programs, please consult the graduate program coordinator for the degree sought.

Master of Arts: Tracks in Extended Content

Graduate Program Coordinator: T. S. Kubala, ED 350, (407) UCF-2007. E-mail: tkubala@pegasus.cc.ucf.edu

Minimum hours required for M.A.—42 Semester Hours

Several of the education Master of Arts degrees have a track available to individuals who have a goal of teaching in a content area at the community college level. Every attempt is made to build at least 18 hours of graduate-level content into the program of study from the following areas: Art, Mathematics, Music, Science, Social Science, and English Language Arts. Only six hours of independent study courses may be used to satisfy degree requirements. It is important to see an adviser if courses are difficult to schedule in content areas. Students take content courses in lieu of internship with the full understanding that they will not be eligible for certification at the secondary level because of the internship deficiency in their program. College of Education content specialists serve as advisers in the program.

Area A: Core—15 Semester Hours

(some programs may vary slightly)

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)
EDF 6481 Fundamentals of Graduate Research Education (3 hours)
EDF 6517 History and Philosophy of American Education (3 hours)
ESE 6909 Research Report (2 hours)
ESE 6909 Research Report (1 hour)

Area B: Specialization—27 Semester Hours

(Electives approved by adviser)
Art Education

Graduate Program Coordinator: T. Brewer, ED 158, (407) UCF-3714.
E-mail: tbrewer@pegasus.cc.ucf.edu

Application Deadlines
Fall admission July 15
Spring admission December 1
Summer admission April 15

Master of Education in Art Education

Minimum hours required for M.Ed.—36 Semester Hours

This program is designed to meet the expanded and deepening 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 previous certification in art.

Area A: Core—9 Semester Hours
EDF 6155 Lifespan Human Development and Learning (3 hours)
EDF 6481 Fundamentals of Graduate Research in Education (3 hours)
EDF 6886 Multicultural Education (3 hours)

Area B: Specialization—21 Semester Hours
(Approved by adviser)
Can include two studio (4000*- or 5000- level ART) courses

Select One Option—6 Semester Hours
Option A: Research Report—6 Semester Hours
ARE 6938 Research Trends (3 hours)
ARE 6909 Research Report (2, 1 hours)

Option B: Thesis—6 Semester Hours
EDF 6401 Statistics for Educational Data (3 hours)
ARE 6971 Thesis (2, 1 hours)

Option C: Non-Thesis (Approved by adviser)—6 Semester Hours
* Six hours of 4000-level courses maximum

Master of Arts in Art Education

Minimum hours required for M.A.—45 Semester Hours

The Master of Arts program in Art is planned to provide the art-oriented person with a degree that includes certification. The program meets state certification requirements in foundations, special methods in art education, general methods in teaching, and the student teaching component.

Area A: Core—15 Semester Hours
EDF 6155 Lifespan Human Development and Learning (3 hours)
EDF 6236 Principles of Instruction and Learning (3 hours)
EDF 6432 Measurement and Evaluation in Education (3 hours)
EDF 6481 Fundamentals of Graduate Research in Education (3 hours)

Select One:
EDF 6517 History and Philosophy of American Education (3 hours) OR
EDF 6608 Social Factors in American Education (3 hours)

Area B: Specialization—18 Semester Hours
(Approved by adviser)
Can include two studio (4000*- or 5000- level ART) courses

Select One Option—6 Semester Hours
Option A: Research Report—6 Semester Hours
ARE 6938 Research Trends (3 hours)
ARE 6909 Research Report (2, 1 hours)

Option B: Non-Thesis—6 Semester Hours
(Approved by adviser)

Area C: Internship—6 Semester Hours
ARE 6946 Graduate Internship (6 hours)

Corequisites
ARE 4351 Teaching Art in the Elementary School (3 hours)
ARE 4352 Teaching Art in the Secondary School (3 hours)

* Six hours of 4000 maximum

Minimum undergraduate specialization requirements must be completed as pre- or corequisites. A track is available for this program in Extended Content and requires 18 hours of graduate-level content in the program. Only six hours of independent study courses may be used to satisfy degree requirements. It is important to see an adviser if courses are not offered in content areas.
Counselor Education

Graduate Program Coordinator: E. H. Robinson; ED 311, (407) UCF-3819. E-mail: erobinso@pegasus.cc.ucf.edu

This program includes two tracks. 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 with children, youth, and/or adults who have a baccalaureate degree and have completed course work. 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: (a) the student desiring certification in school counseling; (b) the student who is interested in licensure as a mental health counselor; and (c) the student who is interested in working in college or university student personnel services.

EGC 6909 Research Report may be substituted for two 3-semester-hour courses. All program tracks require clinical experiences in the UCF practicum clinic and on-site in the community. The Mental Health track requires an internship of 1,000 clock hours. The School Counseling track requires an internship of 600 clock hours.

Application Deadlines

Fall admission February 1
Spring admission September 1

Admissions

To be considered for admission to any of the counselor education program tracks, an applicant must secure, complete, and submit by the deadline (September 1 for spring term admission, February 1 for fall term admission) a special packet of materials for review by a faculty admissions committee. This material is separate from the university graduate admissions application and may be obtained from the Department of Educational Services office (ED 318). A formal interview is required and will be considered for final admission after the College of Education admission requirements are met. This program can accommodate only a limited number of students; therefore, there is a possibility of being denied admission even when all criteria are met. The College of Education reserves the right to refuse student entrance or terminate a student after admission to the Counselor Education Program, if in the judgment of the faculty the student demonstrates unacceptable personal fitness to work in the counseling field with children, youth, and/or adults.

Exit requirements include:

- Achieve at least a GPA of 3.0 in counseling specialization courses.
- Achieve a B or better in MHS 6800 and MHS 6830.
- Receive approval by Counselor Education faculty.
- Pass comprehensive written examinations satisfactorily.

Master of Education in Counselor Education

School Counseling Track

Minimum hours required for M.Ed.—48-51 Semester Hours

Area A: Core—9 or 12 Semester Hours
EDF 6155 Lifespan Human Development and Learning (3 hours)
EDF 6481 Fundamentals of Graduate Research in Education (3 hours)
EGC 6909 Research Report or 2 electives (2,1 or 6 hours)

Area B: Specialization—30 Semester Hours
MHS 5005 Introduction to the Counseling Profession (3 hours)
MHS 6220 Individual Psychoeducational Testing I (3 hours)
MHS 6400 Theories of Counseling and Personality (3 hours)
MHS 6401 Techniques of Counseling (3 hours)
MHS 6420 Counseling Special Populations (3 hours)
MHS 6500 Group Procedures and Theories in Counseling (3 hours)
MHS 6780 Ethical and Legal Issues (3 hours)
SDS 6330 Career Development (3 hours)
SDS 6411 Counseling with Children and Adolescents (3 hours)
SDS 6620 Organization and Administration of School Counseling Programs (3 hours)

Area C: Professional Clinical Experience—9 Semester Hours
MHS 6800 Practicum in Counselor Education (3 hours)
MHS 6830 Counseling Internship I (3 hours)
MHS 6830 Counseling Internship II (3 hours)

NOTE: Courses should be taken in the following sequence: MHS 5005, 6400, 6401, 6500, 6800, and 6830.

Master of Arts in Counselor Education

School Counseling Track

Minimum hours required for M.A.—60-63 Semester Hours

Area A: Core—9 or 12 Semester Hours
EDF 6155 Lifespan Human Development and Learning (3 hours)
EDF 6481 Fundamentals of Graduate Research in Education (3 hours)
EGC 6909 Research Report or 2 electives (2,1 or 6 hours)

Area B: Specialization—30 Semester Hours
MHS 5005 Introduction to the Counseling Profession (3 hours)
MHS 6220 Individual Psychoeducational Testing I (3 hours)
MHS 6400 Theories of Counseling and Personality (3 hours)
MHS 6401 Techniques of Counseling (3 hours)
MHS 6420 Counseling Special Populations (3 hours)
MHS 6500 Group Procedures and Theories in Counseling (3 hours)
MHS 6780 Ethical and Legal Issues (3 hours)
SDS 6330 Career Development (3 hours)
SDS 6411 Counseling with Children and Adolescents (3 hours)
SDS 6620 Organization and Administration of School Counseling and Guidance Programs (3 hours)

Area C: Professional Clinical Experience—9 Semester Hours
MHS 6800 Practicum in Counselor Education (3 hours)
MHS 6830 Counseling Internship I (3 hours)
MHS 6830 Counseling Internship II (3 hours)

Area D: Required DOE Certification—9 Semester Hours
Foundations: Select one of the following:
EDF 6517 History and Philosophy of American Education (3 hours)
EDF 6608 Social Factors in American Education (3 hours)
EDF 6886 Multicultural Education (3 hours)

General Methods—6 Semester Hours
(Approved by adviser)

Mental Health Counseling Track
Minimum hours required for M.A.—60 Semester Hours
This program prepares students for Florida licensure in mental health counseling.

Area A: Core—9 or 12 Semester Hours
EDF 6155 Lifespan Human Development and Learning (3 hours)
EDF 6481 Fundamentals of Graduate Research in Education (3 hours)
EGC 6909 Research Report or 2 approved electives (2, 1 or 6 hours)

Area B: Specialization—36 Semester Hours
MHS 5005 Introduction to the Counseling Profession (3 hours)
MHS 6020 Mental Health Care Systems (3 hours)
MHS 6070 Diagnosis and Treatment in Counseling (3 hours)
MHS 6220 Individual Psychoeducational Testing I (3 hours)
MHS 6221 Individual Psychoeducational Testing II (3 hours)
MHS 6400 Theories of Counseling and Personality (3 hours)
MHS 6401 Techniques of Counseling (3 hours)
MHS 6420 Counseling Special Populations (3 hours)
MHS 6480 Human Sexuality and Relationships (3 hours)
MHS 6500 Group Procedures and Theories in Counseling (3 hours)
MHS 6780 Ethical and Legal Issues (3 hours)
SDS 6330 Career Development (3 hours)

Area C: Cognate Electives—3 Semester Hours
(Approved by adviser)

Area D: Professional Clinical Experiences—12 Semester Hours
MHS 6800 Practicum in Counselor Education I (3 hours)
MHS 6800 Practicum in Counselor Education II (3 hours)

MHS 6830 Counseling Internship I (3 hours)
MHS 6830 Counseling Internship II (3 hours)

NOTE: Courses should be taken in the following sequence: MHS 5005, 6400, 6401, 6500, 6800, and 6830.

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Educational Leadership

Graduate Program Coordinator: K. Murray, RP 215, (407) 384-2191. E-mail: murray@pegasus.cc.ucf.edu

Application Deadlines

Fall admission
Spring admission
Summer admission

July 15
December 1
April 15

Two master's degree programs are offered in Educational Leadership: the Master of Education Degree (M.Ed.) and the Master of Arts Degree (M.A.). The purpose of the M.Ed. in Educational Leadership is to prepare individuals for leadership positions and administrative careers in education. The M.A. options are designed to prepare individuals for leadership positions in student personnel administration in higher education and education-related fields. The M.A. options do not fulfill state certification requirements.

Educational Leadership (M.Ed.) is a 39-semester-hour program of study applicable toward Florida Educational Leadership Certification that is designed to provide the theoretical and conceptual knowledge base required for principalship and for Florida Level I Educational Leadership Certification. Courses required in the program address the eight competency domains specified by the Florida Department of Education and included in the Florida Educational Leadership Examination (FELE). Educational Leadership Certification is subject to Florida Department of Education approval. An M.Ed. in Educational Leadership or its equivalent, three years of teaching experience, and successful completion of the Florida Educational Leadership Examination are required by the state of Florida for certification in Educational Leadership.

Modified Leadership Core Program

If an individual holds a graduate degree with a major other than educational administration, administration, and supervision or educational leadership, certification may be obtained through completion of an approved modified program in educational leadership. The UCF modified program consists of the eight courses in Area B of the Specialization of the Educational Leadership M.Ed. degree and where appropriate (Area C) Program Emphasis. The Educational Leadership graduate program coordinator should be contacted to request an evaluation of prior graduate course work (required for admission into the program).
The Education complex contains classrooms, a library, computer labs, a gymnasium, faculty and administrative offices, and a cafe.
Master of Education in Educational Leadership

Minimum hours required for M.Ed.—39 Semester Hours

Area A: Core—9 Semester Hours
EDF 6432 Measurement and Evaluation in Education (3 hours)
EDF 6481 Fundamentals of Graduate Research in Education (3 hours)

Select 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)
EDF 6886 Multicultural Education (3 hours)

Area B: Specialization—24 Semester Hours
It is recommended that these courses be taken in the following sequence:
EDA 6061 Organization and Administration of Schools (3 hours)
EDA 6232 Legal Aspects of School Operation (3 hours)
EDA 6240 Educational Financial Affairs (3 hours)
EDA 6260 Educational Systems Planning and Management (3 hours)
EDA 6931 Contemporary Issues in Educational Leadership (3 hours)
EDA 6946 Graduate Internship (3 hours)*
EDS 6123 Educational Supervisory Practices I (3 hours)
EDS 6130 Educational Supervisory Practices II (3 hours)

Area C: Program Emphasis—6 Semester Hours
EDG 6223 Curriculum Theory and Organization** (3 hours)
EDG 6253 Curriculum Inquiry** (3 hours)

* Students must have teaching experience to complete the internship.
** Both curriculum courses must be taken at one level (e.g., elementary, middle, high school, or exceptional education). The level must be indicated on the program.

Curriculum and Instruction Track

Minimum hours required for M.Ed.—33 Semester Hours

Area A: Core—18 or 21 Semester Hours
EDF 6236 Principles of Instruction 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)
EDG 6223 Curriculum Theory and Organization (3 hours)
EDG 6909 Research Report or 2 approved electives (2,1 or 6 hours)

Area B: Specialization—12 Semester Hours
EDF 6233 Analysis of Classroom Teaching (3 hours)
EDG 6046 Contemporary Issues in Education (3 hours)
EDG 6946 Practicum (3 hours)
EDS 6123 Educational Supervisory Practices I (3 hours)

Area C: Elective approved by adviser—3 Semester Hours

Master of Arts in Educational Leadership

Minimum hours required for M.A.—42 Semester Hours

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)
EDF 6608 Social Factors in American Education (3 hours) OR
EDF 6401 Statistics for Educational Data (3 hours) OR
EDF 6432 Measurement and Evaluation in Education (3 hours)
EDA 6909 Research Report (2,1 hours)

Area B: Specialization—9 Semester Hours
(Approved by adviser)

Area C: Administration—18 Semester Hours
It is recommended that these courses be taken in the following sequence:
EDA 6061 Organization and Administration of Schools (required) (3 hours)
EDS 6123 Educational Supervisory Practices I (3 hours) OR
EDS 6130 Educational Supervisory Practices II (3 hours)
EDF 6232 Legal Aspects of School Operation (3 hours)
EDA 6240 Educational Financial Affairs (3 hours)
EDA 6260 Educational Systems Planning and Management (3 hours)
EDA 6931 Contemporary Issues in Educational Leadership (required) (3 hours)

Student Personnel Administration in Higher Education Track

Minimum hours required for M.A.—39 Semester Hours

Area A: Core—6 Semester Hours
EDF 6481 Fundamentals of Graduate Research in Education (3 hours)
EDF 6432 Measurement and Evaluation in Education (3 hours) OR
EDF 6401 Statistics for Educational Data (3 hours)

Area B: Specialization—24 Semester Hours
EDA 6540 Organization and Administration of Higher Education (3 hours)
EDH 6065 History and Philosophy of Higher Education (3 hours)
EDH 6505 Finance in Higher Education (3 hours)
MHS 6400 Theories of Counseling and Personality (3 hours)
MHS 6780 Ethical and Legal Issues (3 hours)
SDS 6090 Student Personnel Services in Higher Education (3 hours)
Elementary Education

**Graduate Program Coordinator:** D. Camp, ED 354, (407) UCF-2939. E-mail: camp@mail.ucf.edu

**Application Deadlines**

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**Master of Education in Elementary Education**

**Minimum hours required for M.Ed.—33 Semester Hours**

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 and instructional trends in basic subject matter areas, and elective choices in specific areas.

**Area A: Core—15 Semester Hours**

EDF 6155 Lifespan Human Development and Learning (3 hours)
EDF 6236 Principles of Instruction and Learning (3 hours)
EDF 6481 Fundamentals of Graduate Research in Education (3 hours)

Select Option A or B:

**Option A:**
EDF 6401 Statistics for Educational Data (3 hours)
EDE 6971 Thesis (2,1 hours)

**Option B:**
EDF 6517 History and Philosophy of American Education (3 hours)
EDE 6909 Research Report (2,1 hours)

**Area B: Specialization—18 Semester Hours**

EDE 6938 Elementary Education Seminar (2,1 hours)
SCE 6616 Trends in Elementary School Science Education (3 hours)
SSE 6617 Trends in Elementary School Social Studies Education (3 hours)

Select One:

- LAE 6616 Trends in Language Arts Education (3 hours)
- RED 6116 Trends in Reading Education (3 hours)

Select One:

- LAE 5415 Children’s Literature Elementary Education (If no previous children’s literature course) (3 hours)
- LAE 6714 Investigation in Children’s Literature (3 hours)
- MUE 5695 Trends in Arts Education (3 hours)

Select One:

- MAE 6517 Diagnosis/Remediation of Difficulties in Mathematics for the Classroom Teacher (3 hours)
- MAE 6641 Problem Solving and Critical Thinking Skills (3 hours)

**Primary Track**

**Minimum hours required for M.Ed.—36-39 Semester Hours**

The purpose of this track is to prepare students to become master teachers of, or consultants for, programs in age three (3) through grade three. Course work 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. Students must have certification in Elementary Education. This degree does not meet the requirements for Early Childhood Education.

**Area A: Core—12 or 15 Semester Hours**

EDF 6155 Lifespan Human Development and Learning (3 hours)
EDF 6481 Fundamentals of Graduate Research in Education (3 hours)

Select Option A or B:

**Option A - Research Project or Thesis—6 Semester Hours**
EDF 6401 Statistics for Educational Data (3 hours)
EDE 6971 Thesis (2,1 hours) OR
EDE 6909 Research Report (2,1 hours)

**Option B - Non-Thesis—9 Semester Hours**
Electives approved by adviser (6 hours)
EDF 6886 Multicultural Education (3 hours)

**Area B: Specialization—24 Semester Hours**

EEC 5205 Programs and Trends in Early Childhood Education (3 hours)
EEC 5206 Organization of Instruction in Early Childhood Education (3 hours)
EEC 5208 Creative Activities in Early Childhood (3 hours)
EEC 6268 Play Development, Intervention, and Assessment (3 hours)
EEC 6406 Guiding and Facilitating Social Competence (3 hours)
EEX 5750 Communication with Parents and Agencies (3 hours)
Mathematics Education Track

Minimum hours required for M.Ed.—33 Semester Hours

This is a track 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.

Course work 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 K-8 (pre-algebra) mathematics classroom individualized instruction programs.

This track is not approved for automatic certification by the state of Florida. The track may qualify students for certification in Middle School Mathematics if sufficient mathematics (8 semester hours) content courses and certain experience-methods requirements have been taken. To be certified as an elementary mathematics specialist, a person must have a minimum of 18 semester hours in mathematics.

Area A: Core—12 or 15 Semester Hours
EDF 6481 Fundamentals of Graduate Research in Education (3 hours)
EDF 6401 Statistics for Educational Data (3 hours) OR
EDF 6432 Measurement and Evaluation in Education (3 hours)

Select 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)
MAE 6909 Research Report or 2 electives (2, 1 or 6 hours)

Area B: Specialization—12 Semester Hours
MAE 4634 Programs in Teaching of Mathematics (3 hours)
MAE 6517 Diagnosis/Remediation of Difficulties in Mathematics for the Classroom Teacher (3 hours)
MAE 6899 Seminar in Teaching Mathematics (3 hours)
MAE 6946 Practicum (3 hours)

Area C: Electives—9 Semester Hours
(Approved by adviser)
MAE 5318 Current Methods in Elementary School Mathematics (3 hours)
MAE 6145 Mathematics Curriculum, K-12 (3 hours)
MAE 6641 Problem Solving and Critical Thinking Skills (3 hours)

Master of Arts in Elementary Education

Minimum hours required for M.A.—36 Semester Hours

The M.A. in Elementary Education can be completed in the minimum 36 semester hours only if the student has completed previous initial certification in another area, including a supervised internship, and the state-approved beginning teacher program. Students without previous certification must complete all requirements listed. Please note that if this M.A. program provides your initial certification, 80 clock hours of field experience must be completed prior to enrolling in internship.

Area A: Seminars—3 Semester Hours
EDE 6938 Elementary Education Seminar (2 hours)
EDE 6938 Elementary Education Seminar (1 hour)

Area B—15 Semester Hours
EDF 6481 Fundamentals of Graduate Research in Education (3 hours)
EDF 6432 Measurement and Evaluation in Education (3 hours)
EDF 6155 Lifespan Human Development and Learning (3 hours)
EDF 6236 Principles of Teaching and Learning (3 hours)
One elective from EDF 6608, EDF 6517, or EDF 6886 (3 hours)

Area C: PR or CR EDE 6938 (2-hour course)—21 Semester Hours
LAE 5319 Methods of Elementary School Language Arts (3 hours)
LAE 5415 Children’s Literature in Elementary Education (3 hours)
MAE 5318 Current Methods in Elementary School Mathematics (3 hours)
SCE 5716 Methods in Elementary School Science (3 hours)
RED 5514 Classroom Diagnosis and Development of Reading Proficiencies (PR: RED 5147) (3 hours)
SSE 5115 Methods of Elementary School Social Science (3 hours)

Area D: Internship—6 Semester Hours
EDE 6946 Graduate Internship (6 hours)
Corequisites
ARE 4313 Art in Elementary Schools (3 hours)
HLP 4722 Teaching Elementary School Health and Physical Education (3 hours)
MUE 3210 Music in Elementary Schools (3 hours)
Master of Arts in English Language Arts Education

Minimum hours required for M.A.—42 Semester Hours

A secondary (6-12) program for non-education majors or previously certified teachers in another field.

Area A: Core—18 or 21 Semester Hours
EDF 6155 Lifespan Human Development and Learning (3 hours)
EDF 6236 Principles of Instruction and Learning (3 hours)
EDF 6481 Fundamentals of Graduate Research in Education (3 hours)
EDG 6253 Curriculum Inquiry (3 hours)
ESE 6909 Research Report or 2 approved electives (2, 1 or 6 hours)

Area B: Specialization—15 or 18 Semester Hours
(Approved by adviser)
LAE 5295 Writing Workshop I (3 hours)
LAE 6467 Studies in Adolescent Literature (3 hours)
LAE 6637 Research in Teaching English (3 hours)
LAE 6792 CFWP Teacher/Researcher (3 hours)
Elective (Approved by adviser) (3 hours)

Area C: Internship—9 Semester Hours
LAE 6946 Graduate Internship (3 hours)
LAE 6946 Graduate Internship (6 hours)

Corequisites
LAE 4360 English Instructional Analysis (4 hours)

Students are required to take 30 hours of English course work to meet certification requirements to teach English, grades 6-12. A track is available for this program in Extended Content and requires 18 hours of graduate-level content in the program. Only six hours of independent study courses may be used to satisfy degree requirements. It is important to see an adviser if courses are difficult to schedule in content areas.
Exceptional Child Education: Varying Exceptionalities

Graduate Program Coordinator: M. Lue, ED 305, (407) UCF-2036. E-mail: mbell@pegasus.cc.ucf.edu

Application Deadlines

Fall admission       July 15
Spring admission     December 1
Summer admission     April 15

Master of Education in Exceptional Child Education

Varying Exceptionalities Track

Minimum hours required for M.Ed.—33-36 Semester Hours

The Master of Education degree prepares exceptional education teachers to work in programs serving K-12 students with varying exceptionalities. It is designed for teachers already certified in an area of exceptional education.

Area A: Core—9-12 Semester Hours
EDF 6432 Measurement and Evaluation in Education (3 hours)
EDF 6481 Fundamentals of Graduate Research in Education (3 hours)
EEX 6971 Thesis OR two of the following three approved electives
ELD 6248 Instructional Strategies for Students with Learning Disabilities (3 hours)
EMR 6362 Teaching Students with Mental Handicaps (3 hours)
EED 6226 Theory and Application for the Emotional Handicapped (3 hours)

Area B: Specialization—24 Semester Hours
EEX 6061 Instructional Strategies PreK-6 (3 hours)
EEX 6065 Instructional Strategies 6-12 (3 hours)
EEX 6107 Teaching Spoken and Written Language (3 hours)
EEX 6266 Assessment and Curriculum Prescriptions for the Exceptional Population (3 hours)
EEX 6342 Seminar—Critical Issues in Special Education (3 hours)
EEX 6524 Organization and Collaboration in Special Ed (3 hours)
EEX 6612 Methods of Behavioral Management (3 hours)
EEX 6863 Supervised Practicum or Elective (Approved by Adviser) (3 hours)

Culminating experience includes a comprehensive examination. Please see your adviser.

* Approved electives include ELD 6248, EMR 6362, EED 6226, or other course approved by adviser.

Master of Arts in Exceptional Child Education

Varying Exceptionalities Track

Minimum hours required for M.A.—36-39 Semester Hours

This program is for non-education majors or previously certified teachers in another field. In addition to the 36 hours, students must complete corequisite and prerequisite courses. The varying exceptionalities option leads to certification in Varying Exceptionalities Learning (VE) and prepares graduates to teach in the areas of VE, Specific Learning Disabilities (SLD), Mental Handicaps (MH), and Emotional Handicapped (EH). Graduates must be certifiable by the completion of the degree program.

Area A: Core—9-12 Semester Hours
EDF 6432 Measurement and Evaluation in Education (3 hours)
EDF 6481 Fundamentals of Graduate Research in Education (3 hours)
EEX 6908 Research Report OR two of the following three approved electives
ELD 6248 Instructional Strategies for Students with Learning Disabilities (3 hours)
EMR 6362 Teaching Students with Mental Handicaps (3 hours)
EED 6226 Theory and Application for the Emotional Handicapped (3 hours)

Area B: Specialization—27 Semester Hours
EEX 6061 Instructional Strategies PreK-6 (3 hours)
EEX 6065 Instructional Strategies 6-12 (3 hours)
EEX 6107 Teaching Spoken and Written Language (3 hours)
EEX 6266 Assessment and Curriculum Prescriptions for the Exceptional Population (3 hours)
EEX 6342 Seminar—Critical Issues in Special Education (3 hours)
EEX 6524 Organization & Collaboration in Special Ed (3 hours)
EEX 6612 Methods of Behavioral Management (3 hours)
EEX 6946 Graduate Internship (6 hours)

Corequisites
Prescribed by College of Education to meet State Certification requirements or as support for degree program. Waiver/substitutions for corequisites must meet departmental standards and be approved by the Chair of the Department.

EDF 6155 Lifespan Human Development & Learning (3 hours)
EEX 6236 Principles in Instruction and Learning (3 hours)
MAE 5318 Current Methods in Elementary School Mathematics (3 hours)
RED 5147 Developmental Reading (3 hours)

Choose one of the following:
EDF 6517 History and Philosophy of American Education (3 hours)
EDF 6608 Social Factors in American Education (3 hours)
EEX 5051 Exceptional Children in the Schools (3 hours)

Prerequisite
EEX 5051 Exceptional Children in the Schools (3 hours)
As a culminating activity, students must complete the College of Education portfolio and comprehensive examinations. Please see your adviser.

### Instructional Technology

**NOTE:** The tracks listed below are accredited by both NCATE (The National Council for the Accreditation of Teacher Education) and AECT (The Association for Educational Communications and Technology).

#### Master of Education in Instructional Technology

**Educational Media Track**

*Graduate Program Coordinator: J. R. Lee, ED 308, (407) UCF-6139. E-mail: jlee@pegasus.cc.ucf.edu*

Minimum hours required for M.Ed.—39 Semester Hours

This program leads to a Master of Education degree and certification as a school media specialist. It is designed to offer skills in administration, production, instructional design, organization, selection, evaluation and research which relate to school media programs. It stresses knowledge and applications of both present and future innovations and technologies for education.

The Master of Education degree is for the student who has completed course work for basic teaching certification in Florida; at least one year of successful classroom experience is preferred.

**Application Deadlines**

- **Fall admission**
  - July 15
- **Spring admission**
  - December 1
- **Summer admission**
  - April 15

**Admission**

To be considered for admission to the Educational Media Program, you must secure, complete and submit by a designated deadline, a special packet of materials for review by the Educational Media Review Committee. This managed application packet is available from Graduate Admissions. Included in the managed application packet will be: (1) essay questions required for admission into the Educational Media program, and (2) forms for three letters of recommendation. A formal interview with the Educational Media Review Committee is required. All required materials, an interview and a favorable recommendation from the Educational Media Review Committee, acceptance by UCF Graduate Studies and the College of Education are required for acceptance into the Educational Media program.

#### Master of Arts in Instructional Technology

**Educational Technology Track**

*Graduate Program Coordinator: G. Gunter, ED 313, (407) UCF-3502. E-mail: ggunter@pegasus.cc.ucf.edu*

Minimum hours required for M.A.—36 Semester Hours

This program leads to a Master of Arts degree and is designed for classroom teachers who want to apply technological tools to the learning process as well as develop leadership skills necessary to become site-based technology coordinators in K-12 schools. For those not currently certified in education by the Florida Department of Education, an additional course in the foundations of education area is required. The
Dr. Richard Cornell, Graduate Program Coordinator for Instructional Systems, takes the time to work one on one with his students.
program does not lead to any current certification in Florida, nor is any add-on certification or endorsement currently available in this area.

**Application Deadline**

Fall admission only      March 30

**Admissions Policy**

To be considered for admission to the Educational Technology Program, you must secure, complete and submit by a designated deadline, a special packet of materials for review by the Educational Technology Review Committee. Included in this packet will be: 1) an application for admission in the Educational Technology Program and 2) forms for three letters of recommendation. This material is separate from the university graduate admissions application and may be obtained from the Educational Services Department Office (ED 318). A formal interview with the Educational Technology Review Committee is required. Acceptance by UCF Graduate Studies and the College of Education, in addition to the abovementioned materials, are required for acceptance into the Educational Technology Program.

**Area A: Core—9-12 Semester Hours**

EDF 6432 Measurement and Evaluation in Education (3 hours)
EDF 6481 Fundamentals of Graduate Research in Education (3 hours)

**Option A - Research Report**

EME 6909 Research Report (2,1 hours)

**Option B - Non-thesis Option**

EME 6062 Research in Instructional Technology (3 hours)
Elective (3 hours)

**Area B: Specialization—18 Semester Hours**

EME 5051 Techniques of Instruction and Information Management (3 hours)
EME 5052 Electronic Resources for Education (3 hours)
EME 6405 Application Software for Educational Settings (3 hours)
EME 6507 Multimedia in the Classroom (3 hours)
EME 6602 Integrating Technology into the Curriculum (3 hours)
EME 6707 Technology Coordinator in the Schools (3 hours)

**Area C: Extension—6 Semester Hours**

Electives in current certification area or other as approved by adviser (3 hours)
Elective (3 hours)

**Area D: Practicum—3 Semester Hours**

EME 6940 Theory into Practice in Educational Technology (3 hours)

Co-requisite (If not currently certified in education)
EDF 6517 History and Philosophy of American Education (3 hours) OR

EDF 6608 Social Factors in American Education (3 hours) OR
EDF 6886 Multicultural Education (3 hours)

**Instructional Systems Track**

*Graduate Program Coordinator: R. Cornell, ED 312, (407) UCF-2053. E-mail: cornell@mail.ucf.edu*

**Minimum hours required for M.A.—39 Semester Hours**

This program leads to a Master of Arts degree and is designed for those who wish to work in business, industry, government, or other settings where training takes place. Instructional technologists analyze training problems and requirements; design, develop, evaluate, and manage instructional programs.

**Application Deadlines**

Fall admission      July 15
Spring admission     December 1
Summer admission     April 15

**Area A: Core—6 or 9 Semester Hours**

EDF 6481 Fundamentals of Graduate Research in Education (3 hours)

**Select Option A, B, or C:**

**Option A**

EME 6909 Research Report (2,1 hours)

**Option B**

EME 6971 Thesis (3 hours)

**Option C**

EME 6062 Research in Instructional Technology (3 hours)
Elective approved by adviser (3 hours)

**Area B: Specialization—24 Semester Hours**

EME 5054 Instructional Systems Technology: A Survey of Applications (3 hours)
EME 5056 Communication for Instructional Systems Process (3 hours)
EME 5057 Communication for Instructional Systems Application (3 hours)
EME 5408 Computer Applications in Instructional Technology (3 hours) OR
EME 6313 Media Systems Design (3 hours)
EME 6613 Instructional System Design (3 hours)
EME 6705 Administration of Instructional Systems (3 hours)
CAP 6613 Utilizing Micro Computers in Education (3 hours)
EME 6946 Graduate Internship in Instructional Systems (3 hours) OR
COE 6946 Cooperative Education (3 hours)

**Area C: Elective—9 Semester Hours**

(Courses not listed below require adviser approval)
EIN 5255 Interactive Engineering (3 hours)
EME 6083 Current Trends in Instructional Technology (3 hours)
EME 6208 Multimedia Instructional Systems I (3 hours)
EME 6209 Multimedia Instructional Systems II (3 hours)
EME 6457 Distance Education: Technology Process Product (3 hours)
EME 6607 Planned Change in Instructional Technology (3 hours)
INP 6317 Organizational Psychology and Motivation (3 hours)

Lockheed Martin/UCF Academy for Mathematics and Science

Graduate Program Coordinator: J. A. Johnson, ED 146, (407) UCF-2950. E-mail: jjohnson@pegasus.cc.ucf.edu

The Lockheed Martin/UCF Academy for Mathematics and Science is dedicated to systemic improvement of mathematics and science teaching and learning. This is limited access and designed for teachers of mathematics and science in grades K-8 in Orange, Osceola, and Seminole school districts. Teachers accepted into the program pursue master’s degrees in their respective fields, elementary education, science education, or mathematics education. Applications for the cohort group are accepted at any time with a deadline of December 1 of each year. Applicants are notified of their acceptance in January, and the program begins in the summer of each year. For further information about the program, call the Lockheed Martin/UCF Academy Office, (407) 823-6076.

Mathematics Education

Graduate Program Coordinator: D. K. Brumbaugh, ED 107, (407) UCF-2045. E-mail: brumbad@pegasus.cc.ucf.edu

Master of Education in Mathematics Education

Application Deadlines

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Minimum hours required for M.Ed.—33 Semester Hours

This program is designed to meet the advanced knowledge and skill needs of the classroom teacher of mathematics.

Area A: Core—12 or 15 Semester Hours
EMF 6481 Fundamentals of Graduate Research in Education (3 hours)
Select One:
EMF 6401 Statistics for Educational Data (3 hours) OR
EMF 6432 Measurement and Evaluation in Education (3 hours)

Select One:
EMF 6155 Lifespan Human Development and Learning (3 hours) OR
EMF 6517 History and Philosophy of American Education (3 hours) OR
EMF 6608 Social Factors in American Education (3 hours)
MAE 6909 Research Report or 2 approved electives (2, 1 or 6 hours)

Area B: Specialization—6 Semester Hours
(Approved by adviser)

Area C: Curriculum Core—15 Semester Hours
(Approved by adviser)

Master of Arts in Mathematics Education

Minimum hours required for M.A.—39 Semester Hours

Program for non-education majors, or previously certified teachers in another field.

Area A: Core—18 or 21 Semester Hours
EMF 6155 Lifespan Human Development and Learning (3 hours)
EMF 6236 Principles of Instruction and Learning (3 hours)
EMF 6432 Measurement and Evaluation in Education (3 hours)
EMF 6481 Fundamentals of Graduate Research in Education (3 hours)
EMF 6517 History and Philosophy of American Education (3 hours)
ESE 6909 Research Report or 2 approved electives (2, 1 or 6 hours)

Area B: Specialization—12 Semester Hours
(Electives approved by adviser)

Area C: Internship—9 Semester Hours
MAE 6946 Graduate Internship (3 hours)
MAE 6946 Graduate Internship (6 hours)

Corequisites
MAE 4360 Math Instructional Analysis (4 hours)

Students are required to take 30 hours of mathematics course work to meet certification requirements to teach mathematics in grades 6-12. A track is available for this program in Extended Content and requires 18 hours of graduate-level content in this program. Only six hours of independent study courses may be used to satisfy degree requirements. It is important to see an adviser if courses are difficult to schedule in content areas.
Music Education

Graduate Program Coordinator: M. Palmer, ED 172B, (407) UCF-3397. E-mail: mpalmer@pegasus.cc.ucf.edu

Application Deadlines
Fall admission July 15
Spring admission December 1
Summer admission April 15

Master of Education in Music Education

Minimum hours required for M.Ed.—36 Semester Hours

This program, offered 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 performance and curriculum. Advanced courses in music history, music theory, conducting and performance are included.

Area A: Core—12-15 Semester Hours
EDF 6401 Statistics for Educational Data (3 hours) OR EDF 6432 Measurement and Evaluation in Education (3 hours) EDF 6481 Fundamentals of Graduate Research in Education (3 hours)
Select One:
EDF 6517 History and Philosophy of American Education (3 hours) OR EDF 6608 Social Factors in American Education (3 hours) MUE 6909 Research Report or 2 approved electives (2,1 or 6 hours)

Area B: Specialization—12 Semester Hours*
(Approved by adviser)

Area C: Curriculum—12 Semester Hours*
MUE 6155 Teaching Performing Organizations (3 hours) MUE 6349 Advanced General Music (3 hours) MUE 6946 Practicum in Music Education (3 hours) MUE Directed Elective (3 hours)

Other Requirements
A placement examination in music history, music theory, and sight singing (or completion of equivalent courses).
MUH 4218 Review of Music History (1 hour) MUT 4031 Review of Music Theory (1 hour)

Master of Arts in Music Education

Minimum hours required for M.A.—36 Semester Hours

This program is offered for students who have completed a baccalaureate degree who seek certification in music (K-12). The Master of Arts program is organized to develop basic teaching skills as well as advanced work in research and educational foundations, courses in foundations of music education and methods of teaching music. Supervised internship experiences are included. In most cases, music specialization requirements for certification are met by the B.A. degree.

Area A: Core—16 or 19 Semester Hours
EDF 6155 Lifespan Human Development and Learning (3 hours) EDF 6236 Principles of Instruction and Learning (3 hours) EDF 6481 Fundamentals of Graduate Research in Education (3 hours)
Select One:
EDF 6517 History and Philosophy of American Education (3 hours) OR EDF 6608 Social Factors in American Education (3 hours) OR EDF 6886 Multicultural Education (3 hours) MUE 6909 Research Report or 2 approved electives (2,1 or 6 hours)

Area B: Specialization—12 Semester Hours* (Approved by adviser)
- Graduate performance and advanced conducting courses are available only after admission to the graduate program and successful completion of 9 semester hours of the graduate program.

Area C: Internship—9 Semester Hours
MUE 6946 Graduate Internship (or equivalent) (3 hours) MUE 6946 Graduate Internship (6 hours)

Corequisites
Music specialization requirements must be met by either a B.A. in Music or additional course work to be determined by adviser.
EDF 6432 Measurement and Evaluation in Education (3 hours) MUE 4330 Secondary School Music Methods (2 hours)

Other Requirements
A placement examination in music history, music theory, and sight singing (or completion of equivalent courses).
MUH 4218 Review of Music History (1 hour) MUT 4031 Review of Music Theory (1 hour) OR
Music History Exam Date Action
Music Theory Exam Date Action
Sight Singing Exam Date Action

A track is available for this program in Extended Content and requires 18 hours of graduate-level content in this program. Only six hours of independent study courses may be used to satisfy degree requirements. It is important to see an adviser if courses are difficult to schedule in content areas.
Physical Education

Graduate Program Coordinator: T. Angelopoulos, ED 151, (407) UCF-2034. E-mail: tangelop@pegasus.cc.ucf.edu

Application Deadlines

| Fall admission | July 15 |
| Spring admission | December 1 |
| Summer admission | April 15 |

Master of Arts in Physical Education

Minimum hours required for M.A.—39 Semester Hours

Area A: Core—9 or 12 Semester Hours
EDF 6481 Fundamentals of Graduate Research in Education (3 hours)
PET 6910 Problem Analysis—Review of Literature (3 hours)
*PET 6946 Practicum, Clinical Practice (3-6 hours)
* Can be taken only after 2/3 of program is completed.

Area B: Specialization—27 Semester Hours
(Approved by adviser)

NOTE: Credit in human anatomy is a prerequisite or corequisites for many PET courses. Consult with an adviser.

Courses must be selected in consultation with an adviser. Any of the following courses may be chosen as well as courses from other colleges:

PET 5355 Exercise Physiology and Health (3 hours)
PET 6086 Exercise Intervention and Risk Hazards (3 hours)
PET 6088 Wellness Development and Children (3 hours)
PET 6089 Personal and Organizational Wellness (3 hours)
PET 6238 Perceptual Motor Development (3 hours)
PET 6357C Environmental Exercise Physiology (3 hours)
PET 6357 Physical Performance and Energy Supplies (3 hours)
PET 6381 Physiology of Neuromuscular Mechanisms (3 hours)
PET 6388 Exercise Physiology and Cardiovascular Disease Prevention (3 hours)
PET 6389 Exercise Physiology Instrumentation (3 hours)
PET 6416 Administration of Corporate Wellness Programs (3 hours)
PET 6515C Measurement in Kinesiology and Physical Education (3 hours)

Research Report Option*—3-6 Semester Hours
PET 6909 Research Report (3-6 hours)
In consultation with the adviser, the student who writes a research report may choose to take 24 hours in the specialization area.

Reading Education

Graduate Program Coordinator: A. R. Joels, ED 351, (407) UCF-2008. E-mail: ajoels@pegasus.cc.ucf.edu

Application Deadlines

| Fall admission | July 15 |
| Spring admission | December 1 |
| Summer admission | April 15 |

Master of Education in Reading Education

Minimum hours required for M.Ed.—36 Semester Hours

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 practica with disabled readers from the early childhood to adult levels. Professionals currently certified as Florida teachers are eligible to pursue a degree in the program. See individual course descriptions in this catalog.

Area A: Core—15 Semester Hours
EDF 6432 Measurement and Evaluation in Education (3 hours)
EDF 6481 Fundamentals of Graduate Research in Education (3 hours)
EDF 6886 Multicultural Education (3 hours)

Select Option A, B, or C:

Option A: Thesis
EDF 6401 Statistics for Educational Data (3 hours)
RED 6971 Thesis (2, 1 hours)

Option B: Research Report
EDF 6155 Lifespan Human Development and Learning (3 hours)
RED 6909 Research Report (2, 1 hours)

Option C: Extended Specialization—6 Semester Hours
Electives pre-approved by adviser

Area B: Specialization—21 Semester Hours
RED 6116 Trends in Reading Education (3 hours)
RED 6536 Reading in the Content Areas (3 hours)
RED 6337 Reading in the Secondary School (PR: RED 6336) (3 hours)
RED 6746 Management of Reading Programs (3 hours)
Science Education

Graduate Program Coordinator: J. A. Johnson, ED 146, (407) UCF-2950. E-mail: jjohnson@pegasus.cc.ucf.edu

Application Deadlines

Fall admission July 15
Spring admission December 1
Summer admission April 15

Master of Education in Science Education

Minimum hours required for M.Ed.—33 Semester Hours

This program is designed to meet the advanced knowledge and skill needs of the science classroom teacher.

Area A: Core—9 Semester Hours
EDF 6401 Statistics for Educational Data (3 hours) OR
EDF 6432 Measurement and Evaluation in Education (3 hours)
EDF 6481 Fundamentals of Graduate Research in Education (3 hours)
Select 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)
ESE 6909 Research Report or 2 approved electives (2,1 or 6 hours)
Area B: Specialization—9 Semester Hours
(Approved by adviser)
Area C: Curriculum—12 Semester Hours
9 hours approved by adviser
SCE 6238 Inquiry in the Sciences (3 hours)

Master of Arts in Science Education

Biology Track

Minimum hours required for M.A.—39 Semester Hours

Program for non-education majors, or previously certified teachers in another field.

Area A: Core—18 or 23 Semester Hours
EDF 6155 Lifespan Human Development and Learning (3 hours)
EDF 6236 Principles of Instruction and Learning (3 hours)
EDF 6481 Fundamentals of Graduate Research in Education (3 hours)
EDF 6517 History and Philosophy of American Education (3 hours)
EDG 6253 Curriculum Inquiry (3 hours)
Select One Option:
Option A - Research Report—3 Semester Hours
ESE 6909 Research Report (2,1 hours)
Option B - Non-Thesis—8 Semester Hours
PCB 5045C Conservation Biology (4 hours)
PCB 6675C Evolutionary Biology (4 hours)
Area B: Specialization—12 Semester Hours
3 hours approved by adviser
5000- or 6000-level biology courses approved by adviser* (9 hours)
Area C: Internship—9 Semester Hours
SCE 6946 Graduate Internship (3 hours)
SCE 6946 Graduate Internship (6 hours)
Corequisites
Students must meet the 30-hour rule with courses in Genetics, General Biology, Ecology, Technology, or History of Science.
SCE 4360 Science Instructional Analysis (4 hours)
* Only six hours of independent study.

Chemistry Track

Minimum hours required for M.A.—39 Semester Hours
Program for non-education majors, or previously certified teachers in another field.

Area A: Core—18 or 23 Semester 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)
ESE 6909 Research Report or 2 approved electives (2,1 or 6 hours)
Area B: Specialization—9 Semester Hours
(Approved by adviser)
Area A: Core—18 or 21 Semester Hours
EDF 6155 Lifespan Human Development and Learning (3 hours)
EDF 6236 Principles of Instruction and Learning (3 hours)
EDF 6481 Fundamentals of Graduate Research in Education (3 hours)
EDF 6517 History and Philosophy of American Education (3 hours)
EDG 6253 Curriculum Inquiry (3 hours)

Select One Option:

Option A - Research Report—3 Semester Hours
ESE 6909 Research Report (2,1 hours)

Option B - Non-Thesis—6 Semester Hours
Chemistry 5000- or 6000-level courses; may include 3 hours of 4000-level; approved by adviser

Area B: Specialization—12 Semester Hours
(Approved by adviser)
5000- or 6000-level chemistry approved by adviser* (9 hours)
SCE 6238 Inquiry in the Sciences (3 hours)

Area C: Internship—9 Semester Hours
ESE 6946 Graduate Internship (3 hours)
ESE 6946 Graduate Internship (6 hours)

Corequisites
Students must have degree in field or 30 semester hours in chemistry including Technology or History of Science.

SCE 4360 Science Instructional Analysis (4 hours)
* Only six hours of independent study.

Social Science Education

Graduate Program Coordinator: J. W. Cornett, ED 346, (407) UCF-6067. E-mail: cornett@pegasus.cc.ucf.edu

Application Deadlines
Fall admission: July 15
Spring admission: December 1
Summer admission: April 15

Master of Education in Social Science Education

Minimum hours required for M.Ed.—33 Semester Hours
This program is designed to meet advanced knowledge and skill needs of the social science classroom teacher.

Area A: Core—12 Semester Hours
EDF 6401 Statistics for Educational Data (3 hours) OR
EDF 6432 Measurement and Evaluation in Education (3 hours)
EDF 6481 Fundamentals of Graduate Research in Education (3 hours)
ESE 6909 Research Report (2,1 or 6 hours)

Select 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)
EDG 6223 Curriculum Theory and Organization (3 hours)
ESE 6235 Curriculum Design (3 hours)
SSE 6636 Contemporary Social Science Education (3 hours)

Area B: Specialization—9 Semester Hours
(Electives approved by adviser)

Area C: Curriculum—12 Semester Hours
EDG 6223 Curriculum Theory and Organization (3 hours)
ESE 6235 Curriculum Design (3 hours)
SSE 6636 Contemporary Social Science Education (3 hours)
Elective approved by adviser (3 hours)
Master of Arts in Social Science Education

Minimum hours required for M.A.—39 Semester Hours

Program for non-education majors or previously certified teachers in another field.

Area A: Core—18-21 Semester Hours
- EDF 6155 Lifespan Human Development and Learning (3 hours)
- EDF 6236 Principles of Instruction 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 6909 Research Report or 2 approved electives (2-6 hours)

Area B: Specialization—12-15 Semester Hours
- Electives approved by adviser (9-12 hours)*
- EDG 6253 Curriculum Inquiry (3 hours)

Area C: Internship—9 Semester Hours
- SSE 6946 Graduate Internship (3 hours)
- SSE 6946 Graduate Internship (6 hours)

Corequisites
Students are required to take 30 hours of social science course work to meet certification requirements to teach social science in grades 6-12.

SSE 4361 Social Science Instructional Analysis (4 hours)

A track is available for this program in Extended Content and requires 18 hours of graduate-level content in this program.

* Only six hours of independent study.

Vocational Education

Graduate Program Coordinator: R. Paugh, ED 250, (407) UCF-6066. E-mail: paugh@pegasus.cc.ucf.edu

Application Deadlines
- Fall admission: July 15
- Spring admission: December 1
- Summer admission: April 15

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 vocational Florida State Teaching Certification. The Master of Arts degree is designed for the student who has a baccalaureate degree in a discipline other than education. Many courses in both the Master of Education and the Master of Arts degrees are offered via distance education on the World Wide Web.

Master of Education in Vocational Education

Minimum hours required for M.Ed.—39 Semester Hours

Area A: Core—12 or 15 Semester Hours
- EDF 6432 Measurement and Evaluation in Education (3 hours)
- EDF 6481 Fundamentals of Graduate Research in Education (3 hours)

Select 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)

Select One Option:
- EVT 6909 Research Report (2-6 hours)
- EVT 6946 Graduate Internship or Electives (approved by adviser) (6 hours)

Area B: Vocational Education Core—9 Semester Hours
- EVT 5561 Student Guidance in the Vocational Program (3 hours)
- EVT 5817 Management of Vocational Programs (3 hours)
- EVT 6267 Vocational Program Planning, Development, and Evaluation (3 hours)

Area C: Specialization—18 Semester Hours
(Selected with approval of adviser)
Areas of focus may include: health, technical training, teaching adults, vocational administration, or business education.

Master of Arts in Vocational Education

Minimum hours required for M.A.—42 Semester Hours

Area A: Core—12 or 15 Semester Hours
- EDF 6432 Measurement and Evaluation in Education (3 hours)
- EDF 6481 Fundamentals of Graduate Research in Education (3 hours)

Select One:
- EDF 6155 Lifespan Human Development and Learning (3 hours)
- EDF 6236 Principles of Instruction and Learning (3 hours)
- EDF 6517 History and Philosophy of American Education (3 hours)
- EDF 6608 Social Factors in American Education (3 hours)

Select One Option:
- EVT 6909 Research Report (2-6 hours)
- EVT 6946 Graduate Internship (6 hours)

Area B: Vocational Education Core—9 Semester Hours
- EVT 5561 Student Guidance in the Vocational Program (3 hours)
- EVT 5817 Management of Vocational Programs (3 hours)
EVT 6267 Vocational Program Planning, Development, and Evaluation (3 hours)

Area C: Specialization—21 Semester Hours
(Selected with approval of adviser)

Areas of focus may include: health, technical training, teaching adults, or business education.

Area D: Corequisites
If initial certification is desired, the following courses must be taken:

- EVT 3365 General Methods/Testing Evaluation in Vocational Education (4 hours)
- EVT 3502 Special Needs of Vocational Students (4 hours)
- EVT 4065 Principles and Practices of Vocational Education (4 hours)

Select One:
- EVT 3312 Course Construction in Health Occupations Education (4 hours)
- EVT 3371 Course Construction in Industrial Education (4 hours)
- BTE 4410 Course Construction in Business Education (4 hours)

**Education Specialist Programs**

Education Specialist (Ed.S.) degree programs are offered in three areas: Curriculum and Instruction, for persons in teaching and other instruction/training leadership positions; Educational Leadership, for those who are interested in decision-making positions in educational organizations; and School Psychology, for students preparing to enter the specialized field of School Psychology.

Because the courses of the Ed.S. degree may differ from those of the Ed.D., credit earned in an Ed.S. degree program may not be automatically transferrable to a doctoral degree program. If a holder of an Ed.S. degree applies and is accepted for a doctoral program at a later date, the respective doctoral advisory committee will determine the amount of credit earned in the Ed.S. that is applicable to the Ed.D. In any case, 30 semester hours is the maximum amount of credit transferrable to a doctoral program of study.

**Admission Requirements**

Admission to the Education Specialist program requires:

- A master's degree from a regionally accredited institution (except in the case of School Psychology, which does not require a master's degree but does have other admission requirements) AND
- A combined score of 1000 (verbal and quantitative sections of the General Graduate Record Examination) AND

- A minimum score of 213 (computer-based test) or 550 (paper-based test) on the Test of English as a Foreign Language if the applicant is an international student AND
- Other criteria as required by the respective degree program area AND
- A recommendation from the respective advanced graduate program admission committee.

**Degree Requirements**

A program of study (i.e., required course work) will be specified by the student's program area and approved by the College of Education. In addition, the student must

- Complete course requirements for the Ed.S. degree (36 hours beyond the master's);
- Complete a course of study that includes a minimum of 12 semester hours in the specialization area, 6 graduate-level hours in research/statistics, and additional requirements that are specified by the program area;
- Maintain an overall 3.0 GPA on all graduate work attempted;
- Pass all required examinations; and
- Satisfy all other academic standards that apply to master's students. (These standards must be met or exceeded by specialist students.)

**Transfer of Credit**

A maximum of 9 semester hours earned in a master's degree may be applied to the program of study. Decisions about transfer of credit are made by the respective graduate program coordinators and the specialization advisers with approval of the College of Education.

Students entering the School Psychology program from the baccalaureate level may transfer in a maximum of 9 semester hours of graduate credit earned subsequently at an accredited institution of higher education. Graduate-level courses taken as an undergraduate student may not be used for transfer unless the credit was clearly not a part of the undergraduate degree program.

**Time Limit and Continuous Attendance**

The student has seven years from the date of admission to the Education Specialist degree to complete the program. No courses taken since the entry date may be older than 7 years and be used in the program. The college reserves the right to revert the status of students who do not maintain continuous enrollment to non-degree-seeking. Students who are reverted to non-degree-seeking status must petition to be reinstated to the program.
Examinations
There are appropriate culminating academic experiences for each of the program areas. The specific program area requirements are listed under the program descriptions.

Curriculum/Instruction and Educational Leadership

Graduate Program Coordinator, Curriculum and Instruction: M. L. Kysilka, ED 355, (407) UCF-2011.
E-mail: kysilka@pegasus.cc.ucf.edu
E-mail: murray@pegasus.cc.ucf.edu

Application Deadlines
Fall admission February 20
Spring admission September 20

Admissions Policy
Admissions will occur two times a year, fall and spring. Completed files must be on campus by September 20 for spring admission screening and February 20 for fall admission screening. Admitted students may begin course work during the first new semester after admission.

Completed files include: (1) completed UCF graduate application form, (2) transcripts from all post-secondary schools previously attended, (3) GRE scores, (4) three letters of recommendation, (5) professional resume, (6) statement of professional goals, (7) other information that may be requested after the file is started.

Application Deadline
Fall admission only March 1

Admission Requirements for consideration for admission to the program include the following:
- Meet admission requirements of the College of Graduate Studies
- Meet minimum admission requirements for advanced graduate students in the College of Education
- Bachelor’s degree from a regionally accredited baccalaureate institution
- Have an overall 3.0 GPA on last 60 attempted semester hours
- Pass all required examinations
- Meet minimum admission requirements for advanced graduate students in the College of Education
- Bachelor’s degree from an accredited institution (usually in Education or Psychology)
- Have an overall 3.0 GPA (on a 4.0 scale) for the last 60 attempted semester hours
- Have an overall 3.0 GPA (on a 4.0 scale) for the last 60 attempted semester hours
- Pass all required examinations

Examinations
Educational Leadership majors must successfully complete one 5-hour examination in general educational leadership.
Curriculum and Instruction majors must successfully complete one 3-hour examination in Curriculum and Instruction and one 3-hour examination in their area of specialization.

School Psychology

Graduate Program Coordinator: C. Balado, ED 314, (407) UCF-2054. E-mail: cbalado@mail.ucf.edu
Web address: http://pegasus.cc.ucf.edu/~edserv/

The Education Specialist 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), psychoeducational assessment, exceptional students, remediation or intervention techniques, counseling skills, as well as full-time supervised internship of two semesters in the public school setting. Graduates are certifiable at the state level and the program is approved and accredited by NASP/NCATE.

Application Deadline
Fall admission only March 1

Admission
Requirements for consideration for admission to the program include the following:
- Attend an orientation meeting prior to applying to the program (call 407-823-2596 for meeting dates)
- Meet minimum admission requirements for advanced graduate students in the College of Education
- Complete a baccalaureate degree from an accredited institution (usually in Education or Psychology)
- Have an overall GPA of 3.0 (on a 4.0 scale) for the last 60 attempted semester hours
- Pass all required examinations
- Submit three letters of recommendation (one from a faculty member)
- Receive a favorable recommendation for admission by the School Psychology Review Committee.

NOTE: Applicants graduating in spring and who might be experiencing difficulty in having complete transcripts sent to UCF by March 1 must request a letter from the Registrar of the institution granting the degree (to be submitted before the deadline) stating: (1) type of degree, (2) date of graduation; (3) major; and (4) final GPA.
This program can accommodate only a limited number of students; therefore, there is a possibility of being denied admission even when all criteria are met. Admissions to this program will occur only in the fall term. Information concerning specific admissions policies and procedures can be obtained from Dr. Carl Balado (407) 823-2054. For more information, visit our website: pegasus.cc.ucf.edu/~edserv/.

Area A: Core—12 Semester Hours
EDF 6401 Statistics for Educational Data (3 hours)
EDF 6481 Fundamentals of Graduate Research in Education (3 hours)
EX 5051 Exceptional Children in the Schools (3 hours)
EDP 6056 Advanced Educational Psychology (3 hours)

Area B: Specialization—53 Semester Hours
SPS 6601 Introduction to Psychological Services in Schools (3 hours)
SPS 6606 School Consultation Techniques (3 hours)
SPS 6608 Seminar in School Psychology (3 hours)
SPS 6801 Developmental Basis of Diverse Behavior (3 hours)
SPS 6225 Behavior/Observation Analysis of Classroom Interactions in Schools (3 hours)
SPS 6703 Child and Adolescent Deviant Behavior and Treatment (3 hours)
SPS 6931 Ethical and Legal Issues in School Psychological Services (3 hours)
MHS 6400 Theories of Counseling and Personality (3 hours)
MHS 6401 Techniques of Counseling (3 hours)
SPS 6191 Individual Psychoeducational Diagnosis I (4 hours)
SPS 6192 Individual Psychoeducational Diagnosis II (4 hours)
SPS 6125 Infant Development Assessment (3 hours)
SPS 6194 Assessment of Special Needs (3 hours)
SPS 6206 Psychoeducational Interventions (3 hours)
SPS 6175 Cultural Diversity and Nonbiased Assessment (3 hours)
SPS 6909 Research Report I and II (6 hours)

Total Minimum Semester Hours Required—53 Semester Hours

Area C: Practicum and Internship—18 Semester Hours
SPS 6946 Practicum in School Psychology I (3 hours)
SPS 6946 Practicum in School Psychology II (3 hours)
SPS 6949 School Psychology Internship I & II (12 hours)

Pre- or Corequisites (DOE Certification)
EDA 6061 Organization and Administration of Schools (3 hours)
EDF 6517 History and Philosophy of American Education (3 hours) OR
EDF 6608 Social Factors in American Education (3 hours)

Doctoral Programs

The College of Education offers the Ph.D. in Curriculum and Instruction. This research-oriented degree is appropriate for educators from school districts, businesses, industry, educational agencies, and other educational settings who need a strong research base in their intended careers. Programs of study can be designed for those educators who seek teacher education positions in a research university or research-oriented education positions in business and industry.

Doctor of Education (Ed.D.) degree programs are offered in two areas. One is Educational Leadership for students who are interested in management and leadership positions in educational organizations. Professional experience and potential are important considerations for admission to the Educational Leadership program. The second is Curriculum and Instruction, designed for those interested in teaching in a college of education, teaching a content field at the community college level, becoming a school district leader in curriculum and instruction, or performing instructional design tasks in military or business settings.

Admission Policy

Admissions will occur two times a year, fall and spring. Completed files must be on campus by September 20 for spring admission screening and February 20 for fall admission screening. Admitted students may begin coursework during the first new semester after admission. There is a special December 20 deadline for applicants to the doctoral program offered for residents of southwest Florida at Florida Gulf Coast University.

Application

Completed university application files must include: (1) completed UCF graduate application form, (2) transcripts from all post-secondary schools previously attended, (3) GRE scores, (4) three letters of recommendation (should include those that will provide professional and academic information), (5) professional resume, (6) statement of professional goals, (7) other information that may be requested after the file is started. An interview is normally requested of applicants as part of the review process. Admission decisions are made based on the total of information provided to the admission committee.

Admission Requirements

Applicants must qualify for graduate admission to the university. The requirements include:

- An undergraduate GPA on the last 60 attempted semester hours of 3.0 (on a 4.0 scale);
- A master's degree from an accredited institution; and
- A minimum score of 1000 on the General Graduate Record Examination (verbal/quantitative scores combined
Dr. Glenda Gunter presents resources for Educational Technology to her graduate students for review and study.

Education graduate programs include practical experience, providing students with applications of theory and preparing students for their post-degree careers.
A score of 213 (computer-based test) or 550 (paper-based test) on the Test of English as a Foreign Language (TOEFL) if the applicant is an international student.

Additionally, applicants for the doctoral degrees in the College of Education must:

1. Have completed at least three years of full-time teaching or comparable experience; and
2. Be recommended for admission by the appropriate doctoral program admission committee. (Recommendations are based on compatibility of the applicant’s goal statements and the particular doctoral program, the strength of the recommendation letters, the applicant’s past record of professional accomplishments, the applicant’s apparent potential for academic success, and the applicant’s perceived potential for professional success.)

NOTE: These programs are competitive and meeting minimum university requirements does not guarantee admission. Those applicants who do not meet admission criteria may appeal to the College of Education Graduate Standards and Curriculum Committee for consideration. For those who do not meet the GRE requirement, a second score is required, and one of the two scores must be 940 or higher for consideration for admission. Admission in one doctoral program does not guarantee admission in another. Each doctoral program reserves the right to review the applicant’s files and interview applicants for admission.

Transfer Credit

The number of transfer credit hours applied to the course requirements for a doctoral degree may not exceed 30 semester hours. Transfer credit may include only graduate hours awarded by an accredited institution toward a master’s degree and post-master’s degree work. The transfer credit allowed will be determined on a case-by-case basis by the graduate adviser and graduate program coordinator. Post-master’s degree credit taken at UCF prior to admission to the program is considered to be transfer credit.

Financial Support

Students interested in financial support through Education fellowship programs must have completed application files by December 20. Fellowships are typically awarded in the previous spring for students enrolling for the first time in the fall semester of the next academic year. Graduate assistantships may be granted for those who apply by February 20 for the following academic year.

Continuous Attendance

Graduation policy allows students to fulfill degree requirements as listed in the UCF graduate catalog in force during the student’s most recent period of continuous attendance. Because students must occasionally interrupt their attendance for a brief period, they will be considered to have interrupted their attendance only if the interruption is for more than two major consecutive terms (fall and spring or spring and fall), including summer. Under these circumstances, students will lose the option of fulfilling degree requirements under earlier catalogs. To avoid problems associated with maintaining graduate status, doctoral students are encouraged to enroll each semester, including summers.

Residency Requirement

Each student shall complete at least two contiguous resident semesters in full-time graduate student status. “Full-time” for doctoral programs in Education is defined as being enrolled for a minimum of nine hours per semester.

Admission to Candidacy

Before students can enroll in dissertation hours, they must apply for admission to candidacy. To be eligible for candidacy, students must have completed all degree course requirements, passed all candidacy examinations, and successfully presented a dissertation prospectus to their committee.

Status as Candidate

Students must continue to enroll for at least four semester hours of dissertation credit each semester after attaining candidacy status until the oral defense of the dissertation has been successful. Post-candidacy enrollment is allowed for a maximum of four years, subject to the seven-year time limitation.

Time Limitation

A student has seven years from the date of admission to the doctoral program to complete the dissertation. If the seven-year limit is exceeded, the candidacy examinations as well as course work may need to be repeated.

Dissertation

Dissertations are required in all doctoral programs. College of Education candidates will follow the APA (American Psychological Association) guidelines.
Doctor of Philosophy, Curriculum and Instruction

Ph.D. Graduate Program Coordinator: M. C. Hynes, ED 146, (407) UCF-0036. E-mail: hynes@mail.ucf.edu

Application Deadlines
Fall admission: February 20
Spring admission: September 20

Degree Requirements

Prerequisites
Master's level competency in educational research, statistics, curriculum and instruction theory.

Curriculum/Instruction Core—9 Semester Hours
Advanced graduate proficiency in general curriculum, curriculum specific to the specialization, learning theory, models of instruction, strategies of instruction for the specialization as well as trends and policies related to curriculum and instruction. These competencies are typically gained through course work in the following courses:

- EDF 7232 Analysis of Survey, Record, and Other Qualitative Data (3 hours)
- EDG 7221 Advanced Curriculum Theory (3 hours)
- EDG 7356 Models of Teaching and Instructional Theory (3 hours)

Research and Data Analysis—18 Semester Hours
Advanced graduate proficiency in quantitative and qualitative research including research design and research methodology. The Ph.D. student begins developing research skills and knowledge early in the program of study.

Specialization Area—54 Semester Hours (minimum)
Advanced graduate proficiency in a recognized area of specialization. Credit must be earned in each of the following areas:

- Internship (3 hours, minimum)
- Cognate (9 hours, minimum)
- Specialization (42 hours, minimum)—Includes selected courses in Curriculum, Instruction, Foundations, and Educational Leadership

Dissertation—24 Semester Hours (minimum)
Successfully defend the dissertation

Candidacy Examinations
- Examinations must be completed prior to admission to candidacy.
- Examinations will be scheduled near the tenth week of the fall and spring semesters. Summer examinations will be scheduled for the sixth week of the term.
- All Ph.D. (Doctor of Philosophy) candidates in Curriculum and Instruction will be required to complete examinations in two areas; these are:
  - Research in the Specialization—8-hour written examination
  - Specialization—3-hour oral examination
  - Students must be enrolled in the university during the semester an examination is taken.

Doctor of Education, Curriculum and Instruction

Ed.D. Graduate Program Coordinator: M. L. Kysilka, ED 355, (407) UCF-2011. E-mail: kysilka@pegasus.cc.ucf.edu

Application Deadlines
Fall admission: February 20
Spring admission: September 20

For the doctoral program at Florida Gulf Coast University, submit your application by December 20 for Fall admission.

Degree Requirements

Prerequisites—9 Semester Hours
EDG 6223 Curriculum Theory and Organization (3 hours)
EDG 6401 Statistics for Educational Data (3 hours) (or equivalent)
EDF 6481 Fundamentals of Graduate Research in Education (3 hours)

Curriculum/Instruction Core—12 Semester Hours
EDF 7232 Analysis of Learning Theories in Instruction (3 hours)
EDG 7221 Advanced Curriculum Theory (3 hours)
EDG 7356 Models of Teaching and Instructional Theory (3 hours)
EDG 7692 Issues in Curriculum (3 hours)

All core courses and the core examination must be completed in the first six semesters of enrollment in the doctoral program.

Specialization Area—45 Semester Hours (minimum)
Includes selected courses in Curriculum, Instruction, Foundations, Educational Leadership, and Community College

Research and Data Analysis—6 Semester Hours
EDF 7403 Quantitative Foundations of Educational Research (3 hours)
EDF 7463 Analysis of Survey, Record, and Other Qualitative Data (3 hours)
Dissertation—21 Semester Hours (minimum)
Successfully defend the dissertation

Candidacy

To enter candidacy for the Ed.D., students must have an overall 3.0 GPA on all graduate work included in the planned program and pass all required examinations.

Candidacy Examinations
- Examinations must be completed prior to admission to candidacy.
- Examinations will be scheduled near the tenth week of the fall and spring semesters. Summer examinations will be scheduled for the sixth week of the term.
- All Curriculum and Instruction Ed.D. (Doctor of Education) candidates will be required to write examinations in three areas; these are:
  - Specialization/Teaching Field—5-hour examination
  - Curriculum/Instruction Core—3-hour examination
  - Research/Data Analysis—3-hour examination
Students must be enrolled in the university during the semester an examination is taken.

Doctor of Education, Educational Leadership

Graduate Program Coordinator: K. Murray, RP 215, (407) 384-2191. E-mail: murray@pegasus.cc.ucf.edu

The general program of study leading to the Ed.D. degree in Educational Leadership permits students to concentrate their doctoral study in either K-12 or higher education administration. Specific program information may be found on the Educational Leadership web page at http://pegasus.cc.ucf.edu/~educlead/content.html.

Application Deadlines

Fall admission: February 20
Spring admission: September 20

For the doctoral program at Florida Gulf Coast University, submit your application by December 20 for Fall admission.

Degree Requirements

Prerequisite Courses
(as necessary)

Educational Leadership Core Courses—16 Semester Hours

Cognate Courses—6 Semester Hours (minimum)

Area of Specialization—15 Semester Hours (minimum)

Research and Data Analysis—12 Semester Hours (minimum)
College of Engineering

The College of Engineering offers graduate programs leading to Master of Science and Doctor of Philosophy degrees. Each department within the college offers options for specialized education.

College Administration
M. P. Wanielista, Ph.D., P.E., Dean
D. R. Reinhart, Ph.D., P.E., Associate Dean for Research and Graduate Studies
R. N. Miller, Ph.D., P.E., Associate Dean for Academic Affairs
I. Batarseh, Ph.D., P.E., Assistant Dean for Graduate Affairs

Programs

Master of Science (M.S.)
- Engineering Management Track
- Environmental Engineering Sciences Track
- Human Engineering/Ergonomics Track
- Interactive Simulation and Training Systems Track
- Manufacturing Systems Track
- Operations Research Track
- Precision Engineering and Manufacturing Track
- Product Assurance Engineering Track
- Simulation Modeling and Analysis Track
- Structures and Foundations Track
- Transportation Systems Engineering Track
- Water Resources Engineering Track

Master of Science in Civil Engineering (M.S.C.E.)
- Structural and Geotechnical Engineering Track
- Transportation Engineering Track
- Water Resources Engineering Track

Master of Science in Computer Engineering (M.S.Cp.E.)
- Computer Architecture Track
- Digital Systems Track
- Knowledge-based Systems Track
- Software Engineering Track

Master of Science in Electrical Engineering (M.S.E.E.)
- Communications Track
- Controls/Power Track
- Digital Signal Processing Track
- Electromagnetics Track
- Electronics Track
- Electro-optics Track
- Solid State and Microelectronics Track

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

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

Master of Science in Mechanical Engineering (M.S.M.E.)
- Aerospace Systems Track
- Computer-aided Mechanical Engineering Track
- Materials Science and Engineering Track
- Mechanical Systems Track
- Professional Track
- Thermo-fluids Track

Doctor of Philosophy
- Civil Engineering
- Computer Engineering
- Electrical Engineering
- Environmental Engineering
- Industrial Engineering
- Mechanical Engineering

Graduate Certificate
- Civil Engineering
- Geotechnical Engineering and Construction Materials
- Structural Engineering
- Surface Water Modeling
- Transportation Engineering

Computer Engineering
- Software Engineering
- Software-Intensive Systems

Electrical Engineering
- Antennas and Propagation
- Communications Systems
- Digital Signal Processing
- Electronic Circuits

Environmental Engineering
- Air Pollution Control
- Drinking Water Treatment
- Hazardous Waste Management
- Hazardous Waste Site Remediation
- Wastewater Treatment

Industrial Engineering and Management Systems
- Applied Operations Research
- Design for Usability
- Industrial Ergonomics and Safety
Project Engineering
Quality Assurance
Systems Simulation for Engineers
Training Simulation

Mechanical, Materials, and Aerospace Engineering
CAD/CAM Technology
Computational Methods in Mechanics
HVAC Engineering
Launch/Spacecraft Vehicle Processing
Materials Characterization
Materials Failure Analysis

College Admission Requirements

In addition to meeting the minimum university criteria, each applicant is required to satisfy college and department admission requirements. Specific department requirements are listed in each departmental section. Meeting the minimum admissions requirements does not automatically guarantee admission, particularly to the doctoral programs, since enrollments may be restricted by limited college or department resources. Supplemental information such as research statements, resumes, work or internship experience may be considered by the graduate program coordinators in making admissions decisions.

College Application Deadlines

| Fall admission | July 15 |
| Spring admission | December 1 |
| Summer admission | April 15 |

College Degree Requirements

Master’s Programs Admission Requirements

- A minimum GPA of 3.0 or better during the last two years (60 hours) of attempted undergraduate degree work or a score of at least 1000 on the combined verbal and quantitative sections of the GRE.
- Applicants for master’s programs must have bachelor’s degrees and must present baccalaureate degree credentials appropriate to the specialized area of study including mathematics through differential equations. Applicants for the Engineering Management and the Human Engineering/Ergonomic programs are required to have completed mathematics through Calculus with Analytic Geometry III (MAC 2313).
- International students, except those who are from countries where English is the only official language or those who have earned a degree from an accredited American college or university, are required to submit a score of at least 213 (computer-based test) or 550 (paper-based test) on the Test of English as a Foreign Language.

Thesis Option, Master’s Degree Requirements

- A minimum of thirty semester hours of approved course work including six hours of thesis credits is required.
- No more than six hours of thesis credits will be applied toward degree requirements.
- At least 15 credit hours must be from 4000-level courses.
- A maximum of 9 semester hours of graduate credit may be transferred into the program from UCF non-degree-seeking status or regionally accredited institutions. Only grades of “B” or better can be transferred.
- A maximum of 6 credits of 4000-level courses may be applied toward a master’s degree. No 3000-level courses are acceptable.
- A minimum “B” average must be maintained in the program of study and no more than two “C” grades are allowed.
- A written thesis and final oral defense are required.
- A maximum of 6 semester hours of Independent Study may be used toward the degree. Directed research credits may not be applied toward the degree.

Master’s Thesis Committee

- The Dean, through the Chairs, is responsible for committee formation, additions, and deletions. The thesis committee will consist of a minimum of three members. All committee members should hold a doctoral degree and be in fields related to the thesis topic. At least two members must be department faculty (one to chair). Off-campus experts, joint faculty members, adjunct faculty, and other university faculty members may serve as the third person in the Committee. Program areas may further specify additional committee membership. The Office of
Graduate Studies reserves the right to review appointments to advisory committees, place a representative on any advisory committee, or appoint a co-adviser.

• In unusual cases, with approval from the program Chair, two professors may chair the committee jointly. Joint faculty members may serve as committee chairs, but off-campus experts and adjunct faculty may not serve as committee chairs. Particular programs may have more stringent requirements.

• All members vote on acceptance or rejection of the thesis proposal and the final thesis. The thesis proposal and final thesis must be approved by a majority of the advisory committee.

Non-Thesis Option, Master's Degree Requirements
Most departments within the College of Engineering offer a 36 semester hour, non-thesis option intended primarily for part-time students. The program requirements are the same as for the thesis option except that the thesis requirement is replaced by 12 credit hours of course work. An end-of-program comprehensive examination, oral or written, is required.

Doctoral Degree Requirements
• A minimum of 81 semester hours beyond the baccalaureate degree, including 24 semester hours of dissertation credits, are required.
• At least 6 semester hours of course work taken at UCF outside the department and no more than a combined total of 12 hours of independent study and/or directed research may be used to satisfy degree requirements.
• Up to 36 semester hours of credit, including a maximum of 6 credits of thesis, may be transferred into the doctoral program. The transfer credits will consist of a maximum of 6 hours of 4000-level work, no 3000-level courses, and no courses with grades less than B.
• A written dissertation and final oral defense are required.

Doctoral Dissertation Committee
• The Dean, through the Chairs, is responsible for committee formation, additions, and deletions. The doctoral committee will consist of a minimum of five members. All committee members should hold a doctoral degree and be in fields related to the dissertation topic. At least three members must be department faculty (one to chair), one must be from another department in the College of Engineering, and one must be from outside the College. Joint faculty members serve as department-faculty committee members. Adjunct faculty and off-campus experts may serve as the outside-the-college person in the Committee. Program areas may further specify additional committee membership. The Office of Graduate Studies reserves the right to review appointments to advisory committees, place a representative on any advisory committee, or appoint a co-adviser.
• In unusual cases, with approval from the program Chair, two professors may chair the committee jointly. Joint faculty members may serve as committee chairs, but off-campus experts and adjunct faculty may not serve as committee chairs. Particular programs may have more stringent requirements.

FEEDS (Florida Engineering Education Delivery System)
FEEDS is a Florida statewide system whereby graduate-level engineering courses are delivered via video tape to cooperating university centers and selected industrial sites. Most graduate courses offered each semester are available through FEEDS. A student taking courses through FEEDS must meet the same requirements as a student on campus and will earn the same credit as if attending on campus. Courses delivered by the system may contribute to graduate degrees in engineering.

An off-campus student in industry need not be enrolled in a graduate degree program in order to take a FEEDS course; however, a student who intends to seek admission to a graduate program should be aware that no more than 9 credit hours of courses may be transferred from non-degree-seeking status into a degree-seeking program. Certain courses may have the requirement that the student come to the main campus for exams or laboratory participation.

For information concerning FEEDS, consult the UCF-FEEDS catalog (published each semester) or contact the Director of UCF-FEEDS at (407) 823-2481.
Civil and Environmental Engineering

Chair of the Department: A. E. Radwan
Assistant Chair of the Department: M. B. Chopra
Graduate Program Coordinator: Roger L. Wayson, ENGR 208, (407) 823-2841. E-mail: wayson@mail.ucf.edu

Faculty


Associate Professors: H. M. Al-Deek, Ph.D.; M. B. Chopra, Ph.D.; J. D. Dietz, Ph.D., P.E.; C. M. Head, Ph.D., P.E.; S. K. Kunnath, Ph.D., P.E.; A. Oloafu, Ph.D.; U. O. Onyemelukwe, Ph.D.; D. R. Reinhart, Ph.D., P.E., Associate Dean of the College of Engineering; R. L. Wayson, Ph.D., P.E.


Civil Engineering

Graduate work and research in Civil Engineering reflects the very broad nature of the field, which has as its purpose the enhancement of the infrastructure of society. The educational program includes course work in structural analysis and design, geotechnical engineering and foundations, transportation planning and operations, and water resources. Faculty research interests include geotechnical studies of subsurface conditions, soil testing and design of advanced testing devices, intelligent transportation systems, traffic safety, structural dynamics, nonlinear structural analysis and software development, reinforced concrete, and wind engineering. Students completing the program find positions in consulting firms, construction and construction-related industries, and in city, county, state, and federal government agencies.

Environmental Engineering

The Environmental Engineering program concerns itself with prevention and correction of pollution effects on the natural and man-made environments. Strong faculty research interests have resulted in a program of distinction for the college and the university. Applied and basic research interests include the general areas of water treatment, wastewater treatment, solid and hazardous waste management, atmospheric pollution control, air quality modeling, community noise prediction/abatement, and stormwater management. 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, and industry.

Degree Programs

The Civil and Environmental Engineering Department offers Master of Science degrees in Civil Engineering (M.S.C.E.) and Environmental Engineering (M.S.Env.E.), and the Master of Science (M.S.) degree in Structures and Foundations, Transportation Systems Engineering, Environmental Engineering Sciences, and Water Resources Engineering. The department also offers Doctor of Philosophy (Ph.D.) degrees in both Civil Engineering and Environmental Engineering.

There are two options for the master's degree programs: the thesis option and the non-thesis option. The thesis option is available in all master's degree programs and requires a thesis that is equivalent to 6 hours out of a total of 30 hours. It is the required option for students on contracts and grants as well as any student receiving department financial support. The non-thesis option is also available for all master's degree programs and requires 36 course work hours and a comprehensive final examination that may be oral or written at the discretion of the student’s adviser and committee. This option is recommended only for part-time students on a limited access basis.

Master of Science in Civil Engineering

The department offers a Master of Science in Civil Engineering (M.S.C.E.) degree to students who have an undergraduate degree in Civil Engineering or another closely related engineering degree. As such, math through differential equations and all prerequisite classes for graduate courses is required. The degree requires 30 semester hours of acceptable graduate work which includes a thesis (6 semester hours), or 36 semester hours of acceptable graduate work with a comprehensive final examination. The student must develop an individual program of study with a faculty adviser.

Required Courses—15 Semester Hours

Take any three of the following courses for all tracks: CEG 5015 Geotechnical Engineering II (3 hours) CEG 5700 Geo-Environmental Engineering (3 hours) CEG 6115 Foundation Engineering (3 hours) CES 5325 Bridge Engineering (3 hours) CES 5606 Advanced Steel Structures (3 hours) CES 5706 Advanced Reinforced Concrete (3 hours) CES 6715 Prestressed Concrete Structures (3 hours) CES 6840 Composite Steel Concrete Structures (3 hours)

Take two courses from among the following courses for all tracks: TTE 5204 Traffic Engineering (3 hours) OR TTE 5805 Geometric Design of Transportation Systems (3 hours) CWR 5205 Hydraulic Engineering (3 hours) OR CWR 5545 Water Resources Engineering (3 hours) OR CWR 6125 Groundwater Hydrology (3 hours) OR CWR 6235 Open Channel Hydraulics (3 hours)
Courses that comprise the elective part of the program are selected in accordance with the general requirements of the College of Engineering, and often include courses taken from the following three subdiscipline areas:

**Tracks—9 or 21 Semester Hours**
Take three courses with a thesis, or seven courses without a thesis from among the following tracks.

**Thesis—6 Semester Hours**

**Total Hours Required for M.S.C.E.—30 or 36 Semester Hours**

### Structural and Geotechnical Engineering Track
Any of the structural/geotechnical courses not taken as a required course
- CEG 6065 Soil Dynamics (3 hours)
- CEG 6317 Advanced Geotechnical Engineering (3 hours)
- CES 5325 Bridge Engineering (3 hours)
- CES 5821 Masonry and Timber Design (3 hours)
- CES 6116 Finite Element Structural Analysis (3 hours)
- CES 6170 Boundary Element Methods in Civil Engineering (3 hours)
- CES 6209 Dynamics of Structures (3 hours)
- CES 6220 Wind and Earthquake Engineering (3 hours)
- CES 6230 Advanced Structural Mechanics (3 hours)
- CES 6715 Prestressed Concrete Structures (3 hours)
- CES 6840 Composite Steel Concrete Structures (3 hours)
- CES 6910 Research in Structural Engineering (3 hours)
- TTE 5835 Pavement Design (3 hours)
Other courses with adviser’s consent (3 hours each)

### Transportation Engineering Track
Any of the transportation courses not taken as a required course
- CGN 6655 Regional Planning, Design, and Systems (3 hours)
- TTE 5205 Highway Capacity and Traffic Flow Analysis (3 hours)
- TTE 6315 Traffic Safety Analysis (3 hours)
- TTE 5700 Railroad Engineering (3 hours)
- TTE 5835 Pavement Design (3 hours)
- TTE 6256 Traffic Operations (3 hours)
- TTE 6270 Intelligent Transportation Systems (3 hours)
- TTE 6526 Planning and Design of Airports (3 hours)
- TTE 6625 Mass Transportation Systems (3 hours)

### Water Resources Engineering Track
Any of the water resources courses not taken as a required course
- CWR 6102 Advanced Hydrology (3 hours)
- CWR 6126 Groundwater Modeling (3 hours)
- CWR 6236 River Engineering and Sediment Transport (3 hours)
- CWR 6539 Finite Differences/Elements in Surface Water Modeling (3 hours)

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### Master of Science

#### Structures and Foundations Track
The department offers a Master of Science (M.S.) degree in Structures and Foundations Engineering to students with appropriate engineering baccalaureate backgrounds. The degree requires 30 semester hours of acceptable graduate course work which includes a thesis (6 hours), or 36 semester hours of acceptable graduate course work with a comprehensive final examination. The student must develop an individual program of study with a faculty adviser and must have background or articulation course work to include:

**Prerequisites**
- CEG 4101C Geotechnical Engineering I
- CES 4101 Structural Analysis II
- CES 4605 Steel Structures Q/R
- CES 4702 Reinforced Concrete Structures
- EGN 3310 Engineering Analysis-Statics
- EGN 3321 Engineering Analysis-Dynamics
- EGN 3331 Mechanics of Materials

**Required Courses—12 Semester Hours**
Take 30 semester hours (thesis option) or 36 semester hours (non-thesis option) from the following courses, with at least 2 courses from each subgroup. Other courses may also be taken with the consent of the faculty adviser.

**Sub-Group A: Geotechnical Engineering**
- CEG 5015 Geotechnical Engineering II (3 hours)
- CEG 5700 Geo-Environmental Engineering (3 hours)
- CEG 6065 Soil Dynamics (3 hours)
- CEG 6115 Foundation Engineering (3 hours)
- CES 6317 Advanced Geotechnical Engineering (3 hours)
- CES 6170 Boundary Element Methods in Civil Engineering (3 hours)
- TTE 5835 Pavement Design (3 hours)

**Sub-Group B: Structural Engineering**
- CES 5325 Bridge Engineering (3 hours)
- CES 5606 Advanced Steel Structures (3 hours)
- CES 5706 Advanced Reinforced Concrete (3 hours)
- CES 5821 Masonry and Timber Design (3 hours)
- CES 6116 Finite Element Structural Analysis (3 hours)
- CES 6209 Dynamics of Structures (3 hours)
- CES 6220 Wind and Earthquake Engineering (3 hours)
- CES 6230 Advanced Structural Mechanics (3 hours)
- CES 6715 Prestressed Concrete Structures (3 hours)
- CES 6840 Composite Steel Concrete Structures (3 hours)
- CES 6910 Research in Structural Engineering (3 hours)

### Thesis—6 Semester Hours

**Total Hours Required for M.S.—30 or 36 Semester Hours**
Transportation Systems Engineering Track

The department offers a Master of Science (M.S.) degree in Transportation Systems Engineering for students with appropriate science or engineering baccalaureate backgrounds. Students should have background (or articulation course work) in the following areas:

Prerequisites
Engineering Economic Analysis (EGN 3613)
Transportation Engineering (TTE 4004)
Mathematics through Differential Equations (MAC 2311, 2312, 2313; MAP 2302)

Required Courses—12 Semester Hours
TTE 5204 Traffic Engineering (3 hours)
TTE 5805 Geometric Design of Transportation Systems (3 hours)
TTE 6256 Traffic Operations (3 hours)
TTE 6270 Intelligent Transportation Systems (3 hours)

Elective Courses—12 or 24 Semester Hours
CGN 6655 Regional Planning, Design, and Development (3 hours)
ENV 5071 Environmental Analysis of Transportation Systems (3 hours)
STA 5156 Probability and Statistics for Engineers (3 hours)
TTE 5205 Highway Capacity and Traffic Flow Analysis (3 hours)
TTE 6315 Traffic Safety Analysis (3 hours)
TTE 5700 Railroad Engineering (3 hours)
TTE 5835 Pavement Design (3 hours)
TTE 6526 Planning and Design of Airports (3 hours)
TTE 6625 Mass Transportation Systems (3 hours)

Thesis—6 Semester Hours

Total Hours Required for M.S.—30 or 36 Semester Hours

Water Resources Engineering Track

The department offers a Master of Science (M.S.) degree in Water Resources Engineering to students with appropriate science or engineering baccalaureate backgrounds. The degree requires 30 semester hours of acceptable graduate course work, which includes a thesis (6 hours), or 36 semester hours of acceptable graduate course work with a comprehensive final examination. Each student must have an individual program of study approved by the student’s faculty committee and have completed all required articulation course work as described below.

Prerequisites
CEG 4101 Geotechnical Engineering I
CWR 4101C Hydrology
CWR 4203C Hydraulics
EGN 3613 Engineering Economic Analysis
STA 3032 Probability and Statistics for Engineers

Required Courses (any five)—15 Semester Hours
CWR 5205 Hydraulic Engineering (3 hours)
CWR 5545 Water Resources Engineering (3 hours)
CWR 6125 Groundwater Hydrology (3 hours)
CWR 6235 Open Channel Hydraulics (3 hours)
CWR 6236 River Engineering and Sediment Transport (3 hours)
CWR 6535 Modeling Water Resources Systems (3 hours)

Technical Elective Courses—9 or 15 Semester Hours
ENV 6046 Membrane Mass Transfer (3 hours)
ENV 6055 Fate and Transport of Subsurface Contaminants (3 hours)
ENV 6336 Site Remediation and Hazardous Waste Treatment (3 hours)
CEG 6317 Advanced Geotechnical Engineering (3 hours)
CWR 6539 Finite Differences/Elements in Surface Water Modeling (3 hours)
STA 5156 Probability and Statistics for Engineers (3 hours)
OR
STA 5206 Statistical Analysis (3 hours)
Other courses with adviser's consent (3 hours each)

Thesis—6 Semester Hours

Total Hours Required for M.S.—30 or 36 Semester Hours

Environmental Engineering Sciences Track

Students who enter the graduate program in environmental engineering are expected to be knowledgeable in the topics required in the undergraduate program at UCF, including chemistry, process design, water resources, air pollution, and solid waste. This requirement is satisfied ideally by completion of university course work at UCF or elsewhere. Preliminary articulation requirements are noted below as general guidelines for prospective students, depending on undergraduate degree. Final articulation requirements will be determined by the department after students have been admitted and after discussions with their advisers. The degree requires (a) 30 semester hours of acceptable graduate work, which includes a thesis (6 semester hours), or (b) 36 semester hours of acceptable graduate work with a comprehensive final examination. The student develops an individualized program of study with a faculty adviser.

Prerequisites
Calculus through Differential Equations

Prerequisites for students with engineering undergraduate degrees in civil, environmental, mechanical, chemical engineering:
CWR 4101C Hydrology
EES 4111C Biological Process Control
EES 4202C Chemical Process Control
ENV 4121C Air Pollution
ENV 4561 Environmental Engineering—Process Design
(or equivalent courses)
Prerequisites for students with undergraduate degrees in other engineering disciplines:
CWR 3201 Engineering Fluid Mechanics
CWR 4101C Hydrology
CWR 4203C Hydraulics
EES 4111C Biological Process Control
EES 4202C Chemical Process Control
ENV 4121C Air Pollution
ENV 4561 Environmental Engineering—Process Design
(or equivalent courses)

Prerequisites for students with appropriate science or math undergraduate degrees:
CHM 2046 Chemistry Fundamentals II
CWR 3201 Engineering Fluid Mechanics
CWR 4101C Hydrology
CWR 4203C Hydraulics
EES 4111C Biological Process Control
EES 4202C Chemical Process Control
EGN 3613 Engineering Economic Analysis
ENV 4121C Air Pollution
ENV 4561 Environmental Engineering—Process Design
(or equivalent courses)

Prerequisites for students with nontechnical undergraduate degrees:
Articulation is quite extensive in such cases and it is recommended that a second undergraduate degree in Environmental Engineering be completed before applying to graduate school.

Required Courses—15 Semester Hours
CWR 5545 Water Resources Engineering (3 hours) OR
CWR 6125 Groundwater Hydrology (3 hours) OR
CWR 6235 Open Channel Hydraulics (3 hours) OR
ENV 6016 Biological Treatment Systems (3 hours) OR
ENV 6016 Biological Treatment Systems (3 hours) OR
ENV 6015 Physical/Chemical Treatment Systems (3 hours) OR
ENV 6126 Theory and Practice of Atmospheric Dispersion Modeling (3 hours) OR
ENV 6126 Design of Air Pollution Controls (3 hours) OR
ENV 6558 Industrial Waste Treatment (3 hours) OR
ENV 6347 Hazardous Waste Incineration (3 hours) OR
EN 6016 Biological Treatment Systems (3 hours) OR
ENV 6519 Aquatic Chemical Processes (3 hours) OR
ENV 6519 Aquatic Chemical Processes (3 hours) OR
ENV 6015 Physical/Chemical Treatment Systems (3 hours) OR
ENV 6015 Physical/Chemical Treatment Systems (3 hours) OR
ENV 6519 Aquatic Chemical Processes (3 hours) OR
ENV 6616 Receiving Water Impacts (3 hours) OR

Elective Courses—9 or 15 Semester Hours
Any of the appropriate ENV or CWR or appropriate graduate-level courses (5000 or 6000) with the consent of the student’s adviser (3 hours each)

Thesis—6 Semester Hours

Total Hours Required for M.S.—30 or 36 Semester Hours

Master of Science in Environmental Engineering

The department offers a Master of Science degree in Environmental Engineering (M.S.Env.E.) for students who have an undergraduate degree in Environmental Engineering or any other closely related degree in engineering. Students who enter the graduate program in environmental engineering are expected to be knowledgeable in the topics required in the undergraduate program at UCF, including chemistry, process design, water resources, air pollution, and solid waste. This requirement is satisfied ideally by completion of university course work at UCF or elsewhere. Preliminary articulation requirements are noted below as general guidelines for prospective students, depending on undergraduate degree. Final articulation requirements will be determined by the department after students have been admitted and after discussions with their advisers. The degree requires either (a) 30 semester hours of acceptable graduate work, which includes a thesis (6 semester hours), or (b) 36 semester hours of acceptable graduate work, which includes a comprehensive final examination. The student develops an individualized program of study with a faculty adviser.

Required Courses—15 Semester Hours
CWR 5545 Water Resources Engineering (3 hours) OR
CWR 6125 Groundwater Hydrology (3 hours) OR
CWR 6235 Open Channel Hydraulics (3 hours) OR
ENV 6015 Physical/Chemical Treatment Systems (3 hours) OR
ENV 6016 Biological Treatment Systems in Environmental Engineering (3 hours) OR
ENV 6347 Hazardous Waste Incineration (3 hours) OR
ENV 6558 Industrial Waste Treatment (3 hours) OR
ENV 6106 Theory and Practice of Atmospheric Dispersion Modeling (3 hours) OR
ENV 6126 Design of Air Pollution Controls (3 hours) OR

Elective Courses—9 or 15 Semester Hours
Courses that comprise the elective part of the program are selected in accordance with the general requirements of the College of Engineering and often include courses taken from the following two subdiscipline areas:

Environmental Specialization
Any of the appropriate ENV graduate-level courses (5000 or 6000) with the consent of the student’s adviser (3 hours each)

Water Resources Specialization
Any of the appropriate CWR graduate-level courses (5000 or 6000) with the consent of the student’s adviser (3 hours each)

Thesis—6 Semester Hours

Total Hours Required for M.S.Env.E.—30 or 36 Semester Hours
Doctor of Philosophy in Civil Engineering or Environmental Engineering

The Doctor of Philosophy (Ph.D.) degree requires a student to have completed a master’s degree in Civil or Environmental Engineering or a closely related discipline. The Ph.D. program in Civil Engineering is intended to allow a student to study in depth, with emphasis on research in a specific area, structural analysis and design, geotechnical engineering and foundations, transportation planning and operations, and water resources. The Ph.D. program in Environmental Engineering is intended to allow a student to study and conduct research in a specific area of water treatment, wastewater treatment, solid and hazardous waste management, atmospheric pollution control and/or modeling, community noise abatement, or stormwater management.

Doctoral Program Admission

In addition to satisfying regular university admissions criteria, the student must have a master’s degree in Civil or Environmental Engineering or a closely related discipline from a recognized institution. Prospective applicants should forward a detailed resume and a letter with research interests for department review with the application. In addition, the student must pass a Ph.D. Qualifying Examination in one of the departmental disciplines. This examination must be taken within the first year of study beyond the master’s degree.

Doctoral Degree Requirements

The Ph.D. degree requires a minimum of 81 semester hours beyond the bachelor’s degree, 24 of which will be dissertation credits, and 6 of which must be from courses taken outside the department while at UCF. A maximum of 36 semester hours, including 6 thesis hours, may be transferred from a master’s degree toward these requirements. A program of study must be developed with an advisory committee and meet with departmental approval at the beginning of the Ph.D. program, at which time transfer credit will be evaluated on a course-by-course basis.

Examinations

In addition to the Qualifying Examination, the student must pass a Candidacy Examination and a Dissertation Defense Examination. The Candidacy Examination is normally taken near the end of the course work and consists of a written portion and an oral presentation of a research proposal. A copy of the written examination will be kept as part of the student’s official record. The Dissertation Defense Examination is an oral examination taken as defense of the written dissertation.

Graduate Certificates in Civil Engineering

In addition to master’s and doctoral degrees, the department offers certificates designed to provide flexible graduate education to the local professional.

Certificate in Geotechnical Engineering and Construction Materials

Geotechnical engineering and construction materials is a key area related to the large developments taking place in the Central Florida area. Engineers continually need more applied knowledge of the behavior of soils and suitable materials for use in construction such as asphalt, concrete, aggregates, etc. The course work in this certificate program will help professionals update their knowledge of research and practice in this area.

Required Courses—12 Semester Hours
CEG 5015 Geotechnical Engineering II (3 hours)
CEG 6115 Foundation Engineering (offered every other year) (3 hours)
CGN 5504C Civil Engineering Materials (offered every other year) (3 hours)
TTE 5835 Pavement Design (3 hours)

Certificate in Structural Engineering

Structural engineering plays a significant role in the ongoing infrastructure developments in the Central Florida area. Engineers continually need to update their knowledge of the state-of-the-art in research and practice to ensure the safety of constructed facilities. This certificate program provides courses in this area.

Required Courses—12 Semester Hours
Choose four courses:
CEG 6115 Foundation Engineering (3 hours)
CES 5325 Bridge Engineering (3 hours)
CES 5606 Advanced Steel Structures (3 hours)
CES 5706 Advanced Reinforced Concrete (3 hours)
CES 6116 Finite Element Structural Analysis (3 hours)
CES 6209 Dynamics of Structures (3 hours)
CES 6220 Wind and Earthquake Engineering (3 hours)
CES 6230 Advanced Structural Mechanics (3 hours)
CES 6715 Prestressed Concrete Structures (3 hours)

Certificate in Surface Water Modeling

In Florida, conservation and management of our surface water resources is crucial. Course work for this graduate certificate will provide additional insight and an in-depth knowledge of the problem for local officials.

Required Courses—15 Semester Hours
CWR 5545 Water Resources Engineering (3 hours)
CWR 6125 Ground Water Hydrology (3 hours) OR
CWR 6126 Groundwater Modeling (3 hours)
CWR 6236 River Engineering and Sediment Transport (3 hours)
CWR 6535 Modeling Water Resources Systems (not in current schedule, may need to replace) (3 hours)
CWR 6539 Finite Differences/Elements in Surface Water Modeling (3 hours)
CWR 4812C Water Resource Design (3 hours) is also required as a prerequisite.

Certificate in Transportation Engineering

Transportation engineering is crucial for the Orlando area. As grid-lock comes closer, more skilled professionals will be needed. This certificate program will be helpful for professionals faced with fulfilling this need.

Required Courses—12 Semester Hours
Choose four courses:
CGN 6655 Regional Planning, Design, and Development (3 hours)
ENV 5071 Environmental Analysis of Transportation Systems (3 hours)
TTE 5204 Traffic Engineering (3 hours)
TTE 5805 Geometric Design of Transportation Systems (3 hours)
TTE 6256 Traffic Operations (3 hours)
TTE 6270 Intelligent Transportation Systems (3 hours)
TTE 6315 Traffic Safety Analysis (3 hours)
TTE 6625 Mass Transportation Systems (3 hours)

Graduate Certificates in Environmental Engineering

Certificate in Air Pollution Control

As development continues in Central Florida, our air quality continues to decline. Knowledgeable engineers are needed to help develop solutions for this problem. The course work for this certificate will help prepare these engineers.

Required Courses—12 Semester Hours
ENV 5116 Air Pollution Monitoring (3 hours)
ENV 6106 Theory and Practice of Atmospheric Dispersion Modeling (offered every other year) (3 hours)
ENV 6126 Design of Air Pollution Controls (offered every other year) (3 hours)
ENV 6347 Hazardous Waste Incineration (offered every other year) (3 hours)

Certificate in Drinking Water Treatment

Rapid population growth in the Central Florida area requires ever-growing quantities of drinking water. Furthermore, significant improvements in existing water treatment processes are needed to comply with more stringent current and future drinking water regulations. This certificate program will provide fundamental and practical knowledge for local drinking water professionals to fulfill this need.

Required Courses—12 Semester Hours
Choose four courses:
CWR 5205 Hydraulic Engineering (3 hours)
CWR 6125 Groundwater Hydrology (3 hours)
CWR 6235 Open Channel Hydraulics (3 hours)
ENV 5410 Drinking Water Treatment (3 hours)
ENV 6015 Physical/Chemical Treatment Systems in Environmental Engineering (3 hours)
ENV 6046 Membrane Mass Transfer (3 hours)
ENV 6504L Unit Operation and Processes Laboratory (3 hours)
ENV 6519 Aquatic Chemical Processes (3 hours)
ENV 6938 Seminar: Particle Processes in Aquatic Systems (3 hours)

Certificate in Hazardous Waste Management

Hazardous waste mismanagement in the past has lead to widespread environmental contamination. Regulations have been enacted over the past two decades to ensure proper management. However, implementation of these regulations is complex. This certificate program addresses the need for training and education of professionals in this field.

Required Courses—12 Semester Hours
ENV 5335 Hazardous Waste Management (3 hours)
ENV 6347 Hazardous Waste Incineration (3 hours)
ENV 6558 Industrial Waste Treatment (3 hours)
Elective course approved by adviser (3 hours)

Certificate in Hazardous Waste Site Remediation

Required Courses—12 Semester Hours
CWR 6125 Groundwater Hydrology (3 hours)
ENV 5335 Hazardous Waste Management (3 hours)
ENV 6055 Fate and Transport of Subsurface Contaminants (3 hours)
ENV 6336 Site Remediation and Hazardous Waste Treatment (3 hours)

Certificate in Wastewater Treatment

Development continues in the Central Florida area causing a strain on our wastewater facilities. More experienced professionals are needed to handle this growing concern. This certificate program offers courses to help professionals update their knowledge of research and practice in this area.

Required Courses—12 Semester Hours
ENV 6016 Biological Treatment Systems in Environmental Engineering (3 hours)
Choose three courses:
ENV 5505 Sludge Management Operations in Environmental Engineering (offered every other year) (3 hours)
ENV 6015 Physical/Chemical Treatment Systems in Environmental Engineering (3 hours)
ENV 6519 Aquatic Chemical Processes (offered every other year) (3 hours)
ENV 6558 Industrial Waste Treatment (3 hours)
Engineering graduate students work in a class X100 Clean Room. UCF is one of the few institutions with this type of facility.
Electrical and Computer Engineering

Chair of the Department: W. B. Mikhael
Graduate Program Coordinator: Jun J. Liou, ENGR 407, (407) 823-5339. E-mail: jli@ece.engr.ucf.edu

Faculty
Assistant Professors: R. F. DeMara, Ph.D.; M. G. Haralambous, D.Sc., P.E.
Joint Appointees: L. C. Andrews, Ph.D., Professor of Mathematics; M. Bass, Ph.D., Professor of Physics; B. Chai, Ph.D., Professor of Physics; M. Richardson, Ph.D., Professor of Physics; W. T. Silfvast, Ph.D., Professor of Physics; G. Stegeman, Ph.D., Cobb-Hooker Professor of Physics; E. W. Van Stryland, Ph.D., Professor of Physics; D. J. Hagan, Ph.D., Associate Professor of Physics; R. Peale, Ph.D., Associate Professor of Physics

The Electrical and Computer Engineering Department supports graduate degree programs and research in the major subdiscipline areas of electrical engineering, computer engineering, and electro-optics. The faculty include members with national and international reputations in teaching and research. Our facilities are among the best with a modern building and well-equipped laboratories.

Research Interests
Research interests of the faculty include antennas, microwave and millimeter wave circuits and devices, communication systems, digital signal/image processing, IFF devices, electromagnetic theory, speech processing, VLSI design, spread spectrum systems, SAW and ACT devices, spectral estimation, solid state device modeling and CAD techniques, communication networks, integrated services digital networks, neural networks, systems and controls, robotics, robust control, computer control, microelectronics, semiconductors, thin films, power system stability, bipolar device modeling, solid state lasers, optical propagation, fiber optics, optical signal processing, laser-induced damage, optical testing, diffractive optics, phase conjugation, infrared detectors, fourier optics, lens design, nonlinear optics, power electronics, digital systems, computer architecture, software engineering, artificial intelligence, expert systems, simulation, computer communications and computer vision.

Master of Science in Electrical Engineering

The Master of Science degree in Electrical Engineering (M.S.E.E.) is intended for students with a baccalaureate degree in electrical engineering or a related field from an approved institution. Admission requirements include a minimum grade point average of 3.0 (A = 4.0) on the last 60 attempted semester hours of the bachelor’s degree and a minimum combined score of 1000 on the verbal-quantitative sections of the Graduate Record Examination. International students, except those who are from countries where English is the only official language or those who have earned a degree from an accredited American college or university, are required to submit a score of at least 213 (computer-based test) or 550 (paper-based test) on the Test of English as a Foreign Language (TOEFL).

Students with a grade point average of less than 3.0 may be admitted on a trial program basis in some circumstances. Additional courses may also be required to correct any course deficiencies. Students should contact the ECE graduate program coordinator for further information.

Detailed information on the tracks and research activities is available in the department. Students must have an adviser appointed and an official program of study submitted before completing nine semester hours of course work. For more information, see the department website at http://www.ece.engr.ucf.edu/.

Articulation

Undergraduate articulation courses may be required for students with BS and/or MS degrees in fields other than electrical engineering. The articulation courses will be determined by the graduate program coordinator in consultation with student’s research adviser on a case-by-case basis.

In general, students with a nonelectrical engineering degree must have had the equivalent course work or satisfy the following articulation program:

Mathematics through Differential Equations (MAP 2302 or equivalent)
Physics with Calculus (PHY 2048, PHY 2049 or equivalent)
Electronics I (EEL 3307C or equivalent)
Electromagnetic Fields (EEL 3470 or equivalent)
Signal Analysis and Communications (EEL 3552 or equivalent)
Semiconductor Devices I (EEL 3306 or equivalent)

Additional courses may also be required to correct any undergraduate course deficiencies. Courses taken to correct deficiencies cannot be used to satisfy minimum degree requirements.

Thesis Option

This option requires a minimum of thirty semester hours of approved course work.
Non-Thesis Option

This option requires a minimum of 36 semester hours of course work and is intended primarily for part-time students. Program requirements are the same as the thesis option except that the thesis requirement is replaced by 12 hours of course work. Students are required to pass a final comprehensive examination.

Degree Requirements

- Required courses from one of the following tracks:
  - Communications
  - Controls/Power
  - Digital Signal Processing
  - Electromagnetics
  - Electronics
  - Electro-optics
  - Solid State and Microelectronics
- One course from any other 2 areas listed above (6 hours total).
- No more than 6 credits of thesis will count toward the degree requirement.
- The remainder of the program courses is chosen in conjunction with an adviser in an approved program of study.
- At least 15 credit hours must be from 6000-level courses.

Communications Track

Required Courses—12 Semester Hours
EEL 5542 Random Processes I (3 hours)
EEL 6530 Communication Theory (3 hours)
One course from two of the following tracks: Controls/Power, Digital Signal Processing, Electromagnetics, Electronics, Electro-optics, Solid State and Microelectronics (6 hours)

Electives
EEL 6504 Communications Systems Design (3 hours)
EEL 6543 Random Processes II (3 hours)
EEL 6537 Detection and Estimation (3 hours)
EEL 5555C RF and Microwave Communications (3 hours)
EEL 5762 Performance Analysis of Computer and Communication Systems (3 hours)
EEL 5547 Introduction to Radar Systems (3 hours)
EEL 6785 Computer Network Design (3 hours)
EEL 6590 Advanced Topics in Communications (3 hours)

Thesis Option—18 Semester Hours
EEL 6971 Thesis (6 hours)
Electives (12 hours)

Non-Thesis Option—24 Semester Hours
Electives (24 hours)

Total Hours Required for M.S.E.E.—30 or 36 Semester Hours

Controls/Power Track

Required Courses—12 Semester Hours
EEL 5630 Digital Control Systems (3 hours)
EEL 5173 Signal and System Analysis (3 hours)
One course from two of the following tracks: Communications, Digital Signal Processing, Electromagnetics, Electronics, Electro-optics, Solid State and Microelectronics (6 hours)

Electives in Controls
EEL 6621 Nonlinear Control Systems (3 hours)
EEL 6671 Modern and Optimal Control Systems (3 hours)
EEL 6674 Optimal Estimation for Control (3 hours)
EEL 6617 Fundamentals of Modern Multivariable Control (3 hours)
EEL 6616 Adaptive Control (3 hours)
EEL 6680 Advanced Topics in Modern Control Systems (3 hours)

Electives in Power
EEL 5245C Power Electronics I (3 hours)
EEL 6208 Advanced Machines (3 hours)
EEL 6255 Advanced Power Systems Analysis (3 hours)
EEL 6269 Advanced Topics in Power Engineering (3 hours)
EEL 6246 Power Electronics II (3 hours)

Thesis Option—18 Semester Hours
EEL 6971 Thesis (6 hours)
Electives (12 hours)

Non-Thesis Option—24 Semester Hours
Electives (24 hours)

Total Hours Required for M.S.E.E.—30 or 36 Semester Hours

Digital Signal Processing Track

Required Courses—12 Semester Hours
EEL 4750 Digital Signal Processing Fundamentals (3 hours)
EEL 5513 Digital Signal Processing Applications (3 hours)
One course from two of the following tracks: Communications, Controls/Power, Electromagnetics, Electronics, Electro-optics, Solid State and Microelectronics (6 hours)

Electives
EEL 6502 Adaptive Digital Signal Processing (3 hours)
EEL 6505 Multidimensional Digital Processing (3 hours)
EEL 6558 Advanced Topics in Digital Signal Processing (3 hours)
EEL 5820 Image Processing I (3 hours)
EEL 6823 Image Processing II (3 hours)
EEL 5825 Pattern Recognition (3 hours)
Electromagnetics Track

Required Courses—12 Semester Hours
EEL 6488 Electromagnetic Fields (3 hours)

One of the following courses is required:
EEL 4436C Microwave Engineering (3 hours)
EEL 5462C Antenna Analysis and Design (3 hours)
EEL 5434 Microwave Circuits and Devices (3 hours)

One course from two of the following tracks: Communications, Controls/Power, Digital Signal Processing, Electronics, Electro-optics, Solid State and Microelectronics (6 hours)

Electives
EEL 5555C RF and Microwave Communications (3 hours)
EEL 6463 Antenna Analysis and Design II (3 hours)
EEL 6492 Advanced Topics in Electromagnetics and Microwave (3 hours)

Thesis Option—18 Semester Hours
EEL 6971 Thesis (6 hours)
Electives (12 hours)

Non-Thesis Option—24 Semester Hours
Electives (24 hours)

Total Hours Required for M.S.E.E.—30 or 36 Semester Hours

Electro-optics Track

Required Courses—15 Semester Hours
Three of the following courses are required:
EEL 5441 Introduction to Wave Optics (3 hours)
EEL 6443 Electro-optics (3 hours)
EEL 6560 Laser Engineering (3 hours)
EEL 6561 Fourier Optics (3 hours)
EEL 5453 Geometrical Optics (3 hours)

One course from two of the following tracks: Communications, Controls/Power, Digital Signal Processing, Electromagnetics, Electronics, Solid State and Microelectronics (6 hours)

Electives
EEL 5563 Fiber Optics Communication (3 hours)
EEL 5451L Electro-optics Laboratory (3 hours)
EEL 6565 Infrared Technology (3 hours)

Thesis Option—18 Semester Hours
EEL 6971 Thesis (6 hours)
Electives (9 hours)

Non-Thesis Option—21 Semester Hours
Electives (21 hours)

Total Hours Required for M.S.E.E.—30 or 36 Semester Hours

Electronics Track

Required Courses—12 Semester Hours
EEL 6371 Advanced Electronics I (3 hours)

One of the following courses is required:
EEL 5245C Power Electronics I (3 hours)
EEL 5357 CMOS Analog and Digital IC Design (3 hours)

One course from two of the following tracks: Communications, Controls/Power, Digital Signal Processing, Electromagnetics, Electro-optics, Solid State and Microelectronics (6 hours)

Electives
EEL 5332C Thin Film Technology (3 hours)
EEL 5353 Semiconductor Device Modeling and Simulation (3 hours)
EEL 5357 CMOS Analog and Digital IC Design (3 hours)
EEL 5517 Surface Acoustic Wave Devices and Systems (3 hours)
EEL 5352 Semiconductor Material and Device Characterization (3 hours)
EEL 6354 Advanced Semiconductor Device II (3 hours)
EEL 6338 Advanced Topics in Microelectronics (3 hours)

Thesis Option—18 Semester Hours
EEL 6971 Thesis (6 hours)
Electives (12 hours)

Non-Thesis Option—24 Semester Hours
Electives (24 hours)

Total Hours Required for M.S.E.E.—30 or 36 Semester Hours

Solid State and Microelectronics Track

Required Courses—12 Semester Hours
EEL 5355C Fabrication of Solid-state Devices (3 hours)
EEL 6354 Advanced Semiconductor Device I (3 hours)

One course from two of the following tracks: Communications, Controls/Power, Digital Signal Processing, Electromagnetics, Electronics, Electro-optics (6 hours)

Electives
EEL 5332C Thin Film Technology (3 hours)
EEL 5353 Semiconductor Device Modeling and Simulation (3 hours)
EEL 5357 CMOS Analog and Digital IC Design (3 hours)
EEL 5517 Surface Acoustic Wave Devices and Systems (3 hours)
EEL 5352 Semiconductor Material and Device Characterization (3 hours)
EEL 6354 Advanced Semiconductor Device II (3 hours)
EEL 6338 Advanced Topics in Microelectronics (3 hours)

Thesis Option—18 Semester Hours
EEL 6971 Thesis (6 hours)
Electives (12 hours)

Non-Thesis Option—24 Semester Hours
Electives (24 hours)

Total Hours Required for M.S.E.E.—30 or 36 Semester Hours
Doctor of Philosophy in Electrical Engineering

The Doctor of Philosophy (Ph.D.) degree is primarily intended for students with a master's degree in electrical engineering or a closely related discipline who wish to pursue a career in research or academia. Specializations include communications, digital signal processing/image processing, controls, electro-optics, electromagnetics, electronics, and solid-state/microelectronics.

Admission

Students must satisfy university requirements and have completed a master's degree in electrical engineering or a closely related discipline, with a minimum grade point average of 3.5 of a possible 4.0, and a minimum of 1100 on the combined verbal-quantitative sections of the General test of the Graduate Record Examination. Admissions decisions using these results and supplemental information are made by the graduate program coordinator.

Students are required to pass a qualifying examination within their first year of doctoral study. The student must then form a dissertation committee and submit an approved program of study before being allowed to continue with the doctoral program.

Degree Requirements

The Ph.D. degree requires a minimum of 81 semester hours of graduate course work, 24 of which will be dissertation hours. Graduate course work includes 5000 or higher level courses, with a maximum of 12 hours of independent study. Up to 6 hours of 4000-level work are acceptable if transferred from a master's degree program. At least 6 hours must be taken outside the department while at UCF. There is a residency requirement of two contiguous semesters in full-time graduate student status (minimum of 6 semester hours) after acceptance to the graduate program at UCF. A program of study must be developed with an advisory committee and meet with departmental approval at the beginning of the Ph.D. program, at which time transfer credit will be evaluated on a course-by-course basis. The degree must be completed within seven years from the date of entry to the doctoral program.

Transfer Credits

A limited number of credit hours may be transferred from a master's degree toward these requirements, including a maximum of 6 hours of 4000-level courses; no 3000-level courses; and no courses with grades less than "B."

Qualifying/Comprehensive Examination

The prospective doctoral student must take a written Qualifying Examination before being admitted to full doctoral student status. This exam covers relevant material typically learned at the undergraduate and graduate levels, and serves to verify the student's capability and readiness for the Ph.D. program.

The written examination will consist of two separate tests given on two consecutive days. It is the policy of the department that any calculator used during the qualifying examination may not be used to store user-defined programs.

1. Fundamentals—This is a closed book four-hour examination on the fundamentals of electrical engineering. The student must pass four of the eight subject areas on the test:

- Circuits
- Communications
- Controls/Power
- Digital Systems
- Electromagnetic Fields
- Electronics
- Physical Electronics
- Digital Signal Processing

2. Advanced—This is an open book four-hour examination in areas of advanced study of electrical engineering. The student must pass three of the eight areas listed below:

- Communications
- Digital Signal Processing
- Controls/Power
- Digital Systems
- Electro-Optics
- Electromagnetics
- Physical Electronics
- Electronics

NOTE: The test on the fundamentals is closed book, and the advanced level is open book. At the advanced examination, tests and student notes are permitted, but published solution manuals for texts are not allowed.

Candidacy Examination

The Candidacy Examination evaluates the student's preparation to undertake the research in the student's dissertation topic. A student may sit for the Candidacy Examination upon:

1. Passing the Qualifying Examination;
2. Completing all conditions placed as a result thereof; and
3. Completing all but six (6) credits or less of the courses prescribed in the plan of study. The Candidacy Examination consists of the following:

- A Candidacy Proposal developed by the student to identify the chosen area of research.
- An oral presentation of the Candidacy Proposal to the dissertation committee by the student.
- A written Candidacy Examination based on the student's chosen area of research may be required by the major professor. The format is determined by the major professor in consultation with the dissertation committee.

Upon successful completion of the Candidacy Examination, the student can be accepted into Candidacy status, allowing the student to enroll for dissertation credit hours.

The final step in the process is the Dissertation Defense Examination, which is an oral examination taken in defense of the written dissertation before the dissertation committee.

Dissertation Committee

The dissertation committee must consist of a minimum of five members: three must be faculty members from within the Electrical and Computer Engineering Department, and
one must be from outside the College of Engineering. The committee Chair must be a member of the department graduate faculty approved to direct dissertations.

Graduate Certificates in Electrical Engineering

Certificate in Antennas and Propagation
Antenna design and electromagnetic propagation is of great importance in several areas, such as radar, wireless communications, and remote sensing. This certificate program provides the knowledge and training needed for people to work in this area.

Required Courses—15 Semester Hours
EEL 4436 Microwave Engineering (3 hours)
EEL 5432 Satellite Remote Sensing (3 hours)
EEL 5462C Antenna Analysis and Design (3 hours)
EEL 5547 Introduction to Radar Systems (3 hours)
EEL 6488 Electromagnetic Fields (3 hours)

Certificate in Communications Systems
Every day we use a variety of modern communication systems and communication media, including the telephone, radio, television, electronic mail, and facsimile. Through these media we can communicate (nearly) instantaneously with people on different continents, transact our daily business, and receive information about developments and events of note that occur around the world. This certificate program provides the basic principles in the analysis and design of communication systems. After presentation of the background concepts of probability, random variables, and stochastic processes, students will be able to analyze existing or new communication systems. The fundamental elements of all communication systems (transmitter, channel, and receiver) will be thoroughly investigated and a number of practical communication systems will be discussed in detail.

Required Courses—9 Semester Hours
EEL 5542 Random Processes I (3 hours)
EEL 6504 Communications Systems Design (3 hours)
EEL 6530 Communication Theory (3 hours)

Certificate in Digital Signal Processing
Digital signal processing encompasses many types of applications, ranging from the processing of speech signals to the automatic recognition of characters in a scanned document. This certificate program provides students with a basic understanding of digital processing techniques by building on a formal foundation in sampling of analog signals, finite impulse response filters, and infinite impulse response filters.

Required Courses—12 Semester Hours
EEL 4750 Digital Signal Processing Fundamentals (3 hours)
EEL 5513 Digital Signal Processing (3 hours)

Any 2 of the following courses:
EEL 5820 Image Processing I (3 hours)
EEL 6823 Image Processing II (3 hours)
EEL 5825 Pattern Recognition (3 hours)
EEL 6502 Adaptive Digital Signal Processing (3 hours)
EEL 6505 Multidimensional Digital Processing (3 hours)
EEL 6558 Advanced Topics in Digital Signal Processing (3 hours)

Certificate in Electronic Circuits
This certificate program emphasizes modern design practice for power electronics, CMOS-integrated circuits, computer-aided circuit simulation, semiconductor device modeling, advanced analog and digital circuits, and advanced machinery. The power electronics courses cover principles of power electronics, power semiconductor devices, inverter topologies, switch-mode and resonant dc-to-dc converters, cyclo-converters, and advanced topics (soft-switching techniques, small-signal modeling of PWM and resonant converters, control techniques, power factor correction circuits). Conventional analog circuits such as ideal and non-ideal OP-amps, active RC and switched-capacitor filters, non-linear and other functional circuits, frequency stability and compensation of OP-amps will also be included. For electronic circuit design, SPICE circuit simulation is an essential computer-aided design tool, and course work focuses on semiconductor device modeling for circuit simulation, illustration of semiconductor device physics, and design principles of advanced CMOS analog and digital circuits in mixed-signal integrated circuits. Extensive circuit simulation and design examples will be provided.

Required Courses—12 Semester Hours
EEL 5245C Power Electronics (3 hours)
EEL 5357 CMOS Analog and Digital IC Design (3 hours)

Any 2 of the following courses:
EEL 5353 Semiconductor Device Modeling and Simulation (3 hours)
EEL 5370 Operational Amplifiers (3 hours)
EEL 6208 Advanced Machines (3 hours)
EEL 6246 Power Electronics (3 hours)

Master of Science in Computer Engineering
The Master of Science degree in Computer Engineering (M.S.Cp.E.) requires a baccalaureate degree in Computer Engineering or a closely related discipline from an approved institution. Admission requirements for regular status include a 3.0 grade point average (GPA) (A = 4.0) in the last 60 attempted hours of the undergraduate degree program and a minimum of 1000 in the quantitative and verbal portions of the Graduate Record Examination (GRE). International students, except those who are from countries where English is the only official language or those who have earned a degree...
from an accredited American college or university, are re­
quired to submit a score of at least 213 (computer-based test)
or 550 (paper-based test) on the Test of English as a Foreign
Language (TOEFL).

Students with a grade point average of less than 3.0 may be admitted on a trial program basis in some circumstances.
Additional courses may also be required to correct any course deficiencies. Students should contact the ECE graduate pro­
gram coordinator for further information.

Articulation

Undergraduate articulation courses may be required for stu­
dents with bachelor's and/or master's degrees in fields other than computer engineering. The articulation courses will be
determined by the graduate program coordinator in consul­
tation with the student's adviser on a case-by-case basis.

In general, all students must have had the following un­
dergraduate program or equivalent before admission to
graduate study:

Mathematics through differential equations (equivalent to
MAC 2311, MAC 2312, MAC 2313, MAP 2302)
College physics with calculus (equivalent to PHY 2048 and
PHY 2049)
Computer organization (equivalent to EEL 4767C)
Probability and statistics (equivalent to STA 3032)
Numerical methods and matrix algebra (equivalent to EGN
3420)
Engineering data structures (equivalent to EEL 4851C)
Digital logic circuits (equivalent to EEL 3342C)
Computer design (equivalent to EEL 4767C)

Students without this background must take the appropriate
course work. Courses taken to correct deficiencies cannot be
used to satisfy minimum degree requirements.

Tracks in Computer Engineering

There are four tracks available in the master's degree pro­
gram in computer engineering. They are:

* Computer Architecture
* Digital Systems
* Knowledge-based Systems
* Software Engineering

Each track has a thesis option and a course work-only (non-thesis) option. The thesis option requires a minimum of
30 semester hours, including 6 hours of thesis registration.
The non-thesis option requires a minimum of 36 semester
hours of course work. Each option requires a minimum of 15
hours at the 6000 level. The actual program of study must be
approved by an adviser prior to completing 9 hours of course
work. A maximum of 9 semester hours of graduate course
work taken prior to admission to the program can be used in
a graduate degree program.

Thesis Option

This program requires 30 semester hours, at least 15 hours of
which must be at the 6000 level and will include 6 hours of
thesis credit. The prerequisites for the program are shown
below. The Core requirements for all students will be met by
Required Courses. A program adviser and committee must be
selected prior to completing 9 hours of course work. Non-
Core courses taken before a student is in regular status and
has a chair may not be accepted toward the M.S.Cp.E. The
entire graduate committee must be appointed and a thesis
abstract provided to them prior to registering for thesis credit.

Non-Thesis Option

This option requires a minimum of 36 semester hours of course
work and is intended primarily for part-time students. Pro­
gram requirements are the same as for the thesis option ex­
cept that the thesis requirement is replaced by 12 hours of
course work. Students are required to pass a final compre­
hensive examination.

Required Courses (Core)—9 Semester Hours

EEL 5708 High Performance Computer Architecture (3 hours)
EEL 5874 Expert Systems and Knowledge Engineering (3 hours)
EEL 5881 Software Engineering I (3 hours)

Computer Architecture Track

Thesis Option
Core (9 hours)
EEL 6707 Parallel Processing (3 hours)
EEL 6763 Current Topics in Parallel Processing (3 hours)
EEL 6769 Parallel Knowledge Processing Systems (3 hours)
Electives (Selected in consultation with adviser) (6 hours)
Thesis (6 hours)
Total Hours Required for M.S.Cp.E.—30 Semester Hours

Non-Thesis Option
Core (9 hours)
EEL 6707 Parallel Processing (3 hours)
EEL 6763 Current Topics in Parallel Processing (3 hours)
EEL 6769 Parallel Knowledge Processing Systems (3 hours)
EEL 6883 Software Engineering II (3 hours)
Electives (selected in consultation with adviser) (15 hours)
Final Exam (0 hours)
Total Hours Required for M.S.Cp.E.—36 Semester Hours

Digital Systems Track

Thesis Option
Core (9 hours)
EEL 6707 Parallel Processing (3 hours)
EEL 6763 Current Topics in Parallel Processing (3 hours)
Two courses in one of the following areas: Controls, Digital
Signal Processing, or Microelectronics (6 hours)
Electives (Selected in consultation with adviser) (3 hours)
Thesis (6 hours)
Total Hours Required for M.S.Cp.E.—30 Semester Hours

Non-Thesis Option
Core (9 hours)
EEL 6707 Parallel Processing (3 hours)
EEL 6763 Current Topics in Parallel Processing (3 hours)
EEL 6883 Software Engineering II (3 hours)
Three courses in one of the following areas: Controls, Digital Signal Processing, or Microelectronics (9 hours)
Electives (Selected in consultation with adviser) (9 hours)
Final Exam (0 hours)
Total Hours Required for M.S.Cp.E.—36 Semester Hours

Knowledge-based Systems

Thesis Option
Core (9 hours)
*EEL 4872 Engineering Applications of Intelligent Systems (3 hours)
EEL 6875 Engineering of Artificial Intelligence Systems (3 hours)
At least one of the following courses (3 hours):
   EEL 6876 Current Topics in AI in Engr. Systems
   EEL 6878 Modeling and Artificial Intelligence
Electives (Selected in consultation with adviser) (6 hours)
Thesis (6 hours)
Total Hours Required for M.S.Cp.E.—30 Semester Hours

Non-Thesis Option
Core (9 hours)
*EEL 4872 Engineering Applications of Intelligent Systems (3 hours)
EEL 6875 Engineering of Artificial Intelligence Systems (3 hours)
EEL 6876 Current Topics in Artificial Intelligence in Engineering Systems (3 hours)
EEL 6878 Modeling and Artificial Intelligence (3 hours)
EEL 6883 Software Engineering II (3 hours)
Electives (selected in consultation with adviser) (12 hours)
Final Exam (0 hours)
Total Hours Required for M.S.Cp.E.—36 Semester Hours

* If the student has taken this course or an equivalent as an undergraduate, then an elective, chosen in consultation with the adviser, can be used to replace this course.

Software Engineering Track

Thesis Option
Core (9 hours)
EEL 6883 Software Engineering II (3 hours)
At least one of the following courses:
   EEL 6885 Software Engineering Quality Assurance Methods (3 hours)
   EEL 6887 Software Engineering Life-Cycle Control (3 hours)
   EEL 6897 Software Development for Real-Time Engineering Systems (3 hours)
Electives (selected in consultation with adviser) (9 hours)
Thesis (6 hours)
Total Hours Required for M.S.Cp.E.—30 Semester Hours

Non-Thesis Option
Core (9 hours)
EEL 6883 Software Engineering II (3 hours)
At least two of the following courses (6 hours):
   EEL 6885 Software Engineering Quality Assurance Methods
   EEL 6887 Software Engineering Life-Cycle Control
   EEL 6897 Software Development for Real-Time Engineering Systems
Electives (selected in consultation with adviser) (18 hours)
Final Exam (0 hours)
Total Hours Required for M.S.Cp.E.—36 Semester Hours

Doctor of Philosophy in Computer Engineering

The Doctor of Philosophy (Ph.D.) degree is primarily intended for students with a master's degree in Computer Engineering or a closely related discipline who wish to pursue a career in research or academia. Specializations include digital systems, computer architecture, software engineering, intelligent systems, image processing, computer networks, and simulation systems.

Admission

Students must satisfy university requirements and have completed a master's degree in Computer Engineering or a closely related discipline, with a minimum grade point average (GPA) of 3.5 of a possible 4.0, and a minimum of 1100 on the combined scores of verbal and quantitative portions of the Graduate Record Examination (GRE).

Admissions decisions using these results and supplemental information are made by the graduate program coordinator.

Students are required to pass a Qualifying Examination. Then the student must form a dissertation committee and submit an approved program of study before being admitted to degree-seeking status.

Degree Requirements

The Ph.D. degree requires a minimum of 81 semester hours of graduate course work, 24 of which must be dissertation hours. Graduate course work includes 5000 or higher level courses, with a maximum of 12 hours of independent study. Up to 6 hours of 4000 level work are acceptable if transferred from a master's degree program. At least 6 hours must be taken outside the department while at UCF. There is a residency requirement of two contiguous semesters in full-time graduate student status (minimum of 6 semester hours) after acceptance to the graduate program at UCF. A program of study must be developed with an advisory committee and meet with departmental approval at the beginning of the Ph.D. program, at which time transfer credit will be evalu-
ated on a course-by-course basis. The degree must be completed within seven years from the entry date to the doctoral program.

Transfer Credits

Up to 36 credit hours may be transferred from a master’s degree toward these requirements, including a maximum of 6 hours of 4000-level courses; no 3000-level courses; and no courses with grades less than “B.”

Qualifying/Comprehensive Examinations

The prospective doctoral student must take a written Qualifying Examination before being admitted to full doctoral student status. This exam covers relevant material typically learned at the undergraduate and graduate levels, and serves to verify the student’s capability and readiness for the Ph.D. program.

This examination consists of two days of written examinations with an optional third day for an oral examination. The oral examination will be held approximately within two weeks of the written examination and is at the option of Computer Engineering Examination Committee. The exam will be offered twice per year, in April and in November.

The written exam will consist of two separate tests given on two consecutive days.

Day #1 Fundamentals of Computer Engineering (4 hours)
The student must pass an examination in the following areas:

- Digital Systems and Computer Architecture
- Software Engineering
- Engineering Mathematics and Numerical Methods

The examination is closed-book and notes, with two 8 1/2 x 11 handwritten reference sheets permitted. No stored program calculators are permitted.

Day #2 Advanced Concepts in Computer Engineering (4 hours)
The student must pass an examination in the following areas:

- Advanced Software Engineering
- Digital Systems and Computer Architecture

In addition, the student must select (at the time of the examination) and pass an examination in one of the following areas:

- Analog Electronics
- Communications
- Controls
- Digital Signal Processing
- Electromagnetics
- Electro-optics
- Knowledge-based Systems
- Physical Electronics

This exam will be open book. It is the policy of the ECE department that any calculator used during the qualifying examination may not be used to store user-defined programs.

Candidacy Examination

The Candidacy Examination evaluates the student’s preparation to undertake the research in the student’s dissertation topic. A student may sit for the Candidacy Examination upon: (1) Passing the Qualifying Examination; (2) Completing all conditions placed as a result thereof; and (3) Completing all but six (6) credits or less of the courses prescribed in the plan of study. The Candidacy Examination consists of the following:

- A Candidacy Proposal developed by the student to identify the chosen area of research.
- An oral presentation of the Candidacy Proposal to the dissertation committee by the student.
- A written Candidacy Examination based on the student’s chosen area of research may be required by the major professor. The format is determined by the major professor in consultation with the dissertation committee.

Upon successful completion of the Candidacy Examination, the student can be accepted into Candidacy status, allowing the student to enroll for dissertation credit hours.

The final step in the process is the Dissertation Defense Examination, which is an oral examination taken in defense of the written dissertation before the dissertation committee.

Dissertation Committee

The dissertation committee must consist of a minimum of five members: three must be faculty members from within the Electrical and Computer Engineering Department, and one must be from outside the College of Engineering. The Committee Chair must be a member of the department graduate faculty approved to direct dissertations.

Graduate Certificates in Computer Engineering

Graduate Program Coordinator, Certificates in Computer Engineering: Gwen Walton, Ph.D., ENGR 407, (407) 823-3276.
E-mail: gwalton@mail.ucf.edu

Certificate in Software Engineering

The current shortage of computer engineers in the United States has been recently described by many in the industry and government as a shortage of crisis proportion. This certificate program provides students with a level of proficiency in software engineering that satisfies the needs of industry.

Required Courses—12 Semester Hours
EEL 5881 Software Engineering I (3 hours)
EEL 5XXX Software Requirements Engineering (3 hours)
EEL 6887 Software Engineering Life-Cycle Control (3 hours)
EEL 6XXX Software Engineering Architecture and Design (3 hours)
An engineering graduate student conducts a surface boiling point experiment in one of the many labs in the Engineering Building.
Certificate in Software-Intensive Systems

Due to rapid technological development and changes in software engineering, several important application areas, including real-time systems, computer networking, computer graphics, real-time simulation, and intelligent systems, require significant knowledge that is application-specific. This certificate program directly addresses these needs by providing the opportunity for students to pursue their individual interests as well as meet the needs of industry.

**Required Courses—12 Semester Hours**

EEL 5881 Software Engineering I (3 hours)
EEL 6883 Software Engineering II (3 hours)

Any 2 of the following courses:
EEL 5771C Engineering Applications of Computer Graphics (3 hours)
EEL 5874 Expert Systems and Knowledge Engineering (3 hours)
EEL 6785 Computer Network Design Methods (3 hours)
EEL 6885 Software Engineering Quality Assurance (3 hours)
EEL 6887 Software Engineering Life-Cycle Control (3 hours)
EEL 6895 Current Issues in Real-Time Simulation (3 hours)
EEL 6897 Software Development for Real-Time Engineering Systems (3 hours)

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**Industrial Engineering and Management Systems**

*Chair of the Department:* Charles H. Reilly  
*Graduate Program Coordinator:* Linda C. Malone, ENGR 307B, (407) 823-2204. E-mail: malone@mail.ucf.edu

**Faculty**

**Professors:** John E. Biegel, Ph.D., P.E.; Yasser A. Hosni, Ph.D., P.E., Martin-Marietta Distinguished Professor; Charles H. Reilly, Ph.D.; George F. Schrader, Ph.D., P.E., Professor Emeritus; Gary E. Whitehouse, Ph.D., P.E., Provost and Academic Vice President


**Assistant Professors:** Timothy G. Kohnour, Ph.D.; Michael D. Proctor, Ph.D.; William J. Thompson, Ph.D., Executive Officer

The department’s graduate programs have been developed to support the emergence of the Central Florida area as one of the national centers of high technology as well as supporting the diverse service industries in the region. In addition to the Doctor of Philosophy in Industrial Engineering, the original master’s degree offerings included the Master of Science in Industrial Engineering (M.S.I.E.) degree and the Master of Science (M.S.) degree with options in Manufacturing Engineering, Computer Integrated Manufacturing, Engineering Management, and Operations Research. In 1984, the department began offering the nationally unique M.S. degree options in Simulation Systems, which are now the Interactive Simulation and Training Systems Option and the Simulation Modeling and Analysis Option. These tracks were specifically developed to support the Center of Excellence in Simulation and Training established in the Central Florida region. In 1989, the department received permission to offer Florida’s first graduate degree track in Product Assurance Engineering. This track serves the increasing demand for individuals trained in the areas of productivity and quality. In 1996, the department was granted permission to offer a track in Human Engineering/Ergonomics to support the growing need for considering the role of the human in the design and operation of systems. In addition, the Manufacturing Engineering track was refocused to Precision Engineering and Manufacturing that focuses on manufacturing processes that have tight tolerances and demand high precision in manufacturing operations. The Computer Integrated Manufacturing track was expanded to Manufacturing Systems. Graduate student enrollment includes approximately 350 master’s-level students and 80 doctoral students.

Supporting this diverse educational program is a departmental sponsored research base of well over $2.0 million, which places the department within the top ten nationally ranked industrial engineering departments in external support. The department’s emergence as one of America’s leading research units began in 1987 with a multi-year grant from the Florida High Technology and Industry Council. Funding was used to form a consortium from among the General Electric Company, Embry-Riddle Aeronautical University, and UCF’s Industrial Engineering Department to support the development of an Intelligent Simulation Training System (ISTS) to train air traffic controllers. State funding continues to support follow-on research to produce new knowledge about generic Intelligent Simulation and Training Systems.

In 1988, the department became one of the participants in a multi-year research effort involving the University of Oregon and the Florida Solar Energy Center, sponsored by the U.S. Department of Energy to define how to achieve energy efficient, affordable industrialized housing in the 21st Century. In 1989, the department became part of a multi-year effort with NASA to improve the efficiency and productivity of space shuttle processing operations. In 1990, the department was selected to offer an M.S. in Engineering Management to selected NASA engineers at the Kennedy Space Center. The program has recently been expanded to include contractor employees at Kennedy Space Center.

In 1993, the department acquired the NASA funded Multimedia Applications Laboratory that conducts research on how knowledge based systems interfaced with multimedia software and hardware can provide intelligent information search, retrieval, and display. In the same year, a new major research effort began that involved the development of non-polluting alternative fuels that use mixtures of hydrogen and methane. Systemwide considerations include research in optimization of engine design and performance as well as development of the infrastructure to support alternative fuels.
Simulation-related research continues to be a major effort. The simulation research is very broad ranging from development of models for time/space interactions to validation of man-in-the-loop simulations. Research supported by the U.S. Army involves the effectiveness of training simulations and the evaluation of distributed interactive simulation. Human engineering and ergonomics research activities include several studies of human computer interaction, particularly with respect to virtual reality applications as well as studies of cumulative trauma disorders. Several recent studies have addressed the problem of resource constrained project scheduling and have focused on algorithmic improvements, identification of optimality in stochastic networks, and risk in project scheduling. Research funding from the U.S. Coast Guard supported a risk analysis of the International Ice Patrol and Department of Transportation mandates led to industry supported risk analyses of highway transportation of hazardous fuels.

The department has been recognized for its outstanding performance. In 1993, it was named the 1993 Public Organization of the Year for "world class leadership qualities and professional contributions to engineering education and research" by the Central Florida Joint Council of Engineering Societies. The department also received the Davis Productivity Award presented by the Florida Council of 100, Inc. and Florida Tax Watch, Inc. for its leading edge application of Total Quality Management approach to the continuous improvement of student learning; the department recently has been designated as one of the seven schools where U.S. Army officers are sent to receive advanced civil schooling at the M.S. and Ph.D. levels in Operations Research and Simulation.

All faculty have terminal degrees in a broad range of disciplines supporting Industrial Engineering, including Industrial Engineering, Manufacturing Engineering, Systems Engineering, Operations Research, Engineering Management, Statistics, and Business Administration. All faculty are student-oriented and heavily involved in teaching and research. UCF IEMS graduate degrees provide great value. Our graduates have obtained positions at Lockheed Martin, Cirent Technologies (AT&T), Walt Disney World, Sabre Decision Technologies, NASA, Rockwell, Oracle, Harris, Deloitte Touche, Arthur Andersen, and many other companies. Ph.D. graduates are on faculties at Old Dominion, East Carolina, Oklahoma, and Arizona State Universities among others, as well as in research and management positions in industry and government.

**Degree Programs**

The Department of Industrial Engineering and Management Systems offers a Master of Science in Engineering degree in Industrial Engineering (M.S.I.E.) and a Master of Science (M.S.) degree with tracks in Engineering Management, Human Engineering/Ergonomics, Operations Research, Manufacturing Systems, Precision Engineering and Manufacturing, Product Assurance Engineering, Interactive Simulation and Training Systems, and Simulation Modeling and Analysis; and the Doctor of Philosophy (Ph.D.) degree in Industrial Engineering.

**Master’s Program Admission Requirements**

Students must satisfy the following criteria: Minimum score of 213 (computer-based test) or 550 (paper-based test) on the Test of English as a Foreign Language (TOEFL) (only applicants whose native language is not English, except for those completing a Bachelor’s degree where the course of study was presented in English); and a minimum GPA of 3.0 in the last 60 attempted semester hours of undergraduate studies or a minimum GRE score of 1000 combined verbal-quantitative or a minimum GPA of 2.8 in the last 60 attempted semester hours of undergraduate studies. All students must complete the GRE regardless of GPA. Students who do not meet all of the criteria may be admitted on a conditional basis and be required to demonstrate acceptable performance (minimum GPA of 3.25) in a 9-hour trial program of graduate courses.

**Master’s Degree Requirements**

The Master of Science in Industrial Engineering degree requires an undergraduate degree in Industrial Engineering. It is offered as a 30 semester hour program that includes a thesis. The Master of Science tracks require an undergraduate degree in engineering (or a closely related discipline) and are available with thesis (30 semester hours) or without thesis (36 semester hours).

A program of study, satisfying the requirements of a departmental discipline, must be developed with a faculty advisor and meet with departmental approval. Required courses vary from 15 to 24 semester hours depending on the program and are supplemented by electives that may include courses offered by other departments. A student with an undergraduate degree outside of the selected departmental discipline may be required to satisfy an articulation program. Many of the graduate courses offered by the IEMS Department or required in the MSIE/MS programs (except for those with laboratories) are offered on the Florida Engineering Educational Delivery System (FEEDS) providing videotape versions available at the remote campuses, KSC, and other industrial/academic sites. Thesis students conduct an oral defense of their theses. Non-thesis students must pass an oral comprehensive examination at the end of their program of study. Most students working full time and many on assistantships take six hours per semester to satisfy the university’s requirement for full-time status. At that rate, the program can be completed in six semesters (five with thesis option). However, students with more time available and an early start on a thesis can finish the program in one year (three semesters).

**Master of Science in Industrial Engineering (M.S.I.E.)**

Industrial Engineering focuses on a total systems approach to optimize operations in manufacturing and service industries. Industrial engineers use many different analytical approaches to improve productivity and quality of working life while reducing operating costs. UCF awards the Master of Science in Industrial Engineering degree. This degree requires
a Bachelor of Science in Industrial Engineering as a prerequisite. The MSIE curriculum builds on the undergraduate IE degree to develop a stronger systems focus and analytical capability.

**Required Courses—24 Semester Hours**

- EIN 5140 Project Engineering (3 hours)
- EIN 5602C Expert Systems in Industrial Engineering (3 hours)
- EIN 6357 Advanced Engineering Economics Analysis (3 hours)
- ESI 5531 Discrete Systems Simulation (3 hours)
- ESI 6247 Experimental Design and Taguchi Methods (3 hours)
- ESI 6427 Linear Programming and Extensions (3 hours)
- EIN 6971 Thesis (required) (6 hours)

**Electives—6 Semester Hours**

Total Hours Required for M.S.I.E.—30 Semester Hours

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**Master of Science**

**Engineering Management Track**

Engineering Management focuses on effective decision making in engineering and technological organizations. Addressing the needs of engineers and scientists moving into management positions, Engineering Management complements their technical backgrounds with the human aspects, organizational and financial issues, project considerations, resource allocation, and extended analytical tools required for effective decision making and program management. This program is designed for technically qualified individuals who plan to assume a management role in project or program-oriented environments in industry or government. It provides the analytical, organizational, and managerial skills to bridge the gap between a technical specialty and technical management.

**Prerequisites**

- Mathematics through Calculus III (MAC 2313)
- Work Measurement and Design (EIN 3314C)
- Probability and Statistics for Engineers (STA 3032 or equivalent)*
- Human Engineering (EIN 4243C or equivalent)**

* May be satisfied by taking STA 5156 as part of program of study as an elective
** Undergraduate course may be included in program of study as an elective

**Required Courses—24 Semester Hours**

- EIN 5108 The Environment of Technical Organizations (3 hours)
- EIN 5117 Management Information Systems (3 hours)
- EIN 5140 Project Engineering (3 hours)
- EIN 6322 Engineering Management (3 hours)
- EIN 6357 Advanced Engineering Economics Analysis (3 hours)
- ESI 5316 Operations Research (3 hours)
- STA 5156 Probability and Statistics for Engineers (3 hours)

**Thesis Option—6 Semester Hours**

- EIN 6971 Thesis (6 hours)

**Non-Thesis Option—12 Semester Hours**

Electives (12 hours)

Total Hours Required for M.S.—30-36 Semester Hours

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**Human Engineering/Ergonomics Track**

As technology has become more sophisticated, the need for designing for the human user has become more difficult and even more important. Human Engineering and Ergonomics assist in ensuring that as technology advances, the abilities, limitations, and needs of humans are considered in the system design. This not only supports the needs of the user, it also optimizes the efficiency and usability of the system designed. Traditionally, ergonomics has been associated with biomechanical issues and work measurement and performance issues in physical system design, as well as occupational and industrial safety. The broader focus of human engineering encompasses those issues as well as incorporating the reaction and effectiveness of human interaction with systems, both physical systems and virtual systems such as computer based models. This option is designed for students who have an undergraduate degree in engineering or a closely related discipline. The program is designed to provide the student with the necessary knowledge in Human Engineering and Ergonomics to effectively design tasks, industrial systems and work environments which maximize human performance, safety, and overall productivity.

**Prerequisites**

- Mathematics through Calculus III (MAC 2313)
- Work Measurement and Design (EIN 3314C)
- Probability and Statistics for Engineers (STA 3032 or equivalent)*
- Human Engineering (EIN 4243C or equivalent)**

* Undergraduate course may be included in program of study as an elective

**Required Courses—18 Semester Hours**

- EIN 5248C Ergonomics (3 hours)
- EIN 6215 System Safety Engineering and Management (3 hours)
- EIN 6249C Biomechanics (3 hours)
- EIN 6258 Human-Computer Interaction (3 hours)
- EIN 6270C Work Physiology (3 hours)
- ESI 6247 Experimental Design and Taguchi Methods (3 hours)
  (can substitute PSY 6216 - Advanced Research Methodology I)

**Human Performance/Perception Restricted Elective—3 Semester Hours**

Select one of the following courses:

- EXP 5208 Sensation and Perception (3 hours)
- EXP 5256 Human Factors I (3 hours)
- EXP 6255 Human Performance (3 hours)
- EXP 6506 Human Cognition and Learning (3 hours)

**Thesis Option—9 Semester Hours**

- EIN 6971 Thesis (6 hours)
- Electives (3 hours)

**Non-Thesis Option—15 Semester Hours**

Electives (15 hours)

Total Hours Required for M.S.—30-36 Semester Hours
Interactive Simulation and Training Systems Track

The Interactive Simulation and Training Systems track focuses on providing a fundamental understanding of significant topics relative to systems, requirements, design, development and use of such systems for knowledge transfer in the technical environment. Additionally, the Interactive Simulation and Training Systems track addresses the evolving and multiple discipline application of interactive simulation by providing a wealth of electives to support development of individual student interests and talents. In conjunction with industrial organizations involved in simulation in the Central Florida region, military organizations, UCF’s Institute for Simulation and Training and other governmental organizations, the program provides exposure to both military and commercial interactive simulations and training systems.

The track emphasis is on the application and development of interactive simulations and training systems to meet various requirements to include but not limited to simulators, skill trainers, organizational learning systems, computer and web-based interactive simulation systems and other novel interactive simulation efforts. The Interactive Simulation and Training Systems curriculum prepares individuals with an undergraduate degree in engineering, science, education, psychology, mathematics or other related disciplines for careers in simulation, focusing particularly on the interactive simulation and training systems industries.

Prerequisites
Computer programming capability
Mathematics through Differential Equations (MAP 2302)
Probability and Statistics for Engineers (STA 2032 and EIN 4221)*

Required Courses—15 Semester Hours
EIN 5255C Interactive Simulation (3 hours)
EIN 6317 Training Systems Engineering (3 hours)
EIN 6645 Modeling and Simulation of Real Time Processes (3 hours)
EIN 6647 Interactive Simulation (3 hours)
EIN 6649 Intelligent Simulation Training Systems Design (3 hours)

Restricted Elective—3 Semester Hours
Select one of the following:
EIN 6524 Simulation Modeling Paradigms (3 hours)
ESI 5531 Discrete Systems Simulation (3 hours)
ESI 6532 Object-Oriented Simulation (3 hours)
ESI 6546 Process Simulation (3 hours)

Thesis Option—12 Semester Hours
EIN 6971 Thesis (6 hours)
Electives (6 hours)

Non-Thesis Option—18 Semester Hours
Electives (18 hours)

Total Hours Required for M.S.—30-36 Semester Hours

Manufacturing Systems Track

The design and operation of manufacturing systems requires a broad knowledge of manufacturing processes and systems, an understanding of the information base required for effective system operation, and the integration of information with those processes and systems to improve productivity. The Manufacturing Systems graduate program provides that basic knowledge and supports education in new manufacturing concepts such as concurrent design and manufacturing, the virtual factory, and agile manufacturing. The Manufacturing Systems track is designed for students who have an undergraduate degree in engineering, mathematics, computer science, or allied fields. With proper selection of electives, the program can focus on engineering aspects, operational aspects, or managerial aspects of manufacturing systems.

Prerequisites
Mathematics through Differential Equations (MAP 2302)
Probability and Statistics for Engineers (STA 3032 or equivalent)**
Manufacturing Engineering (EIN 4391C or equivalent)***

Required Courses—15 Semester Hours
EIN 5368C Integrated Factoy Automation Systems (3 hours)
EIN 5392C Manufacturing Systems Engineering (3 hours)
EIN 6330 Quality Control in Automation (3 hours)
EIN 6336 Production and Inventory Control (3 hours)
EIN 6339 Concurrent Engineering (3 hours)

Thesis Option—15 Semester Hours
EIN 6971 Thesis (6 hours)
Electives (9 hours)

Non-Thesis Option—21 Semester Hours
Electives (21 hours)

Total Hours Required for M.S.—30-36 Semester Hours

Operations Research Track

Operations Research uses mathematics and computer-based systems to model operational processes and decisions in order to develop and evaluate alternatives that will lead to gains in efficiency and effectiveness. Drawing on probability, statistics, simulation, optimization, and stochastic processes, Operations Research provides many of the analytic tools used by industrial engineers as well as by other analysts to improve processes, decision making, and management by individuals and organizations. This track is designed for students who have an undergraduate degree in engineering, mathematics, or science. The Operations Research curriculum builds
on an undergraduate engineering, mathematics, or science degree to develop a strong modeling and analytical capability to improve processes and decision making.

Prerequisites
Mathematics through Differential Equations (MAP 2302)
Probability and Statistics for Engineers (STA 3032)*
Operations Research (ESI 4312)*
Higher level computer programming and microcomputer familiarity

* These requirements may be met by taking STA 5156 and ESI 5316 as part of the program of study.

Required Courses—21 Semester Hours
ESI 5531 Discrete Systems Simulation (3 hours)
ESI 6427 Linear Programming and Extensions (3 hours)
ESI 6437 Nonlinear Programming and Dynamic Programming (3 hours)
OR
ESI 6448 Network Analysis and Integer Programming (3 hours)
ESI 6358 Decision Analysis (3 hours)
ESI 6247 Experimental Design and Taguchi Methods (3 hours) (can substitute STA 5205 - Experimental Design)
STA 6236 Regression Analysis (3 hours)
STA 5825 Stochastic Processes and Applied Probability Theory (3 hours)

Thesis Option—9 Semester Hours
EIN 6971 Thesis (6 hours)
Electives (3 hours)

Non-Thesis Option—15 Semester Hours
Electives (15 hours)

Total Hours Required for M.S.—30-36 Semester Hours

Precision Engineering and Manufacturing Track

Precision Engineering and Manufacturing focuses on examining and evaluating machine performance for the purpose of producing components or parts with high quality. The objective of the Precision Engineering and Manufacturing program is to provide a comprehensive educational base in fundamental manufacturing techniques and emerging aspects of manufacturing processes for products that have tighter tolerances and demand high precision in manufacturing operations. Precision manufacturing is generally associated with high technology industries and matches with the needs of many of the firms in Florida’s “high-tech corridor.” The objective of the program is to provide a comprehensive understanding of the need for and the ability to develop and implement manufacturing processes for an increasing number of products that have tighter tolerances and demand precision in the manufacturing operations. The program focuses on precision and nontraditional manufacturing processes to provide this capability. This option is designed for students who have an undergraduate degree in Industrial Engineering or a closely related engineering discipline. Within the Precision Engineering and Manufacturing option is a focused area of study that involves the one-off manufacturing of high performance internal combustion engines. This program involves internal combustion engine design and optimization, and has a strong laboratory and experience focus that includes an internship in a high performance engine environment.

Prerequisites
Mathematics through Differential Equations (MAP 2302)
Engineering Economic Analysis (EGN 3613)*
Probability and Statistics for Engineers (STA 3032 or equivalent)**
Manufacturing Engineering (EIN 4391C or equivalent)***

* May be satisfied by taking EIN 6357 or EIN 5356 as part of program of study as an elective
** May be satisfied by taking STA 5156 as part of program of study as an elective
*** Undergraduate course may be included in program of study as an elective

Required Courses—15 Semester Hours
EGN 5855C Metrology (3 hours)
EIN 5392C Manufacturing Systems Engineering (3 hours)
EIN 5607C Computer Control of Manufacturing Systems (3 hours)
EIN 6398 Advanced and Nontraditional Manufacturing Processes (3 hours)
EIN 6417 Precision Engineering (3 hours)

Thesis Option—15 Semester Hours
EIN 6971 Thesis (6 hours)
Electives (9 hours)

Non-Thesis Option—21 Semester Hours
Electives (21 hours)

Total Hours Required for M.S.—30-36 Semester Hours

Product Assurance Engineering Track

Product Assurance Engineering focuses on improving product and process quality in manufacturing and service industries. Product Assurance Engineering provides both the quantitative tools for measuring quality and the managerial focus and organizational insight required to implement effective continuous improvement programs and incorporate the voice of the customer. This track is designed for students who have an undergraduate degree in engineering or a closely related discipline. The program is designed to provide the student with the necessary knowledge in Product Assurance Engineering to plan, implement, and supervise the product assurance function in government, military, or individual organizations.

Prerequisites
Mathematics through Differential Equations (MAP 2302)
Probability and Statistics for Engineers (STA 3032)*
Manufacturing Engineering (EIN 4391)**

* This requirement may be met by taking STA 5156 as part of the program of study.
** This undergraduate course may be taken as an elective in the program of study.
Required Courses—24 Semester Hours
EIN 6330 Automation of Quality Systems (3 hours)
EIN 6392C Manufacturing Systems Engineering (3 hours)
EIN 6417 Precision Engineering (3 hours)
ESI 5236 Reliability Engineering (3 hours)
ESI 6224 Quality Assurance Management (3 hours)
ESI 6225 Quality Analysis and Control (3 hours)
ESI 6227 Total Quality Management (3 hours)
ESI 6247 Experimental Design and Taguchi Methods (3 hours)

Thesis Option—6 Semester Hours
EIN 6971 Thesis (6 hours)

Non-Thesis Option—12 Semester Hours
Electives (12 hours)

Total Hours Required for M.S.—30-36 Semester Hours

Simulation Modeling and Analysis Track

Simulation Modeling and Analysis focuses on providing a fundamental understanding of the functional and technical design requirements for simulation in manufacturing and service industries. The track is based on a systems modeling paradigm and provides coding and development capability in the context of a broader systems framework. Significant exposure to design and analysis aspects is a core element of the track. The Simulation Modeling and Analysis curriculum prepares individuals with an undergraduate degree in engineering, science, mathematics, or a closely related discipline for careers in simulation, focusing particularly on using simulation as an analysis and design tool for the manufacturing and service industries.

Prerequisites
Computer programming capability in FORTRAN, C, or C++
Mathematics through Differential Equations (MAP 2302)
Probability and Statistics for Engineers (STA 2032 and EIN 4221)*
Operations Research (ESI 4312)**

* These requirements may be met by taking STA 5156 as part of the program of study.
** This requirement may be met by taking ESI 5316 as part of the program of study.

Required Courses—15 Semester Hours
Simulation Language Foundation—6 hours
ESI 5531 Discrete Systems Simulation
ESI 6532 Object-Oriented Simulation
Simulation Modeling Foundation—3 hours
EIN 6524 Simulation Modeling Paradigms
Evaluation Foundation—6 hours
ESI 6217 Statistical Aspects of Digital Simulation
ESI 6247 Experimental Design and Taguchi Methods

Thesis Option—15 Semester Hours
EIN 6971 Thesis (6 hours)
Electives (9 hours)

Non-Thesis Option—21 Semester Hours
Electives (21 hours)

Total Hours Required for M.S.—30-36 Semester Hours

Doctor of Philosophy Degree in Industrial Engineering

The Ph.D. is primarily intended for a student with a Master’s degree in Industrial Engineering or a closely related discipline. The program is intended to allow a student to study in depth, with emphasis on some aspect of industrial engineering, manufacturing, engineering management, operations research, simulation modeling, interactive simulation, quality, or human engineering/ergonomics.

Admission

Students must satisfy regular university admissions criteria specified for Master’s program admissions. In addition, the student must have a Master’s degree in Industrial Engineering or a closely related discipline from a recognized institution and have demonstrated above average performance at the Master’s level. In addition, selected outstanding applicants who have a GPA of at least 3.4 in the last 60 attempted semester hours of their undergraduate degrees and have at least combined Verbal and Quantitative GRE scores of 1200 will be considered for direct entrance as Pre-Doctoral students from their Bachelor’s degrees. Students meeting these criteria and the approval of the Doctoral Committee will be admitted as Pre-Doctoral students. Students must complete any needed articulation course work and pass a Ph.D. Qualifying Examination in order to be admitted as a regular Doctoral Student. This examination is normally taken within the first year after all articulation work is completed. Final admissions decisions based in part on Qualifying Examination results are made by the Departmental Doctoral Committee.

Degree Requirements

The Ph.D. degree requires a minimum of 81 semester hours of graduate course work, 24 of which will be dissertation hours. Graduate course work includes 5000 or higher level courses, with a maximum of 12 hours of independent study or directed research. A total of 30 to 33 semester hours are specified in required Industrial Engineering subjects. Additional course work is usually taken in the student’s research area. Up to 6 hours of 4000 level work are acceptable if transferred from a Master’s degree program. At least 6 hours must be taken outside of the College of Engineering while at UCF. There is a residency requirement of two continuous semesters in full-time graduate student status (minimum of 6 semester hours) after acceptance into the Doctoral Program at UCF. As a Pre-Doctoral student at the beginning of the Ph.D. program, a preliminary program of study must be developed with the graduate program coordinator and meet with departmental approval. At this time transfer credit will be evaluated on a course by course basis. After completion of the Qualifying Examination and admission as a Doctoral Student, the official program of study is developed with an adviser and must meet with departmental approval. The final program of study is approved by the student’s Dissertation Committee after passing the Candidacy Examination. The degree
must be completed within seven years from the date of admission as a Pre-Doctoral student and within four years of passing the Candidacy Examination.

Transfer Credits
A maximum of 36 semester hours, including up to 6 thesis hours, may be transferred from a Master’s degree and other graduate course work toward these requirements. Limitations: a maximum of 6 hours of 4000-level courses from a Master’s degree; no 3000-level courses; and no courses with grades less than “B”.

Examinations
In addition to the Qualifying Examination, the student must pass a Candidacy Examination, a Dissertation Proposal Examination, and a Dissertation Defense Examination. The Candidacy Examination is normally taken near the end of the course work and typically consists of a written and oral presentation of a research area to the Dissertation Committee followed by a written examination to determine if the student has the breadth and depth of knowledge required to conduct research in the proposed area. The Dissertation Proposal Examination consists of a written and oral presentation of a detailed dissertation proposal. The Dissertation Defense Examination is an oral examination taken in defense of the written dissertation.

Prerequisites/Corequisites
Students must have background in the following areas:
- A high level structured programming language
- Calculus through Differential Equations
- Manufacturing Engineering (EIN 4391)
- Quality Engineering (ESI 4234)
- Work Measurement (EIN 3314)
- Industrial Facilities Planning (EIN 4364)
- Human Engineering (EIN 4243C)

Required Courses—21 Semester Hours
- EIN 5140 Project Engineering (3 hours)
- EIN 6336 Production and Inventory Control (3 hours)
- EIN 6357 Advanced Engineering Economic Analysis (3 hours)
- ESI 5316 Operations Research (3 hours)
- ESI 5531 Discrete Systems Simulation (3 hours)
- ESI 6247 Experimental Design and Taguchi Methods (3 hours)
- STA 5156 Probability and Statistics for Engineers (3 hours)

Required Specialization Core—9-12 Semester Hours
Select one of the following areas of specialization.

Industrial Engineering
- EIN 5117 Management Information Systems (3 hours)
- ESI 6225 Quality Analysis and Control (3 hours)
- ESI 6427 Linear Programming and Extensions (3 hours)

Interactive Simulation
- EIN 5255 Interactive Simulation (3 hours)
- EIN 6317 Training Systems Engineering (3 hours)
- EIN 6645 Modeling and Simulation of Real Time Processes (3 hours)
- EIN 6649 Intelligent Simulation Training System Design (3 hours)

Simulation Modeling and Analysis
- EIN 6524 Simulation Modeling Paradigms (3 hours)
- ESI 6217 Statistical Aspects of Digital Simulation (3 hours)
- ESI 6532 Object Oriented Simulation (3 hours)

Operations Research
- ESI 6336 Queuing Systems (or STA 5825 Stochastic Processes) (3 hours)
- ESI 6427 Linear Programming and Extensions (3 hours)
- STA 6236 Regression Analysis (3 hours)

Quality
- EIN 5392C Manufacturing Systems Engineering (3 hours)
- ESI 5236 Reliability (3 hours)
- ESI 6225 Quality Analysis and Control (3 hours)
- ESI 6227 Total Quality Management (3 hours)

Human Engineering/Ergonomics
- EIN 5248 Ergonomics (3 hours)
- EIN 6249 Biomechanics (3 hours)
- EIN 6258 Human Computer Interaction (3 hours)

Manufacturing
- EIN 5368C Integrated Factory Automation Systems (3 hours)
- EIN 5392C Manufacturing Systems Engineering (3 hours)
- EIN 6399 Concurrent Engineering (3 hours)

Two courses at UCF outside of IEMS—6 Semester Hours

Electives—21-24 Semester Hours

Dissertation—24 Semester Hours

IEMS Graduate Courses by Areas of Study

Engineering Management
- EIN 5108 Environment of Technical Organizations (3 hours)
- EIN 5117 Management Information Systems (3 hours)
- EIN 5140 Project Engineering (3 hours)
- EIN 5356 Cost Engineering (3 hours)
- EIN 5381 Engineering Logistics (3 hours)
- EIN 6322 Engineering Management (3 hours)
- EIN 6339 Productivity Engineering (3 hours)
- EIN 6357 Advanced Engineering Economic Analysis (3 hours)
- EIN 6933 Systems Acquisition (3 hours)
- ESI 5451 Network-based Project Planning Scheduling and Control (3 hours)
Ergonomics

EIN 5248C Ergonomics (3 hours)
EIN 5251 Human Computer Interaction: Usability Evaluation (3 hours)
EIN 6215 Systems Safety Engineering and Management (3 hours)
EIN 6249C Biomechanics (3 hours)
EIN 6251 Human Computer Interaction (3 hours)
EIN 6252 Human-Virtual Environment Interaction (3 hours)
EIN 6264C Industrial Hygiene (3 hours)
EIN 6270C Work Physiology (3 hours)
EIN 6935 Advanced Ergonomics Topics (3 hours)

Expert Systems

EIN 5602C Expert Systems in Industrial Engineering (3 hours)
EIN 6603 Readings in Expert Systems/AI in Industrial Engineering (3 hours)

Manufacturing/Operations Management

EGN 5720 Internal Combustion Engine Analysis and Optimization (3 hours)
EGN 5855C Metrology (3 hours)
EGN 6721C Experimental Methods for High Performance Engine Manufacturing (3 hours)
EIN 5368C Integrated Factory Automation Systems (3 hours)
EIN 5388 Forecasting (3 hours)
EIN 5392C Manufacturing Systems Engineering (3 hours)
EIN 5415C Tool Engineering and Manufacturing Analysis (3 hours)
EIN 5607C Computer Control of Manufacturing Systems (3 hours)
EIN 6330 Quality Control in Automation (3 hours)
EIN 6399 Concurrent Engineering (3 hours)
EIN 6417 Precision Engineering (3 hours)
EIN 6418C Electronics Manufacturing (3 hours)
EIN 6425 Scheduling and Sequencing (3 hours)
EIN 6524 Simulation Modeling Paradigms (3 hours)
EIN 6529 Simulation Design and Analysis (3 hours)
EIN 6645 Modeling and Simulation of Real-time Processes (3 hours)
EIN 6647 Intelligent Simulations (3 hours)
EIN 6649 Intelligent Simulation Training System Design (3 hours)

Statistics and Quality Control

ESI 5315 Research Foundations for IE and OR Modeling (3 hours)
ESI 5316 Operations Research (3 hours)
ESI 5359 Risk Assessment and Management (3 hours)
ESI 5419C Engineering Applications of Linear and Nonlinear Optimization (3 hours)
ESI 6224 Quality Assurance Management (3 hours)
ESI 6225 Quality Analysis and Control (3 hours)
ESI 6227 Total Quality Management (3 hours)
ESI 6247 Experimental Design and Taguchi Methods (3 hours)

Simulation and Training

EIN 5255 Interactive Simulation (3 hours)
EIN 6317 Training Systems Engineering (3 hours)
EIN 6524 Simulation Modeling Paradigms (3 hours)
EIN 6529 Simulation Design and Analysis (3 hours)
EIN 6645 Modeling and Simulation of Real-time Processes (3 hours)

Other

EIN 5936 Seminar in Industrial Engineering Doctoral Research (1 hour)

Graduate Certificates in Industrial Engineering and Management Systems

The Department of Industrial Engineering and Management Systems offers the following seven certificate programs: Project Management, Applied Operations Research, Quality Assurance, Training Simulation, Design for Usability, Industrial Ergonomics and Safety, and Systems Simulation for Engineers. Certificate programs offer graduate course work in a more flexible format for working professionals to enhance knowledge and professional credentials.

Each certificate program is completable in one calendar year or less from the time a student is first enrolled. The required courses are the same courses that students in the graduate degree programs take. Certificate program students can usually transfer their courses to a degree program in IEMS. The prerequisites for each program are simply the prerequisites for the courses which make up the certificate program.
Certificate in Applied Operations Research

Operations research (OR) models and solution techniques provide a powerful arsenal for solving complex resource allocation and management problems. For instance, OR has been used to solve many of the scheduling, distribution, staffing, and design problems in industry. As more powerful desktop computers and software become available, the potential to apply OR models and methods to such problems will grow. This certificate program gives students a good overview of OR tools, develops competence in modeling programs, and provides students practice and hands-on experience with OR tools.

Required Courses—12 Semester Hours
ESI 5316 Operations Research (3 hours)
ESI 5419C Engineering Applications of Linear and Nonlinear Optimization (3 hours)
ESI 5531 Discrete Systems Simulation (3 hours)
STA 5156 Probability and Statistics for Engineers (3 hours)

Certificate in Design for Usability

Too often we hear about products, services, or systems that are supposedly designed with the user in mind, only to discover that the design is ineffective or unfriendly to users. This certificate program educates students in the methods of user-centered design and usability engineering that can be used to assess and assure usability throughout a product, service, or system development cycle. Students will learn how to design products that are both ergonomically sound and “user-friendly,” as well as how to plan and conduct usability tests, analyze related data, and use the results to improve the design of a product, service, or system.

Required Courses—12 Semester Hours
EIN 5248C Ergonomics (3 hours)
EIN 5251 Human-Computer Interaction: Usability Evaluation (3 hours)
EIN 6258 Human Computer Interaction (3 hours)
ESI 6247 Experimental Design and Taguchi Methods (3 hours)

Certificate in Industrial Ergonomics and Safety

Because of increasing costs due to injuries, on-the-job accidents, and rehabilitation, interest in injury and accident prevention has increased dramatically. Designing workplaces to accommodate human workers is a key to improving worker safety and occupational health. Success with such designs can only be achieved if the designer understands how humans are affected by their workplaces and their work environment. This certificate program prepares students in the design and implementation of an effective human engineering/ergonomics effort within an occupational setting. The course work covers how humans are affected by the conditions under which they work and the principles for designing safe and productive work environments.

Required Courses—15 Semester Hours
EIN 5248C Ergonomics (3 hours)
EIN 6215 System Safety Engineering and Management (3 hours)
EIN 6249C Biomechanics (3 hours)
EIN 6264C Industrial Hygiene (3 hours)
EIN 6270C Work Physiology (3 hours)

Certificate in Project Engineering

Engineers increasingly are found in leadership positions. They must have certain skills in order to be effective in such a role. This certificate program addresses the needs of engineers moving into management and other leadership roles by complementing their technical backgrounds with the human aspects, organizational and financial issues, project considerations, and analytical tools for effective decision making.

Required Courses—12 Semester Hours
EIN 5108 The Environment of Technical Organizations (3 hours)
EIN 5117 Management Information Systems I (3 hours)
EIN 5140 Project Engineering (3 hours)
EIN 6357 Advanced Engineering Economic Analysis (3 hours)
OR
ESI 6358 Decision Analysis (3 hours)

Certificate in Quality Assurance

Much of the resurgence of U.S. products in the global marketplace has been due to an increased emphasis on quality. Today’s consumers are offered many alternatives to meet their needs, and they have consequently become very discriminating in their purchases. There is strong interest by goods and services providers to continually improve the products they offer. In addition, companies seek to be known as a quality organization, not merely the producer of quality products. This certificate program provides students with the knowledge that they will need to improve the quality and reliability of the goods and services they produce and to institute steps to make their organizations more competitive through an overall commitment to quality.

Required Courses—15 Semester Hours
ESI 5236 Reliability Engineering (3 hours)
ESI 6225 Quality Analysis and Control (3 hours)
ESI 6227 Total Quality Management (3 hours)
STA 5156 Probability and Statistics for Engineers (3 hours)

Certificate in Systems Simulation for Engineers

Discrete event simulation provides very powerful modeling capabilities to engineers. Simulation is particularly valuable because models of complex systems can be constructed and probabilistic or random forces can be represented in those models. This certificate program provides students with the necessary background in probability and statistics, fundamen-
tal simulation modeling skills, essentials for designing and analyzing simulation experiments, and an introduction to an area of advanced simulation modeling.

Required Courses—12 Semester Hours
ESI 5531 Discrete Systems Simulation (3 hours)
ESI 6217 Statistical Aspects of Digital Simulation (3 hours)
EIN 6647 Intelligent Simulation (3 hours) OR
ESI 6532 Object-oriented Simulation (3 hours)
STA 5156 Probability and Statistics for Engineers (3 hours)

Certificate in Training Simulation
Because of the tremendous growth in military and commercial simulation, there will be many people entering this industry without all of the education they will need, as well as people transitioning to this field. This certificate program provides a fundamental understanding of significant topics relative to systems, requirements, design, development, and use of training simulations.

Required Courses—12 Semester Hours
EIN 5255 Interactive Simulation (3 hours)
EIN 6317 Training Systems Engineering (3 hours)
EIN 6645 Modeling and Simulation of Real-Time Processes (3 hours)
EIN 6649 Intelligent Simulation Training System Design (3 hours)

Mechanical, Materials, and Aerospace Engineering

Chair of the Department: L. C. Chow
Associate Chair of the Department: J. Nayfeh
Graduate Program Coordinator: Alain J. Kassab, ENGR 381, (407) 823-2416. E-mail: kassab@mail.ucf.edu

Faculty
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Joint Appointees: K. D. Belfield, Ph.D., Department of Chemistry; K. A. Cerqua-Richardson, Ph.D., School of Optics; B. Chai, Ph.D., Department of Physics; M. B. Chopra, Ph.D., Department of Civil and Environmental Engineering; L. Debnath, Ph.D., Department of Mathematics; N. S. Dhere, Ph.D., Florida Solar Energy Center; A. Kar, Ph.D., School of Optics; D.C. Malocha, Ph.D., Department of Electrical and Computer Engineering; R. Y. Ting, Ph.D., Department of Chemistry; K. Vajravelu, Ph.D., Department of Mathematics

Fields of Emphasis and Research
Aerospace systems: experimental and computational aerodynamics and astrodynamics, high speed flows, turbulent flow, flight dynamics and simulation, optimal control and attitude dynamics of space vehicles, and aerospace design

Materials science and engineering: crystal growth, glass processing, phase transformation, high temperature materials, environmental degradation, materials characterization, electron microscopy, and microelectronic materials

Mechanical systems: experimental mechanics, finite and boundary elements, tribology, fracture, nonlinear dynamics, nondestructive evaluation, vibration, CAD/CAM, rapid prototyping, mechanics of composite structures

Thermo-fluids: turbomachinery, thermal management, miniaturization of thermal systems, combustion, aeroacoustics, computational thermo-fluids, laser machining, inverse problems, and boundary elements.

Current research projects in aerospace systems include design of a space robot, advanced life support, automated remote manipulator, collision avoidance path planning for shuttle payload inspection and processing system, launch/
Many graduate students get the opportunity to gain teaching experience through their program.

Professors like Dr. Roger Johnson share their expertise to enhance their students' research.
spacecraft control and test and evaluation methodology (real-time), application of laser doppler anemometry to supersonic flow. Current research projects in materials science and engineering include high temperature oxidation, hot corrosion, microstructure of electrodeposits, laser materials processing and modeling, solar cells, single crystal applications, and glass, ceramic, and chemomechanical polishing. Current research projects in mechanical systems include fracture mechanics, nonlinear finite elements, virtual reality visualization of finite element databases, laser-based techniques for space shuttle tile bond assessment, dynamics, inverse elasticity and vibration problems, friction and wear modeling in tribosystems, finite element simulation of dynamic crack tip stress fields and of penetration by composite projectiles, nonlinear dynamics of composite and smart structures, CAD/CAM, and rapid prototyping. Current research projects in thermo-fluids include electronic packaging, miniaturization of thermal systems, laser-material interactions, turbomachinery, combustion generated pollution, material synthesis using combustion methods, inverse heat transfer problems, conjugate heat transfer, boundary elements, and heat conduction in non-homogeneous materials.

Degree Programs

The Mechanical, Materials, and Aerospace Engineering Department (MMAE) offers the Master of Science in Mechanical Engineering (M.S.M.E.) and the Doctor of Philosophy (Ph.D.) degrees. Tracks offered for the M.S.M.E. are: Aerospace Systems, Materials Science and Engineering, Mechanical Systems, Thermo-fluids, Computer-aided Mechanical Engineering, and Professional. The professional and computer-aided tracks are mainly designed to meet the needs of part-time students. Tracks for the Ph.D. are Aerospace Systems, Materials Science and Engineering, Mechanical Systems, and Thermo-fluids.

Certificate Programs


The certificate is primarily designed for engineers interested in enhancing specific skills in one of the focus areas covered by our program offering. Students may enroll in the certificate program under non-degree seeking status or indicate they wish to receive a certificate upon completion of requirements if already enrolled as degree seeking students. Details of the application process can be found in the Admissions chapter of this catalog. All certificates, excepting CAD/CAM, require four courses and can be completed in 4 semesters. It is the policy of the MMAE graduate committee that the 4th class (if required by a certificate program) will be counted towards completion of an M.S. or Ph.D. degree should a student subsequently decide to apply for regular status.

Master of Science in Mechanical Engineering

Admission

The Master of Science degree in Mechanical Engineering (M.S.M.E.) is intended primarily for a student with a bachelor's degree in mechanical or aerospace engineering or a closely related discipline from a recognized institution. Minimum requirements for admission to regular status are a 3.0 grade point average (4.0=A) in the last 60 attempted hours of undergraduate study, a combined score of 1000 on the quantitative and verbal portions of the Graduate Record Examination (GRE), and for international students (except those who are from countries where English is the only official language or those who have earned a degree from an accredited American college or university), a score of 213 (computer-based test) or 550 (paper-based test) on the Test of English as a Foreign Language (TOEFL).

In certain circumstances a trial program may be extended to students who have a GPA below 3.0 but otherwise meet university requirements. Additional courses may be required to correct deficiencies. Students should contact the MMAE graduate program coordinator for further information.

All students are expected to identify an adviser and file an official degree program of study prior to the completion of nine semester hours of study. Students should consult with the MMAE graduate program coordinator for assistance in filling out a program of study.

Degree Requirements

The M.S.M.E. degree is offered as a thesis or a non-thesis program in each of the six departmental tracks: Aerospace Systems, Materials Science and Engineering, Mechanical Systems, Thermo-fluids, Computer Aided Mechanical Engineering, and Professional. The thesis option requires 36 semester hours, at least half of which must be at the 6000 level and will include 6 hours of thesis credit. The non-thesis option is primarily designed to meet the needs of part-time students and requires 36 semester hours of course work, at least 15 of which must be at the 6000 level. In addition, students pursuing the non-thesis option are required to pass a final comprehensive exam and to take EML 6085 Research Methods in MMAE as part of their 36-hour course requirement. A program of study, satisfying track requirements, must be developed prior to the completion of nine hours and meet with departmental approval.

A student with an undergraduate degree outside of the selected departmental discipline may be required to satisfy an articulation program. Substitutions to the program of study must meet with the approval of the adviser and the department. A student pursuing the thesis program may not register for thesis credit hours until an advisory committee has been appointed and the committee has reviewed the program of study and the proposed thesis topic. Further information is available in the Master's Degree General Procedures manual available from the MMAE Department.
Aerospace Systems Track

Prerequisites (or equivalent)
Mathematics through Differential Equations (MAP 2302)
Modeling Methods in Mechanical and Aerospace Engineering (EML 3034)
High-Speed Aerodynamics (EAS 4134)
Flight Mechanics (EAS 4105)
Flight Structures (EAS 4200)
Aerothermodynamics of Propulsion Systems (EAS 4300)

Required Courses—6 Semester Hours
All students must take the following two required courses.
EML 5060 Mathematical Methods in Mechanical, Materials, and Aerospace Engineering (3 hours)
EML 5211 Continuum Mechanics (3 hours)

Take at least four courses from the track specialty courses below. Additional courses to satisfy total semester hour requirements (30 hours thesis option, 36 hours non-thesis option) may be taken from the list of representative electives below or from the remaining MMAE course offerings. Consult with your faculty adviser (or graduate program coordinator if you do not have a faculty adviser) prior to registering for classes. Note that thesis option students must take 6 hours of thesis and non-thesis option students must take Research Methods in MMAE.

Track Specialty Courses—12 Semester Hours (Minimum)
EAS 6185 Turbulent Flow (3 hours)
EAS 5315 Rocket Propulsion (3 hours)
EML 5131 Combustion Phenomena (3 hours)
EML 6725 Computational Fluid Dynamics and Heat Transfer I (3 hours)
EML 6067 Finite Elements in Mechanical, Materials and Aerospace Engineering I (3 hours)
EML 5402 Turbomachinery (3 hours)
EML 5105 Gas Kinetics and Statistical Thermodynamics (3 hours)
EML 5311 System Control (3 hours)
EAS 6405 Advanced Flight Dynamics (3 hours)
EAS 6138 Advanced Gas Dynamics (3 hours)
EML 6712 Mechanics of Viscous Flow (3 hours)

Representative Electives—12-18 Semester Hours
EAS 5157 V/Stol Aerodynamics and Performance (3 hours)
EAS 5302 Direct Energy Conversion (3 hours)
EAS 5315 Rocket Propulsion (3 hours)
EAS 6507 Topics in Astrodynamic (3 hours)
EML 5025C Engineering Design Practice (3 hours)
EML 5066 Computational Methods in Mechanical, Materials, and Aerospace Engineering (3 hours)
EML 5152 Intermediate Heat Transfer (3 hours)
EML 5224 Acoustics (3 hours)
EML 5237 Intermediate Mechanics of Materials (3 hours)
EML 5532C Computer-aided Design for Manufacture (3 hours)
EML 5713 Intermediate Fluid Mechanics (3 hours)
EML 6062 Boundary Element Methods in Engineering (3 hours)
EML 6068 Finite Elements in Mechanical, Materials, and Aerospace Engineering II (3 hours)

EML 6223 Advanced Vibrational Systems (3 hours)
EML 6305C Experimental Mechanics (3 hours)
EML 6547 Engineering Fracture Mechanics in Design (3 hours)
EML 6712 Mechanics of Viscous Flow (3 hours)
EML 6726 Computational Fluid Dynamics and Heat Transfer II (3 hours)
EAS 6971 Thesis (6 hours)
EML 6085 Research Methods in MMAE (required for non-thesis option) (3 hours)

Total Hours Required for M.S.M.E.—30 or 36 Semester Hours

Computer-aided Mechanical Engineering Track

Prerequisites (or equivalent)
Mathematics through Differential Equations (MAP 2302)
Modeling Methods in Mechanical and Aerospace Engineering (EML 3034)
Thermodynamics of Mechanical Systems (EML 3101)
Structure and Properties of Materials (EGN 3365)
Machine Design and Analysis (EML 3500)

Required Courses—6 Semester Hours
All students must take the following two required courses.
EML 5060 Mathematical Methods in Mechanical, Materials, and Aerospace Engineering (3 hours)
EML 5211 Continuum Mechanics (3 hours)

Take at least four courses from the track specialty courses below. Additional courses to satisfy total semester hour requirements (30 hours thesis option, 36 hours non-thesis option) may be taken from the list of representative electives below or from the remaining MMAE course offering. Consult with your faculty adviser (or graduate program coordinator if you do not have a faculty adviser) prior to registering for classes. Note that thesis option students must take 6 hours of thesis and non-thesis option students must take Research Methods in MMAE.

Track Specialty Courses—12 Semester Hours (minimum)
EGN 5858C Introduction to Rapid Prototyping (3 hours)
EML 5025C Engineering Design Practice (3 hours)
EML 5532C Computer-aided Design for Manufacture (3 hours)
EML 6062 Boundary Elements Methods in Engineering (3 hours)
EML 6067 Finite Elements in Mechanical and Aerospace Engineering I (3 hours)
EML 6068 Finite Elements in Mechanical, Materials, and Aerospace Engineering II (3 hours)
EML 6725 Computational Fluid Dynamics and Heat Transfer I (3 hours)
EML 6726 Computational Fluid Dynamics and Heat Transfer II (3 hours)

Representative Electives—12-18 Semester Hours
EAS 6138 Advanced Gas Dynamics (3 hours)
EAS 6185 Turbulent Flow (3 hours)
EML 5105 Gas Kinetics and Statistical Thermodynamics (3 hours)
Materials Science and Engineering Track

Prerequisites (or equivalent)
Mathematics through Differential Equations (MAP 2302)
Modeling Methods in Mechanical and Aerospace Engineering (EML 3034)
Structure and Properties of Materials (EGN 3365)
Mechanics of Materials (EGN 3331) or Thermodynamics (EGN 3343)
Experimental Techniques in Mechanics and Materials (EMA 3012C)

Required Courses—6 Semester Hours
All students must take the following two required courses.
EMA 6126 Physical Metallurgy (3 hours)
EMA 6626 Mechanical Metallurgy (3 hours)

Take at least four courses from the track specialty courses below. Additional courses to satisfy total semester hour requirements (30 hours thesis option, 36 hours non-thesis option) may be taken from the list of representative electives below or from the remaining MMAE course offering. Consult with your faculty adviser (or graduate program coordinator if you do not have a faculty adviser) prior to registering for classes. Note that thesis option students must take 6 hours of thesis and non-thesis option students must take Research Methods in MMAE.

Track Specialty Courses—12 Semester Hours (Minimum)
EMA 5106 Metallurgical Thermodynamics (3 hours)
EMA 5108 Surface Science (3 hours)
EMA 5326 Corrosion Science and Engineering (3 hours)
EMA 6136 Diffusion in Solids (3 hours)
EMA 6516 X-Ray Diffraction and Crystallography (3 hours)
EMA 6605 Materials Processing Techniques (3 hours)
EMA 6628 Materials Failure Analysis (3 hours)

Representative Electives—12-18 Semester Hours
EMA 5104 Intermediate Structure and Properties of Materials (3 hours)
EMA 5140 Introduction to Ceramic Materials (3 hours)
EMA 5504 Modern Characterization of Materials (3 hours)
EMA 5584 Biomaterials (3 hours)
EMA 5705 High Temperature Materials (3 hours)
EMA 5610 Laser Materials Processing (3 hours)
EMA 6130 Phase Transformations in Metals and Alloys (3 hours)
EMA 6129 Solidification and Microstructure Evolution (3 hours)
EMA 6149 Imperfections in Crystals (3 hours)
EMA 6518 Transmission Electron Microscopy (3 hours)
EML 5025C Engineering Design Practice (3 hours)
EML 5060 Mathematical Methods in Mechanical, Materials, and Aerospace Engineering (3 hours)
EML 5237 Intermediate Mechanics of Materials (3 hours)
EML 5245 Tribology (3 hours)
EML 5532C Computer-aided Design for Manufacture (3 hours)
EML 5546 Engineering Design w/Composite Materials (3 hours)
EML 6062 Boundary Element Methods in Engineering (3 hours)
EML 5211 Continuum Mechanics (3 hours)
EML 6305C Experimental Mechanics (3 hours)
EML 6547 Engineering Fracture Mechanics in Design (3 hours)
EEL 5332C Thin Film Technology (3 hours)
EEL 6561 Fourier Optics (3 hours)
CHM 5711 The Chemistry of Materials (3 hours)
EMA 6971 Thesis (6 hours)
EML 6085 Research Methods in MMAE (required for non-thesis option) (3 hours)

Total Hours Required for M.S.M.E.—30 or 36 Semester Hours

Mechanical Systems Track

Prerequisites (or equivalent)
Mathematics through Differential Equations (MAP 2302)
Modeling Methods in Mechanical and Aerospace Engineering (EML 3034)
Machine Design and Analysis (EML 3500)
Vibration Analysis (EML 4220)
Experimental Techniques in Mechanics and Materials (EMA 3012C)
Feedback Control (EML 3312C)

Required Courses—6 Semester Hours
All students must take the following two required courses.
EML 5060 Mathematical Methods in Mechanical, Materials, and Aerospace Engineering (3 hours)
EML 5211 Continuum Mechanics (3 hours)

Take at least four courses from the track specialty courses below. Additional courses to satisfy total semester hour requirements (30 hours thesis option, 36 hours non-thesis option) may be taken from the list of representative electives below or from the remaining MMAE course offering. Consult with your faculty adviser (or graduate program coordi-
ator if you do not have a faculty adviser) prior to registering for classes. Note that thesis option students must take 6 hours of thesis and non-thesis option students must take Research Methods in MMAE.

**Track Specialty Courses—12 Semester Hours (Minimum)**
- EML 5311 System Control (3 hours)
- EML 5271 Intermediate Dynamics (3 hours)
- EML 5546 Engineering Design with Composite Materials (3 hours)
- EML 6067 Finite Elements in Mechanical and Aerospace Engineering I (3 hours)
- EML 6068 Finite Elements in Mechanical, Materials, and Aerospace Engineering II (3 hours)
- EML 6062 Boundary Element Methods in Engineering (3 hours)
- EML 6227 Nonlinear Vibrations (3 hours)
- EML 6305C Experimental Mechanics (3 hours)
- EML 6547 Engineering Fracture Mechanics in Design (3 hours)

**Representative Electives—12-18 Semester Hours**
- EMA 5104 Intermediate Structure and Properties of Materials (3 hours)
- EMA 5504 Modern Characterization of Materials (3 hours)
- EMA 6628 Materials Failure Analysis (3 hours)
- EML 5025C Engineering Design Practice (3 hours)
- EML 5066 Computational Methods in Mechanical, Materials, and Aerospace Engineering (3 hours)
- EML 5224 Acoustics (3 hours)
- EML 5228C Modal Analysis (3 hours)
- EML 5245 Tribology (3 hours)
- EML 5237 Intermediate Mechanics of Materials (3 hours)
- EML 5532C Computer-aided Design for Manufacture (3 hours)
- EML 5572 Probabilistic Methods in Design (3 hours)
- EML 6808 Analysis and Control of Robot Manipulators (3 hours)
- EML 6223 Advanced Vibration Systems (3 hours)
- EML 6226 Analytical Dynamics (3 hours)
- EML 6653 Theory of Elasticity (3 hours)
- EML 6971 Thesis (6 hours)
- EML 6085 Research Methods in MMAE (required for non-thesis option) (3 hours)

**Total Hours Required for M.S.M.E.**—30 or 36 Semester Hours

**Professional Track**

**Prerequisites (or equivalent)**
- Mathematics through Differential Equations (MAP 2302)
- Modeling Methods in Mechanical and Aerospace Engineering (EML 3034)
- Thermodynamics of Mechanical Systems (EML 3101)
- Structure and Properties of Materials (EGN 3365)
- Mechanics of Materials (EGN 3331)

**Required Courses—6 Semester Hours**
- EML 5060 Mathematical Methods in Mechanical, Materials, and Aerospace Engineering (3 hours)
- EML 5211 Continuum Mechanics (3 hours)

Take at least four courses from the track specialty courses below. Additional courses to satisfy total semester hour requirements (30 hours thesis option, 36 hours non-thesis option) may be taken from the list of representative electives below or from the remaining MMAE course offering. Consult with your faculty adviser (or graduate program coordinator if you do not have a faculty adviser) prior to registering for classes. This track is intended mainly for part-time students and may be taken under non-thesis or thesis options. Thesis option students must take 6 hours of thesis and non-thesis option students must take Research Methods in MMAE.

**Track Specialty Courses—12 Semester Hours (minimum)**
- EMA 6628 Materials Failure Analysis (3 hours)
- EML 5311 Combustion Phenomena (3 hours)
- EML 5402 Turbomachinery (3 hours)
- EML 5532C Computer-aided Design for Manufacture (3 hours)
- EML 6062 Boundary Elements Methods in Engineering (3 hours)
- EML 6155 Convection Heat Transfer (3 hours)
- EML 6226 Analytical Dynamics (3 hours)
- EML 6067 Finite Elements in Mechanical and Aerospace Engineering I (3 hours)
- EML 6305C Experimental Mechanics (3 hours)
- EML 6547 Engineering Fracture Mechanics in Design (3 hours)
- EML 6712 Mechanics of Viscous Flow (3 hours)
- EML 6725 Computational Fluid Dynamics and Heat Transfer I (3 hours)

**Representative Electives—12-18 Semester Hours**
- EML 5025C Engineering Design Practice (3 hours)
- EML 5050 Gas Kinetics and Statistical Thermodynamics (3 hours)
- EAS 6138 Advanced Gas Dynamics (3 hours)
- EAS 6185 Turbulent Flow (3 hours)
- EML 5066 Computational Methods in Mechanical, Materials, and Aerospace Engineering (3 hours)
- EML 5131 Combustion Phenomena (3 hours)
- EML 5152 Intermediate Heat Transfer (3 hours)
- EML 5713 Intermediate Fluid Mechanics (3 hours)
- EML 6068 Finite Elements in Mechanical, Materials, and Aerospace Engineering II (3 hours)
- EML 6726 Computational Fluid Dynamics and Heat Transfer II (3 hours)
- EML 5237 Intermediate Mechanics of Materials (3 hours)
- EML 5546 Engineering Design with Composite Materials (3 hours)
- EMA 5106 Metallurgical Thermodynamics (3 hours)
- EMA 5108 Surface Science (3 hours)
- EMA 5326 Corrosion Science and Engineering (3 hours)
- EML 6971 Thesis (6 hours)
- EML 6085 Research Methods in MMAE (required for non-thesis option) (3 hours)

**Total Hours Required for M.S.M.E.**—30 or 36 Semester Hours
Thermo-fluids Track

Prerequisites (or equivalent)
Mathematics through Differential Equations (MAP 2302)
Modeling Methods in Mechanical and Aerospace Engineering (EML 3034)
Thermodynamics of Mechanical Systems (EML 3101)
Measurements in Thermal Systems (EML 4304C)
Fluid Mechanics II (EML 4703)
Heat Transfer (EML 4142)

Required Courses—6 Semester Hours
All students must take the following two required courses.
EML 5060 Mathematical Methods in Mechanical, Materials, and Aerospace Engineering (3 hours)
EML 5211 Continuum Mechanics (3 hours)

Take at least four courses from the track specialty courses below. Additional courses to satisfy total semester hour requirements (30 hours thesis option, 36 hours non-thesis option) may be taken from the list of representative electives below or from the remaining MMAE course offering. Consult with your faculty adviser (or graduate program coordinator if you do not have a faculty adviser) prior to registering for classes. Note that thesis option students must take 6 hours of thesis and non-thesis option students must take Research Methods in MMAE.

Track Specialty Courses—12 Semester Hours (Minimum)
EML 5105 Gas Kinetics and Statistical Thermodynamics (3 hours)
EML 5402 Turbomachinery (3 hours)
EML 6062 Boundary Elements in Engineering (3 hours)
EML 6155 Convection Heat Transfer (3 hours)
EML 6157 Radiation Heat Transfer (3 hours)
EML 6712 Mechanics of Viscous Flow (3 hours)
EML 6725 Computational Fluid Dynamics and Heat Transfer I (3 hours)
EML 6726 Computational Fluid Dynamics and Heat Transfer II (3 hours)

Representative Electives—12-18 Semester Hours
EAS 5302 Direct Energy Conversion (3 hours)
EAS 5315 Rocket Propulsion (3 hours)
EAS 6138 Advanced Gas Dynamics (3 hours)
EAS 6185 Turbulent Flow (3 hours)
EML 5025C Engineering Design Practice (3 hours)
EML 5066 Computational Methods in Mechanical, Materials, and Aerospace Engineering (3 hours)
EML 5131 Combustion Phenomena (3 hours)
EML 5152 Intermediate Heat Transfer (3 hours)
EML 5713 Intermediate Fluid Mechanics (3 hours)
EML 5532C Computer-aided Design for Manufacture (3 hours)
EML 6104 Classical Thermodynamics (3 hours)
EML 6124 Two Phase Flow (3 hours)
EML 6154 Conduction Heat Transfer (3 hours)
EML 6158 Gaseous Radiation Heat Transfer (3 hours)
EML 6726 Computational Fluid Dynamics and Heat Transfer II (3 hours)

EML 6971 Thesis (6 hours)
EML 6085 Research Methods in MMAE (required for non-thesis option) (3 hours)

Total Hours Required for M.S.M.E.—30 or 36 Semester Hours

Doctor of Philosophy in Mechanical Engineering

The Doctor of Philosophy (Ph.D.) degree is intended for a student with a master’s degree in mechanical or aerospace engineering or a closely related discipline. The program is intended to allow a student to study in depth, with emphasis on research in Aerospace Systems, Materials Science and Engineering, Mechanical Systems, or Thermo-fluids.

Admission

In addition to satisfying the admission requirements for the M.S.M.E. degree, admission to the Ph.D. program requires that the student possess a Master’s degree in mechanical or aerospace engineering or a closely related discipline from a recognized institution. Admission to full doctoral status requires that the student (1) pass a Ph.D. Qualifying Examination in one of the four departmental disciplines of Aerospace Systems, Materials Science and Engineering, Mechanical Systems, or Thermo-fluids, (2) establish a Doctoral Advisory Committee, and (3) submit a departmentally approved Program of Study. These steps are normally completed within the first year of study beyond the master’s degree.

Degree Requirements

The Ph.D. degree requires a minimum of 81 semester hours beyond the bachelor’s degree, 24 of which will be dissertation credits and at least 9 credits of which must be graduate level mathematics courses. A maximum of 30 semester hours and 6 thesis hours of graduate credit may be transferred toward these requirements from a master’s program. Transfer of credits will be evaluated on a course-by-course basis as part of the Program of Study approval process.

Examinations

In addition to the Qualifying Examination discussed above, the student must pass a Candidacy Examination and a Dissertation Defense Examination. The Candidacy Examination is taken near the end of the course work and consists of a written and oral presentation of a research proposal. The Dissertation Defense Examination is an oral examination taken in defense of the written dissertation. Further information on these examinations and other requirements of the Ph.D. program are contained in the Ph.D. Degree General Procedures manual available from the MMAE Department.
Graduate Certificates in Mechanical, Materials, and Aerospace Engineering

Certificate in CAD/CAM Technology

To prepare engineers for careers in design requires not only learning about these topics but also an understanding of engineering practice and experience in solving problems with realistic industrial constraints. This graduate certificate program offers a variety of learning opportunities for professional development. Gaining experience with modern software packages such as PTC Pro/Engineer and SDRC IDEAS Master Series gives engineering students a great advantage when entering the workforce.

Required Courses—9 Semester Hours
EML 5025C Engineering Design Practice (3 hours)
EML 5532C Computer-aided Design for Manufacture (3 hours)
EGN 5858C Introduction to Rapid Prototyping (3 hours)

Certificate in Computational Methods in Mechanics

This graduate certificate program is designed to aid engineers, designers, and analysts assigned responsibility of developing and running Computer-Aided-Engineering models to gain understanding of underlying physical principles and capabilities of various computational techniques. Engineers who achieve and maintain proficiency in developing and understanding of CAE models are in great demand and will enjoy increasingly attractive career opportunities as CAE technology encompasses broader ranges of applications and becomes pervasive in engineering.

Required Courses—12 Semester Hours
Choose four courses:
EML 5066 Computational Methods in Mechanical, Materials and Aerospace Engineering (3 hours)
EML 5211 Continuum Mechanics (3 hours)
EML 5532C Computer-aided Design for Manufacture (3 hours)
EML 6062 Boundary Element Methods in Engineering (3 hours)
EML 6067 Finite Elements in Mechanical, Materials and Aerospace Engineering I (3 hours)
EML 6068 Finite Elements in Mechanical, Materials and Aerospace Engineering II (3 hours)
EML 6725 Computational Fluid Dynamics and Heat Transfer I (3 hours)
EML 6726 Computational Fluid Dynamics and Heat Transfer II (3 hours)

Certificate in HVAC Engineering

This graduate certificate program is designed to provide students with a fundamental understanding of principles behind HVAC engineering and a better understanding of applied aspects of HVAC engineering, including analysis and design of practical systems. Students will also participate in laboratory and hands-on experiences.

Required Courses—12 Semester Hours
EML 5066 Computational Methods in Mechanical, Materials, and Aerospace Engineering (3 hours)
EML 5152 Intermediate Heat Transfer (3 hours)
EML 5XXX HVAC Systems Engineering (3 hours)
EML 5XXX Applied HVAC Engineering (3 hours)

Certificate in Launch/Spacecraft Vehicle Processing

This graduate certificate program is designed to cover (1) understanding of elements of launch vehicle test and evaluation methodology and implementation, where integrated circuit applications, systems control techniques, microprocessor programming and their interfaces are included; (2) rocket propulsion with focus on fundamentals of combustion and instrumentation used for test and evaluation and techniques for the validation of launch/spacecraft propulsion subsystems and their interfaces; (3) basics of telemetry and implementation of embedded computers in vehicle launch processes; and (4) mathematical basics. The goal of this program is to upgrade managers and engineers in current mechatronics applications in aerospace vehicle test and evaluation (T&E) processes.

Required Courses—12 Semester Hours
EAS 5XXX Digital Control in Mechatronics (3 hours)
EAS 5315 Rocket Propulsion (3 hours)
EGN 5XXX Telemetry and Embedded Computers (3 hours)
MAP 5435 Advanced Mathematics for Engineers (3 hours) OR
EML 5060 Mathematical Methods in Mechanical, Materials, and Aerospace Engineering (3 hours)

Certificate in Materials Characterization

This graduate certificate program will provide students or engineers in industry with fundamental knowledge of principles and processes of materials characterization based on electron beam and ion beam analyses and with a professional, hands-on training in modern characterization at the Materials Characterization Facility (MCF) at the University of Central Florida.

Required Courses—12 Semester Hours
Choose four courses:
EMA 5108 Surface Science (3 hours)
EMA 5504 Modern Characterization of Materials (3 hours)
EMA 5505 Scanning Electron Microscopy (3 hours)
EMA 5XXX Advanced Materials Characterization by Ion Beam Analysis (3 hours)
EMA 6518 Transmission Electron Microscopy (3 hours)

Certificate in Materials Failure Analysis

This graduate certificate program is designed to familiarize engineers entrusted with conducting materials failure analysis for possible causes of failure and the possible interaction of these causes. Aims of the program include developing the
ability to conduct detailed fractographic and microstructural evaluations and proficiency with modern tools and techniques of failure analysis. Courses identified above coupled with unique materials characterization facilities and expert faculty at the University of Central Florida provide an excellent opportunity for engineers employed in local industries to increase proficiency in their trade.

**Required Courses—12 Semester Hours**

- EMA 6628 Materials Failure Analysis (3 hours)
- EMA 5326 Corrosion Science and Engineering (3 hours)
- EMA 5505 Scanning Electron Microscopy (3 hours)
- EMA 5108 Surface Science (3 hours) OR EMA 5504 Modern Characterization of Materials (3 hours)
The College of Health and Public Affairs offers nine graduate programs: the Master of Arts in Communicative Disorders, the Master of Science in Criminal Justice, the Master of Science in Health Services Administration, the Master of Science in Molecular Biology and Microbiology, the Master of Science in Nursing, the Master of Science in Physical Therapy, the Master of Public Administration, the Master of Social Work, and the Doctor of Philosophy in Public Affairs. The mission of the College of Health and Public Affairs is to provide undergraduate and graduate education, to foster the development and transmission of knowledge, and to provide graduate education that exceeds national standards while meeting the research and service needs of the local community.

Departments and schools within the college provide professional education, emphasizing the relationship between policy, practice, and the importance of research. By focusing on the development of critical thinking and problem-solving skills, students receive an education that prepares them for a lifetime of professional and personal achievement.

College Administration

B. R. McCarthy, Ph.D., Dean
M. J. Sweeney, Ph.D., Associate Dean
J. E. Dorner, M.N., Assistant Dean
C. E. Green, Ph.D., Assistant Dean

Faculty

Communicative Disorders
Interim Chair of the Department: M. J. Sweeney, Ph.D.
Professors: G. Brutten, Ph.D.; C. Nye, Ph.D.; D. L. Ratusnik, Ph.D.
Associate Professors: D. B. Ingram, Ph.D.; T. A. Mullin, Ph.D.; J. Ryalls, Ph.D.; M. Vanryckegehem, Ph.D.

Criminal Justice and Legal Studies
Chair of the Department: B. J. McCarthy, Ph.D., Professor
Professors: B. R. McCarthy, Ph.D., Dean; B. Bohm, Ph.D.; D. Fabianic, Ph.D.; R. Surette, Ph.D.

Molecular Biology and Microbiology
Chair of the Department: R. N. Gennaro, Ph.D., Professor
Professors: O. M. Berringer, Ph.D.; H. Daniell, Ph.D.; D. Jacobs, Ph.D.; M. J. Sweeney, Ph.D., Associate Dean; R. S. White, Ph.D.
Associate Professors: J. F. Charba, Ph.D.; D. W. Washington, Ph.D.
Assistant Professors: K. Chai, Ph.D.; D. Chakrabarti, Ph.D.; R. Chakrabarti, Ph.D.; C. Fernandez-Valle, Ph.D.; S. Naser, Ph.D.
Instructors: K. Blaney; D. F. Hitchcock, M.S.; F. Logiudice, M.S.

School of Nursing
Director: E. Stullenbarger, DSN, RN, CS-PNP, Professor
RN-B.S.N. Coordinator: L. Hennig, Ed.D., RN
Professors: A. Bushy, Ph.D., RN, CS; M. L. Sole, Ph.D., RN, FAAN
Associate Professors: J. Dorner, M.N., RN, Assistant Dean; M. Bear, Ph.D., RN; J. Byers, Ph.D., RN; K. Dow, Ph.D., RN, FAAN; G. Giovinco, Ph.D., Ed.D., RN; R. Gropper, Ph.D., RN, Daytona Beach Campus Coordinator; J. Kijek, Ph.D., RN; F. Smith, Ed.D., RN; V. Browne-Krimsky, Ed.D., RN, Brevard Campus Coordinator; D. Wink, Ed.D., RNC
Assistant Professors: N. Crigger, Ph.D., RN; J. Gichia, Ph.D., CNM, RN; L. Holcomb, DSN, RN, ARNP; E. Kiehl, Ph.D., RN; J. Weiss, Ph.D., RN, ARNP

LS Internship Coordinator: K. Cook, J.D., Instructor
CJ Internship Coordinator: M. Eastep, M.S., Instructor
Instructors: J. Flagg, J.D.; R. Lynch, J.D.; J. Randall, M.S.
Instructors: J. Peterson, Ph.D., RN, ORHS Coordinator; P. Leli, M.S.N., RN, Undergraduate Coordinator; M. Ramey, M.N.Ed., RN; M. Covelli, M.A., RN; S. Pelliccio, M.S.N., RN

Campus, Visiting Instructor: P. Connell, M.S.N., RN

Public Administration
Chair: K. T. Liou, D.P.A., Professor
Professors: P. W. Colby, Ph.D.; R. A. Shapek, Ph.D.
Associate Professors: J. D. Jurie, D.P.A.; W. C. Lawther, Ph.D.; E. Berman, Ph.D.
Assistant Professors: M. A. Feldheim, Ph.D.; J. Gianakis, Ph.D.; J. M. Rios, Ph.D.; X. H. Wang, Ph.D.
Instructor: M. Rogers, M.P.A., Program Coordinator

Public Affairs—Ph.D. Program
Director: W. C. Lawther, Ph.D., Associate Professor
Dean: B. R. McCarthy, Ph.D., Professor
Chairs: B. J. McCarthy, Ph.D., Professor; K. T. Liou, D.P.A., Professor
Professors: R. Bohm, Ph.D.; I. Colby, Ph.D.; D. Poole, Ph.D., R. Shapek, Ph.D., R. Surette, Ph.D.
Associate Professors: E. Berman, Ph.D.; D. Bishop, Ph.D.; M. Lanier, Ph.D.; S. Mahan, Ph.D.; J. Sanborn, Ph.D.

School of Social Work
Director: M. Van Hook, Associate Professor
Professors: I. Colby, D.S.W.; D. Poole, Ph.D.; S. Dziegielewski, Ph.D., B.S.W. Coordinator
Associate Professors: K. Kazmerski, D.S.W., M.S.W. Coordinator; E. K. Suh, Ph.D.
Assistant Professors: E. M. Abel, M.S.W.; C. E. Green, Ph.D., Assistant Dean; A. Leon, Ph.D.
Coordinator, Field Education: L. Davis, M.S.W.

Clinical Instructors: G. Jacinto, M.S.W.; M. Sauer, M.S.W.
Visiting Instructors: D. Brett, Ph.D.

Programs

Doctor of Philosophy in Public Affairs
Specializations: Criminal Justice, Health Sciences: Health Services Administration, Public Administration, and Social Work

Master of Science
Criminal Justice
Health Sciences: Health Services Administration
Molecular Biology and Microbiology
Physical Therapy

Master of Science in Nursing
Nursing Leadership and Management Track
Adult or Family Nurse Practitioner Track
RN to MSN Track

Master of Arts in Communicative Disorders

Master of Public Administration

Master of Social Work

Graduate Certificate
Adult Nurse Practitioner
Crime Analysis
Family Nurse Practitioner
Gerontology
Public Administration
Interdisciplinary Studies

The College of Health and Public Affairs offers an interdisciplinary graduate certificate in Gerontology.

Graduate Certificate in Gerontology

Program Coordinator: Margaret Sauer, M.S.W., School of Social Work, HPA 204, (407) 823-2114.
E-mail: msauer@mail.ucf.edu
Web address: www.cohpa.ucf.edu/gerontology/
Phone: (407) 823-2215
Fax: (407) 823-5697

In recognition of the special needs of elderly citizens, the University of Central Florida offers a twelve-hour interdisciplinary program leading to a Graduate Certificate in Gerontology. The Graduate Certificate in Gerontology (GCG) is administered by the School of Social Work.

Who may be interested?

The program may be of particular interest to people presently employed in the aging field who have a baccalaureate or higher degree and who wish to increase their knowledge of gerontology. Graduate students who are enrolled in health sciences, psychology, social work, nursing, communicative disorders, or sociology, as well as in other areas, such as liberal arts, music education, physical education, or art education, may also find the certificate valuable.

How is the certificate structured?

Students complete four classes. There is one required class and three electives. In order to keep an interdisciplinary nature, courses must be selected from both the College of Health and Public Affairs and the College of Arts and Sciences.

Required Course—3 Semester Hours:
GEY XXXX Gerontology, An Interdisciplinary Approach

Electives—9 Semester Hours
SYP 6938 Elder Abuse
SPA 6407 Aging and Communication
CLP XXXX Mental Health and Aging
EXP XXXX Human Factors in Aging
HSC 6568 Issues in Geriatric Health Care
NGR XXXX Psychosocial Factors in Health Care Outcomes of the Elderly
SYO 6XXX The Welfare State and Aging
SOW 5XXX Aging in the Social-Situational Context
SOW 5XXX Interventions with the Elderly and Their Families

What are the advantages of the GCG?

While the certificate does not prepare the student for a specific occupation in gerontology, those completing the certificate will have an advantage in seeking employment in the field of aging.

How to enroll in the Graduate Certificate of Gerontology

Students currently enrolled at UCF as a graduate student need only enroll in the required GCG courses to be in the program. Students who have completed an undergraduate or graduate degree (not necessarily at UCF) and who are returning only for the GCG should contact the Graduate Admissions office (407/823-2766) to register as non-degree-seeking and note GCG seeking.

How to receive your certificate

Upon completion of all courses, provide your name and social security number to the coordinator of the Graduate Certificate in Gerontology at the School of Social Work (407-823-2114). Be sure to include information about how you would like your name to appear on the certificate and your current mailing address. A Completion of Certificate form should be completed so that a certificate can be prepared. You may receive your certificate after completion of courses.
Doctor of Philosophy in Public Affairs

**Graduate Program Coordinator:** W. C. Lawther, Ph.D., Associate Professor HPA 352, (407) 823-2604
E-mail: lawther@pegasus.cc.ucf.edu

The Ph.D. program in Public Affairs at the University of Central Florida is a multidisciplinary program with concentrations in Public Administration, Criminal Justice, Health Services Administration, and Social Work. The principal goal of this program is to enable graduates to (1) administer public or private agencies in any of the fields noted above; (2) advance their careers within their respective organizations; (3) conduct research; and (4) teach at the community college, college, or university level.

The complex social issues that threaten the health and welfare of the citizens of Central Florida and the nation require a new breed of professionals educated to think and work across traditional boundaries with colleagues similarly committed to tackling the complex social challenges of tomorrow. This interdisciplinary Ph.D. in Public Affairs aims to fulfill that need and to meet the challenges of the future.

More specifically, the program brings together four disciplines that address important and interrelated social problems that confront all communities. Currently, the interrelated problems of crime and justice, health services and social welfare delivery, and the administration of public agencies that deal with these problems are approached in a disciplinary-specific and fragmented way. This approach often results in the duplication of efforts and a waste of scarce resources. In addition, it frequently exacerbates community problems rather than helping to resolve them. By integrating knowledge bases and intervention approaches, more effective and efficient resolutions to social problems can be achieved.

The flexibility needed to solve increasingly complex issues of service delivery faced by state and local public managers can be provided by the tools and skills obtained by students graduating from this program. This flexibility can be viewed as occurring along a continuum. At one end can be found highly specialized, narrowly focused methodological skills reflected by specialists who focus on, for example, evaluating specific aspects of a public program. At the other end are highly generalized upper management skills reflected by generalists that lead teams of managers and analysts who try to implement improved ways of solving a problem or delivering a service.

The program will match the career goals of the students through the interdisciplinary nature of the course content, the interaction with faculty from all four disciplines, and the flexibility inherent in the choice of electives. Those seeking advancement within public agencies or nonprofit organizations can choose a greater mix of electives, while those seeking to teach at the college or university level can concentrate their course work more within one discipline.

**Degree Requirements**

Students must complete 57 hours beyond the master's degree, including fourteen courses (42 credit hours) above the master's level distributed in the following manner: (1) a five-course, 15-credit interdisciplinary core; (2) a two-course, 6-credit research tool; and (3) a seven-course, 21-credit interdisciplinary specialization component that will be tailored to meet students' individual goals. It is expected that all core courses will be team taught by professors from more than one discipline. A 15-hour dissertation is also required.

To ensure that students more fully experience the interdisciplinary nature of the program, completion of no more than five elective courses from one discipline will be permitted. Among the elective choices offered to students will be a choice of specialized research tools that will also be interdisciplinary.

If students receive more than one grade of "C" or lower, they may be reverted to non-degree status.

**Application Deadlines**

Fall admission (priority) February 7*
Fall admission March 1

* Students applying for fellowships or assistantships must apply for the fall semester by the priority date.

**Admission**

Applications for admission into the Ph.D. program in Public Affairs will be submitted to the UCF Office of Graduate Studies. The deadline for fall admission is March 1. For those students who wish to be considered for assistantships, the deadline is February 7. Admission decisions will be made only once per academic year.

A complete packet for admission includes all of the following:

- An official admission application form
- Official copies of undergraduate and graduate transcripts
- Official results of the Graduate Record Examination (score of 1000, math and verbal combined, are required, taken within the last five years) and sent from ETS directly to UCF
- A narrative statement of 1000 words or less describing the applicant's educational expectations, career aspirations, level of computer skills, and any special qualifications or experiences that may enhance the overall learning environment of the program
- A current resume
- Three letters of reference from professionals who can assess the applicant's ability to succeed in a doctoral program
- International students and students whose native language is not English must score at least 213 (computer-based test) or 550 (paper-based test) on the Test of English as a Foreign Language (TOEFL).

It is important that applicants return all materials in the single packet to facilitate admission decisions.
Financial Support

A limited number of teaching and research assistantships will be available each year. Additional financial support may be available in the form of internships and research opportunities with public and nonprofit agencies. Students wishing to obtain financial support must apply by February 7.

Transfer Credit

No course work will be accepted for transfer unless it has been approved as part of the plan of study for another doctoral program either at UCF or at another college or university. The transfer credit accepted will be determined on a case-by-case basis by the Director. A maximum of six hours can be transferred.

Assignment of Faculty Advisers

Upon acceptance of a student into the program, the Director will provide an initial orientation and general advising session. Based on the information obtained in this session, the Director will identify a faculty adviser from among the four disciplines that comprise the program that could best serve the advising needs of the student. During the student's first semester, the student and his or her faculty adviser will create a specific plan of study tailored to meet the specific career needs and goals of the student.

The Qualifying Examination

Following successful completion of the seven required foundation courses, a student is required to pass a qualifying examination. This examination will test the student's knowledge of the material in the seven foundation courses only. The examination will be given once each semester.

The Candidacy Examination

Students who pass the qualifying examination, once all of their course work has been completed, are entitled to write and defend a dissertation proposal. Successful completion of the candidacy examination will consist of 1) achieving a 3.5 GPA for all non-elective courses; and 2) successful defense of the dissertation proposal.

Curriculum

Foundation Courses (Required)

PAF 7000 Foundations of Public Affairs (3 hours)
PAF 7110 Ethics and Public Affairs (3 hours)
PAF 7230 Strategic Change and Management in Public Affairs (3 hours)
PAF 7250 Social Justice and Public Policy (3 hours)
PAF 7300 Policy Analysis in Public Affairs (3 hours)
PAF 7802 Advanced Research Methods in Public Affairs (3 hours)

PAF 7804 Advanced Quantitative Research Methods in Public Affairs (3 hours)

Foundation Courses (Electives)

PAF 7510 Seminar in Program Evaluation in Public Affairs (3 hours)
PAF 7610 Seminar in Survey Research in Public Affairs (3 hours)
PAF 7820 Seminar in Qualitative Methods (3 hours)
PAF 7840 Seminar in Secondary Data Analysis in Public Affairs (3 hours)
PAF 7982 Dissertation Seminar in Public Affairs (2 hours)

Disciplinary Specialization Courses

Criminal Justice

CCJ 6938 Special Issues in Criminal Justice (3 hours) (Course may be repeated with different content.)
CCJ 7457 Seminar in Criminal Justice Theory (3 hours)
CCJ 7930 Seminar in Criminal Justice Policy Analysis (3 hours)
+ Any 6000-level courses in the catalog

Health Sciences: Health Services Administration

HSC 6175 Advanced Trends in Health Care Finance Theory (3 hours) (Prerequisite: PHC 6160, Health Care Finance)
HSC 7118 Advanced Health Care Organization Theory (3 hours)
HSC 7930 Special Issues in Health Services Administration (3 hours) (Course may be repeated with different content.)
+ Any 6000-level courses in the catalog

Public Administration

PAD 6207 Advanced Public Budgeting and Finance (3 hours) (Prerequisite: PAD 6227, Public Budgeting)
PAD 6934 Special Issues in Public Administration (3 hours) (Course may be repeated with different content.)
PAD 7026 Advanced Seminar in Public Administration (3 hours)
PAD 7419 Advanced Public Human Resource Management (3 hours) (Prerequisite: PAD 6417, Human Resource Management)
+ Any 6000-level courses in the catalog

Social Work

SOW 6386 Seminar in Social Welfare Planning and Implementation (3 hours)
SOW 6399 Advanced Administration in Social Welfare (3 hours)
SOW 6492 Theory Building in Social Work (3 hours)
SOW 6938 Special Issues in Social Work (3 hours) (Course may be repeated with different content.)
+ Any 6000-level courses in the catalog

Dissertation

PAF 7980 Dissertation Research (15 hours)
Communicative Disorders

Graduate Program Coordinators:
Linda L. Rosa-Lugo, Ed.D., E-mail: lrosa@mail.ucf.edu
Linda Louck, Ph.D., E-mail: llouck@mail.ucf.edu
Research Pavilion Suite 200, (407) 384-2113 or 384-2107.

Professional education is offered in Communicative Disorders leading to the Master of Arts degree in Speech-Language Pathology. The program requires the equivalent of two years full-time attendance to complete and is designed to meet the certification requirements of the American Speech-Language-Hearing Association. The program is accredited by the Educational Standards Board of the American Speech-Language-Hearing Association. Full-time registration (at least 6 hours) in the program is required.

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) make up the clinical faculty, which supplements the clinical expertise of the regular faculty. All students will enroll in SPA 6505 or 6506, Clinical Practica, or equivalents, each semester in attendance, with the exception of the semester they are enrolled in SPA 6553C, Differential Diagnosis in Speech and Language/Laboratory, and the semester they are completing the thesis/non-thesis option. Students must complete 375 clock hours of practicum experience as outlined by the American Speech-Language-Hearing Association before graduation.

Application Deadlines
Fall admission April 1
Spring admission November 1

Admission
Admission to graduate status in the Master of Arts (M.A.) in Communicative Disorders degree program is based on the following:

- A baccalaureate degree from a regionally accredited college or university and a grade point average (GPA) of 3.0 (on a 4.0 scale) for the last 60 attempted semester hours of credit earned for the baccalaureate degree, or a Graduate Record Examination (GRE) score of at least 1000 on the combined verbal and quantitative portions of the GRE. In order to be considered every applicant must submit official GRE scores. These are minimum university requirements and do not guarantee admission to the graduate program.
- Three letters of recommendation, preferably from former instructors.
- A letter of intent, stating background and experience, interest in the field, future goals, and the semester in which admission is desired.

- A copy of all official transcripts from previously attended colleges and/or universities.
- A copy of the graduate application and official GRE score report.

The department requires international students and students whose native language is not English to submit a score of 173 (computer-based test) or 500 (paper-based test) on the Test of English as a Foreign Language (TOEFL).

It is important that applicants return these materials in a single packet to facilitate admission decisions. Admission into the graduate program will be determined for each semester. This program is highly competitive and meeting minimum university standards may not guarantee admission to the program.

Master of Arts in Communicative Disorders

Prerequisites
B.A. in Speech and Hearing (Communicative Disorders) or special prerequisite courses to be arranged with the graduate program coordinator. All students must take Statistical Methods II, or equivalent, and achieve a grade of "C" or better prior to, or during, their graduate program. This course is a prerequisite to SPA 5805, Research in Communicative Disorders.

Required Courses—39 Semester Hours
SPA 5327 Aural Habilitation - Rehabilitation (4 hours)
SPA 5570 Administration and Management of Communicative Disorders (3 hours)
SPA 5805 Research in Communicative Disorders (3 hours)
SPA 6410 Language Problems in Adults: Aphasia and Other Symbolic Disorders (3 hours)
SPA 5225 Fluency Disorders (3 hours)
SPA 6553C Differential Diagnosis Speech Language (4 hours)
SPA 6132 Measurements in Speech Science (3 hours)
SPA 6204 Advanced Studies in Communicative Disorders: Articulation (3 hours)
SPA 6211 Voice Disorders (3 hours)
SPA 6403 Language Disorders: School Age Language (3 hours)
SPA 5236 Speech Problems in Adults: Motor Speech Disorders (3 hours)
SPA 5404 Language Disorders: Pre-School (3 hours)

Two seminars must be included in the Program of Study:
SPA 6407 Seminar in Language (2 hours)
SPA 6526 Seminar in Speech Pathology (2 hours)
SPA 6826 Seminar in Research (2 hours)

Practicum credit toward degree—6 Semester Hours
All students must register for three hours each semester in SPA 6505 or SPA 6506 while in attendance, with exceptions as noted in the graduate manual (SPA 6553C, 6918, and 6946).

Thesis and Non-Thesis Options
Each student will complete a thesis or non-thesis option.

Thesis Option—6 Semester Hours
Students selecting the thesis option will complete a thesis in the area of speech/language pathology for six semester hours of credit. An advisory committee of three faculty members,
Two plans of study are available. The first has a professional focus and is designed for students whose career goals include working in criminal or juvenile justice agencies. These students will be encouraged to focus on policy-oriented courses and to compile a professional portfolio of their graduate work. The second plan of study is designed for students who plan to enroll in a Ph.D. program when they complete the master’s program. These students will be encouraged to prepare a thesis and to focus on research-related courses.

Students in both plans of study will be exposed to a wide variety of issues and problems within the discipline. They will study crime trends and theories of criminal behavior. They will analyze the administration of justice within the United States, including critical problems facing law enforcement, courts, and corrections. Qualitative and quantitative research methods, statistics, and computer technologies in the criminal justice field will also be part of each student’s curriculum.

Students will select elective courses based on their program of study. These courses involve analysis of juvenile crime and the juvenile justice system; the relationship of law to social policy; individual and organizational strategies for change; the connection between popular culture, the mass media, crime, and criminal justice; and the future of corrections and law enforcement. A number of special topic courses will be offered as well.

Application Deadlines

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<tr>
<th>Application Period</th>
<th>Deadline</th>
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<td>July 15</td>
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<td>Spring admission</td>
<td>December 1</td>
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<tr>
<td>Summer admission</td>
<td>April 15</td>
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</tbody>
</table>

Admission

The Graduate Record Examination (GRE) is required of all graduate students. Minimum requirements for regular admission are a grade point average (GPA) of 3.0 for the last 60 attempted semester hours of undergraduate study and a total score of 800 or higher on the verbal-quantitative sections of the GRE. Applicants that fail to meet the minimum requirements will be considered for admission on a case-by-case basis. Also, applicants will be asked to submit a personal statement reflecting their educational and career goals. Individuals whose native language is other than English are required to have a minimum score of 213 (computer-based test) or 550 (paper-based test) on the Test of English as a Foreign Language (TOEFL).

Degree Requirements

The M.S. program in Criminal Justice consists of 30 semester hours. Each student completes a core of 4 courses (12 semester hours) and advanced curriculum of 6 courses (18 semester hours) selected in consultation with an adviser.

Minimum Core Requirements—12 Semester Hours

- CCJ 5015 The Nature of Crime (3 hours)
- CCJ 5456 The Administration of Justice (3 hours)
- CCJ 5704 Research Methods in Criminal Justice (3 hours)
The College of Health and Public Affairs has recently moved into a new building, shown here under construction.
CCJ 6706 Quantitative Methods and Computer Utilization in Criminal Justice (3 hours)

Advanced Curriculum—18 Semester Hours
(choose six of the following)
CCJ 5105 Foundations of Law Enforcement
CCJ 5305 Foundations of Corrections
CCJ 6106 Policy Analysis in Criminal Justice
CCJ 6217 Law and Social Control
CCJ 6485 Issues in Justice Policy
CCJ 6505 The Juvenile Justice System
CCJ 6705 Applied Criminal Justice Research
CCJ 6730 Planned Change and Innovation in Criminal Justice
CCJ 6908 Independent Study
CCJ 6934 Criminal Justice, Crime, and Popular Culture
CCJ 6938 Special Topics in Criminal Justice
CCJ 6946 Criminal Justice Practicum
CCJ 6971 Thesis
(A student may not take more than 6 hours total of Independent Study or Practicum.)

Minimum Hours Required for M.S.—30 Semester Hours

Students may transfer up to six hours of related graduate course work toward the Master of Science degree. Only courses where the student earned a grade of “B” or above will be accepted for transfer from an accredited university or college.

Graduate Certificate in Crime Analysis

A unique Graduate Certificate in Crime Analysis has been developed by the Criminal Justice and Legal Studies Department to provide information for data-driven management, investigative support, and general crime analysis. The certificate program is designed to provide essential skills that are critically needed by law enforcement agencies to meet new demands for sophisticated crime analysis and mapping products.

The certificate program provides graduate-level continuing education for both in-service and pre-career students. The program will target traditional criminal justice graduate students seeking to develop knowledge in crime analysis and mapping as well as law enforcement practitioners. The program will emphasize development of a theoretical and practical knowledge base for basic data management systems. It will also emphasize development of theoretical and practical skills necessary to 1) fully utilize available technologies to develop and perform, complex crime analysis and mapping, 2) develop and execute advanced spatial analysis of crime, and 3) develop knowledge required to create customized crime analysis and mapping applications that are agency specific.

The certificate program is affiliated with the Master of Science in Criminal Justice and will be administered by the Department of Criminal Justice. The program follows UCF policies and procedures for graduate certificate programs. Any student with an undergraduate baccalaureate degree or higher from an accredited university may apply.

Certificate Requirements

The Crime Analysis certificate program consists of three courses for a total of nine semester hours. All courses are taught in a computer lab with a hands-on environment.

Required Courses—9 Semester Hours
Data Management Systems for Crime Analysis
Crime Mapping and Analysis
Advanced Crime Mapping and Analysis

Students need to be aware entry to a certificate program does not guarantee admission to a graduate program. However, once a student is accepted into a regular graduate program, credits from a certificate program may be applied toward an existing graduate program with the consent of the program. No internship or independent study may be used in a certificate program. A certificate program must be completed within three years of the start of the first course in the certificate program.

Health Professions & Physical Therapy

Interim Chair of the Department: Michael J. Sweeney, Ph.D., HPA 256, (407) 823-2359.
E-mail: msweeney@pegasus.cc.ucf.edu

Health Services Administration Acting Graduate Program Coordinator: Aaron Liberman, Ph.D., TR 534, (407) 823-3264.
E-mail: aliberman@pegasus.cc.ucf.edu

E-mail: ptinfo@pegasus.cc.ucf.edu

Master of Science in Health Sciences: Health Services Administration

The Department of Health Professions and Physical Therapy offers a Master of Science in Health Sciences: Health Services Administration. The program of study required for the Health Services Administration option is outlined below.

Application Deadlines
Fall admission July 15
Spring admission December 1
Summer admission April 15

Admission

Admission to graduate status in the Master of Science in Health Sciences: Health Services Administration program is based on the following:
• A baccalaureate degree from a regionally accredited college or university and a grade point average of at least 3.0 on a 4.0 scale for the last 60 attempted semester hours of credit earned for the baccalaureate degree, and a Graduate Record Examination score of at least 840 (a GMAT score of 400 may be used to satisfy this requirement); or a grade point average of at least 2.75 for the last 60 attempted semester hours and a GRE score of at least 1000 (a GMAT score of 500 may be used to satisfy this requirement).

• International students and students whose native language is not English must score at least 173 (computer-based test) or 500 (paper-based test) on the Test of English as a Foreign Language (TOEFL).

• Submission of three letters of recommendation from individuals capable of assessing the applicant's ability to undertake graduate work.

• Completion of undergraduate course work comprising a knowledge of the U.S. health care systems, basic statistics, and personal computers.

Admission into graduate status is determined for the fall, spring, and summer semesters. All students must take the GRE or GMAT prior to acceptance into the program. After acceptance, all students must meet with their academic advisor to plan a program of study.

Degree Requirements

Required Courses—27 Semester Hours
HSA 5198 Information Systems and Computer Applications in Medicine
HSA 6107 Health Care Organization and Management I
HSA 6188 Health Care Organization and Management II
HSA 6126 Principles of Managed Care
HSC 6636 Issues and Trends in the Health Care Industry
HSC 6911 Scientific Inquiry
PHC 6160 Health Care Finance
PHC 6420 Case Studies in Health Law
HSA 6925 Capstone Symposium

Electives—12 Semester Hours
Students must choose a minimum of 4 courses in consultation with the adviser. Electives may include a research project, thesis, independent study or courses from such areas as business, public administration, engineering, computer science, or health services administration.

Comprehensive Examination
A final written examination is required of all students in the program. The exam will be completed in the term in which the student expects to graduate. Examinations will receive an evaluation of "pass," "conditional pass," or "fail." If a student receives a "conditional pass" on the comprehensive examination, a written reexamination will have to be taken covering the area failed. A student failing the examination must repeat the entire examination. All students must successfully pass the comprehensive examination to graduate.

Thesis and Research Report Options—3-6 Semester Hours
Students may choose to do a research project or thesis with the consent of the academic adviser. Normally, 3 semester hours credit is earned for the research project and 6 for the thesis. Students should discuss this with the adviser when the program of study is completed.

Minimum Hours Required for M.S.—42-45 Semester Hours

Master of Science in Physical Therapy

Please Note: As of the entering class of the year 2000, the program will change to a two-year (seven-semester) program. Students will be required to have a bachelor's degree to apply. Please contact Graduate Admissions for further information or visit our website at www.cohpa.ucf.edu.

The program in Physical Therapy (M.S.) is a three-year professional program designed to prepare entry-level therapists to practice in a variety of settings. There is an undergraduate phase (five semesters) and a master's phase (four semesters). Students must complete the entire three-year program at the University of Central Florida to graduate with a physical therapy degree and to be eligible to take the state licensure exam.

The mission of the program in Physical Therapy is to educate and train students to be entry-level practitioners of the art and science of Physical Therapy. The educational process enables students to possess the general skills for competent clinical management of patients. The intent of the curriculum is to enable students to assess, evaluate, and treat patients in the most efficient and appropriate manner possible.

Objectives of the Program

• Preparation of a physical therapist who will practice as a broadly skilled, inquiring clinician in a variety of health care settings, with appropriate skill in education, communication, advocacy, management, and research.
• Preparation of a physical therapist who demonstrates a lifelong commitment to the profession and to their patients, through active participation in their communities, patient advocacy, and the ability to adapt to consumer needs and the changing health care environment.
• Promotion of the scientific foundations of physical therapy practice and education with emphasis on outcomes and efficacy of treatment.
• Promotion of interdisciplinary approaches to patient care.
• Promotion of the physical therapy profession and the physical therapist as a unique and integral component of health care.

Application Deadline

Summer Admission January 15
Admission Requirements

Admission to graduate status in the Master of Science in Physical Therapy program is based on the following:

- Successful completion of the first two years of the limited access physical therapy professional program at the University of Central Florida leads to a Bachelor of Science degree in Health Sciences. A grade point average (GPA) of 3.0 (on a 4.0 scale) for the last 60 attempted semester hours of credit earned for the baccalaureate degree is required. In order to be admitted to the master’s portion of the curriculum, every applicant must submit official GRE scores. (A GRE of 1000 or a GPA of 3.0 is required.)
- International students and students whose native language is not English must score at least 213 (computer-based test) or 550 (paper-based test) on the Test of English as a Foreign Language (TOEFL).

Acceptance to the Physical Therapy program as a junior is limited, and candidates must meet the following criteria to be considered for admission to the program:

- Minimum GPA of 3.0 in all prerequisites, which must be completed prior to application to the baccalaureate program (see the description of the Health Sciences degree in the undergraduate catalog for a list of prerequisite courses)
- Minimum overall GPA of 3.0
- Completion of all general education and foreign language requirements prior to enrollment in the program
- Completion of 10 hours of volunteer/work experience hours each in different settings and/or practice areas
- Completion of a biographical essay
- An interview of the top applicants (required)

Since this program is limited in enrollment, meeting minimum requirements may not guarantee acceptance.

Plan of Study

The baccalaureate degree in health sciences will be awarded at the end of the fifth semester when program requirements are met, and students will then be reclassified as graduate students. The Master of Science in Physical Therapy degree will be awarded on completion of the total program of study. If students do not complete the entire professional physical therapy program, they will not be permitted to take the physical therapy state licensing exam.

Degree Requirements

Students must complete a minimum of 120 semester hours of undergraduate course work in their junior/senior years and an additional 51 semester hours of graduate course work, for a total of 171 semester hours.

Undergraduate Course Work

Semester 1 - Fall—12 Semester Hours
PHT 3112C Gross Anatomy/Neuroscience I (2 hours)
PHT 3XXXL Gross Anatomy/Neuroscience I Lab (3 hours)
PHT 3155 Physiology of Therapeutic Exercise (2 hours)
PHT 3155L Physiology of Therapeutic Exercise Lab (2 hours)
PHT 3259 Patient Care Skills (2 hours)
PHT 3XXXL Patient Care Skills Lab (1 hour)

Semester 2 - Spring—13 Semester Hours
PHT 3113 Gross Anatomy/Neuroscience II (2 hours)
PHT 3XXXL Gross Anatomy/Neuroscience II Lab (3 hours)
PHT 3069 Physical Assessment (1 hour)
PHT 3069L Physical Assessment Lab (2 hours)
PHT 3122 Clinical Kinesiology (3 hours)
PHT 3XXXL Clinical Kinesiology Lab (2 hours)

Semester 3 - Summer—10 Semester Hours
PHT 4307 Pathology/Pharmacology (3 hours)
PHT 3222 Therapeutic Exercise I (2 hours)
PHT 4XXXL Therapeutic Exercise I Lab (1 hour)
PHT 3002 Foundations of Physical Therapy I (2 hours)
PHT 3223C Functional Rehabilitation (2 hours)

Semester 4 - Fall—12 Semester Hours
PHT 4XXX Theories and Procedures I (3 hours)
PHT 4XXXL Theories and Procedures I Lab (1 hour)
PHT 4XXX Therapeutic Exercise II (2 hours)
PHT 4XXXL Therapeutic Exercise II Lab (1 hour)
PHT 4XXX Neurological Physical Therapy (2 hours)
PHT 4XXXL Neurological Physical Therapy Lab (1 hour)
PHT 3821 Clinical Education I (2 hours)

Semester 5 - Spring—13 Semester Hours
PHT 4216 Theories and Procedures II (2 hours)
PHT 4XXXL Theories and Procedures II Lab (1 hour)
PHT 4316 Orthopedic Physical Therapy (2 hours)
PHT 4XXXL Orthopedic Physical Therapy Lab (2 hours)
PHT 4372 Gerontology in Physical Therapy Practice (2 hours)
PHT 4XXXC Pediatric Physical Therapy (2 hours)
PHT 4XXXC Cardiopulmonary Physical Therapy (2 hours)

Bachelor of Science in Health Science awarded—120 Semester Hours

Graduate Course Work

Semester 6 - Summer—15 Semester Hours
PHT 5XXX Foundations of Physical Therapy II (3 hours)
PHT 5XXX Advanced Orthopedic Physical Therapy (2 hours)
PHT 5XXXL Advanced Orthopedic Physical Therapy Lab (2 hours)
PHT 5XXX Information Management and Communications in Physical Therapy (3 hours)
PHT 5665 Research Methods in Physical Therapy (3 hours)
PHT 5816 Advanced Clinical Applications I (2 hours)

Semester 7 - Fall—17 Semester Hours
PHT 6XXX Research Applications in Physical Therapy I (3 hours)
PHT 6XXX Physical Therapy Integration I (2 hours)
PHT 6XXXL Physical Therapy Integration I Lab (1 hour)
PHT 6XXX Trends and Issues in Physical Therapy (3 hours)
PHT 6XXX Health Promotion/Wellness in Physical Therapy (3 hours)
Molecular Biology & Microbiology

Graduate Program Coordinator: R. N. Gennaro, Ph.D., BIO 330, (407) 823-5932. E-mail: gennaro@mail.ucf.edu

Master of Science in Molecular Biology and Microbiology

Application Deadlines

Fall admission (priority) March 15*
Fall admission July 15
Spring admission December 1
Summer admission April 15

* Students applying for fellowships or assistantships must apply for the fall semester by the priority date.

Admission

The minimum requirements for consideration for graduate status in the M.S. Program in Molecular Biology and Microbiology are a grade point average (GPA) of at least 3.0 for the last 60 attempted semester hours of undergraduate study and a score of at least 1000 on the combined quantitative-verbal sections of the Graduate Record Exam (GRE). Additionally, the department requires three letters of recommendation plus a written statement of past experience and research, area of interest, and immediate and long-range goals. Personal interviews are helpful but not required. The department requires international students and students whose native language is not English to have a minimum score of 213 (computer-based test) or 550 (paper-based test) on the Test of English as a Foreign Language (TOEFL).

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 Biochemistry, Cell and Molecular Biology Test score at or above the 50th percentile. In no case will GRE scores (verbal, quantitative, or advanced) older than five years be accepted.

Applicants need not have an undergraduate degree in molecular biology or microbiology but are expected to have the equivalent of 16 semester hours credit in biological sciences including a course in general microbiology, plus one year of organic chemistry, one year of physics, basic university mathematics and statistics, and laboratory skills equivalent to the minimum required of our own undergraduates. Minor deficiencies may be remedied after acceptance by enrollment at the first opportunity in an appropriate course.

Examinations

A comprehensive examination is required of all students in the M.S. program. The comprehensive exam must be taken no later than the fourth week of that semester after the one in which the student completes all course work in the program of study. If a student fails the comprehensive examination, a minimum of four weeks must elapse before reexamination. The comprehensive exam may be taken a maximum of two times. In addition, an oral thesis defense is required. A minimum of four weeks must elapse between the comprehensive and thesis defense examinations.

Degree Requirements

The course and credit requirements will consist of a minimum of 30 semester hours of credit, including six credits of Thesis, two credits of Graduate Seminar, and such other courses as specified by the student’s graduate committee in the approved Program of Study.

Molecular Biology and Microbiology
MCB 5205 Infectious Processes (3 hours)
MCB 5225 Molecular Biology of Disease (3 hours)
MCB 5487 Current Topics in Molecular Biology (3 hours)
MCB 5505 Virology (3 hours)
MCB 5654 Applied Microbiology (3 hours)
MCB 6407C Laboratory Methods for Molecular Biology (5 hours)
MCB 6417C Microbial Metabolism (3 hours)
MCB 6938 Seminar (1-2 hours)
MCB 6971 Thesis (1-6 hours)
PCB 5026 Signal Transduction Mechanics (3 hours)
PCB 5235 Immunopathology (3 hours)
PCB 5239 Tumor Biology (3 hours)
PCB 5806 Endocrinology (3 hours)
ZOO 5745C Essentials of Neuroanatomy (4 hours)

Summary of M.S. Degree Requirements

Admission
- 3.0 grade point average (GPA) for the last 60 attempted semester hours at the undergraduate level and 1000 on the GRE (quantitative and verbal)
- Three letters of recommendation
- Minimum score of 213 (computer-based test) or 550 (paper-based test) on the Test of English as a Foreign Language (TOEFL)
- 16 semester hours in biological sciences, including one course in general microbiology, plus one year of organic chemistry, one year of physics, basic university math and statistics, and lab skills equivalent to the minimum of undergraduates at UCF

Examination
- Comprehensive covering all course work in program of study
- Final thesis defense

Degree Requirements
Minimum of 30 semester hours, including six (6) semester hours of thesis, and two (2) semester hours of graduate seminars (one-half at 6000 level).

School of Nursing

Graduate Program Coordinator: Mary Lou Sole, Ph.D., RN, FAAN, HPA 220, (407) 823-2744.
E-mail: msole@pegasus.cc.ucf.edu

Master of Science in Nursing

Nursing Leadership and Management—41 Semester Hours
Nurse Practitioner (Family or Adult)—46 Semester Hours

The Master of Science in Nursing (M.S.N.) programs are designed to build upon the student’s baccalaureate nursing education and professional experience. The goals of the programs are to prepare advanced nurse practitioners and nursing leaders and managers to assume leadership positions in a variety of health care settings. Students are admitted to the programs in the fall semester. Students in the RN to MSN option may be admitted in the spring semester. The Master of Science program is accredited by the National League for Nursing Accrediting Commission (NLNAC).

This program will prepare the student to:
- Analyze theories as they apply to the profession, health care system, and political systems.
- Analyze social, economic, ethical, legal, and political issues influencing nursing practice and health care delivery.
- Synthesize advanced knowledge from the sciences, the humanities, and nursing theories to support advanced nursing practice.
- Participate in research and disseminate research findings.
- Use nursing research findings to improve nursing practice.
- Demonstrate critical thinking skills in planning, evaluating, and changing the delivery of health care.
- Develop and implement leadership, management, and teaching strategies for the improvement of health care.
- Collaborate with others to improve the quality of professional nursing practice and the health care system.
- Assume responsibility for improving the delivery of health care and influencing health policy.
- Practice in an advanced nursing role. (Graduates of the practitioner program are eligible to sit for the ANA certification examination and apply for licensure as an ARNP in Florida.)

Application Deadlines

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<th>March 15</th>
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<td>Spring admission</td>
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Admission

Requirements for admission to the program include the following:
- A baccalaureate degree in nursing from a program accredited by the NLNAC or AACN
- An overall grade point average of 3.0 (on a 4.0 scale) for upper-division undergraduate work (usually the last 60 attempted semester hours)
- A minimum combined GRE score of 1000 on the verbal and quantitative exams
- Licensure as a Registered Nurse in Florida
- One year (or equivalent) experience as a Registered Nurse
- Completion of undergraduate courses in statistics and health assessment
- A personal statement describing interest in the field and career goals
- A resume (no longer than 2 pages)
• Three references; at least one should be from a former faculty member
• Score of 173 (computer-based test) or 500 (paper-based test) on the Test of English as a Foreign Language (TOEFL) or passing score on CGFNS (international students only)

Degree Requirements

Graduate students must complete a minimum of 41-46 semester hours of graduate-level course work, depending on major. Either a thesis or research project is required.

Required Courses for All Students—14-17 Semester Hours
NGR 5XXX Nursing Theory/Research I (4 hours)
NGR 5XXX Nursing Research II/Statistics (4 hours)
NGR 5XXX Roles and Issues in Advanced Practice Nursing I (1 hour)
NGR XXXX Roles and Issues in Advanced Practice Nursing II (1 hour)
NGR XXXX Roles and Issues in Advanced Practice Nursing III (1 hour)
NGR 6971/6813 Thesis or Research Scholarly Work (3-6 hours)

Requirements for Nurse Practitioner Majors—46 Semester Hours
NGR 5141 Pathophysiology (3 hours)
NGR 6192 Pharmacology (3 hours)
NGR XXXX Advanced Health Assessment, Health Promotion and Diagnostic Reasoning (5 hours)
NGR XXXX Advanced Practice Nursing: Primary Care for Adults and Communities (6 hours)
NGR XXXX Advanced Practice Nursing: Children, Adolescents, and Families (FNP) OR NGR XXXX Advanced Practice Nursing: Care of Adults with Complex Problems (Adult NP) (6 hours)
NGR XXXX Advanced Practice Practicum (6 hours)
Elective (0-3 hours)
Required Courses (listed above) (14-17 hours)

Requirements for Nursing Leadership and Management Majors—41 Semester Hours
HSA 5198 Information Systems and Computer Applications (3 hours)
NGR 5720 Organizational Dynamics (3 hours)
NGR 6722 Financial Management and Resource Development (3 hours)
NGR XXXX Nursing Leadership and Management I (4 hours)
NGR XXXX Nursing Leadership and Management II (5 hours)
Electives (6-9 hours)
Required courses (listed above) (14-17 hours)

RN to MSN Track

The RN-MSN track is an accelerated program for RNs who do not hold a baccalaureate degree in Nursing (BSN). This program is designed for students who have met general education requirements, and who have demonstrated above-average performance in prior undergraduate course work (minimum of 3.0 GPA), and have the potential for success in graduate school. Students will meet both BSN and MSN objectives.

The RN to MSN option is available for tracks in Nursing Leadership and Management and Nurse Practitioner. The program may be offered on either the main campus or the Daytona campus. Check with the School of Nursing regarding when and where these offerings may be available.

Admission Requirements—Limited Access

Acceptance to the university does not constitute admission to the accelerated RN-MSN track. Separate information packets are available from the School of Nursing with explanations of the courses of study. All applicants must meet the following criteria:

• Graduate of a state-approved or accredited associate degree or diploma nursing program
• Licensure as an RN in the state of Florida
• Completion of UCF general education requirements or AA degree from a Florida school, including CLAST
• Completion of prerequisites for the RN-BSN (undergraduate statistics)
• Minimum cumulative GPA of 3.0
• Letter of intent to pursue accelerated master’s (RN-MSN track)
• Interview with School of Nursing to assess interest, motivation, and ability to succeed in graduate school

Interim Requirements

• Completion of the GRE by the end of the second semester in the program

Admission Requirements for Graduate Nursing Phase

• Completion of requirements/credits for the baccalaureate degree in nursing, including health assessment course
• Completion of all UCF School of Nursing course work to date with a minimum GPA of 3.0
• One year of clinical experience as an RN prior to the first graduate clinical course
• A minimum combined GRE score of 1000 on the verbal/quantitative exams
• Updated resume
• Three references

RN to MSN Program of Study: Nursing Leadership and Management

Courses taken toward BSN—50 Semester Hours
NUR 3065 Health Assessment (3 hours)
NUR 3809 Transitional Concepts in Nursing I (3 hours)
NUR 4636C Community as the Continuum of Care (3 hours)
NUR 4636L Clinical Practice in the Community (2 hours)
NUR 4837 Health Care Issues, Policy and Economics (3 hours)
The College of Health and Public Affairs offers its graduate students a wide range of research facilities, including a hospital simulation lab.
NUR 4836 Professional Development Seminar (3 hours) (NUR 4084)
NUR 4838L Directed Nursing Practicum in Administration (2 hours)
XXX HSA/BA/NUR Elective (3 hours)
Validated credit for previous nursing courses—28 hours

Courses Shared BSN/MSN—10-13 Semester Hours
HSA 5198 Information Systems and Computer Applications or graduate elective (3 hours)
NGR 5720 Organizational Dynamics (3 hours) (NUR 4827)
NGR XXXX Nursing Theory/Research I (4 hours) (NUR 3165)
Graduate Elective (0-3 hours)

Courses taken toward MSN—25-31 Semester Hours
NGR XXXX Research II/Statistics (4 hours)
NGR 6722 Financial Management and Resource Development (3 hours)
NGR XXXX Nursing Leadership and Management I (4 hours)
NGR XXXX Nursing Leadership and Management II (5 hours)
NGR XXXX Roles and Issues in Advanced Practice Nursing I (1 hour)
NGR XXXX Roles and Issues in Advanced Practice Nursing II (1 hour)
NGR XXXX Roles and Issues in Advanced Practice Nursing III (1 hour)
Graduate Electives (3-6 hours)
NGR 6971/6813 Thesis or Research Scholarly Work (3-6 hours)

Post-Master’s Certificate in Family or Adult Nurse Practitioner
The Post-Master’s Certificate option is designed to prepare nurses, who already have a master’s degree in nursing, as either Family or Adult Nurse Practitioners. The program is 18 credits and includes 600 hours of clinical practice.

Prerequisites or Co-requisites
The following three graduate-level courses are prerequisites or co-requisites for the program. Courses can be incorporated into the plan of study.
NGR XXXX Advanced Health Assessment, Health Promotion, and Diagnostic Reasoning (5 hours)
NGR 5141 Pathophysiology (3 hours)
NGR 6192 Pharmacology (3 hours)

Admission Requirements
Requirements for admission to the program include the following:
• A master’s degree in nursing from a program accredited by NLNAC or AACN
• Licensure as a Registered Nurse in Florida
• One year (or equivalent) experience as a Registered Nurse
• Completion of undergraduate health assessment course

Application Process
The following information must be submitted in one packet to Graduate Admissions in order to be considered:
• Nondegree application from Graduate Admissions
• Official transcripts of graduate course work showing awarding of master’s degree (enclose an official sealed copy with your application)
• Health Form (Upon acceptance to the program, you will be required to fill out another form for our records.)
• A resume (no longer than 2 pages)
• Copy of RN License

Program of Study—18 Semester Hours

NGR XXXX Advanced Practice Nursing: Primary Care for Adults and Communities (6 hours)
NGR XXXX Advanced Practice Nursing: Children, Adolescents and Families (FNP) (6 hours) OR
NGR XXXX Advanced Practice Nursing: Care of Adults with Complex Problems (Adult NP) (6 hours)
NGR XXXX Advanced Practice Practicum (6 hours)

Additional Information

Information about tuition, fees, and length of nursing program can be obtained from the National League for Nursing Accrediting Commission, 61 Broadway Street, New York, NY 10006; phone: (800) 669-9656, ext. 153.

Public Administration

Graduate Program Coordinator: Melvin Rogers, M.P.A., HPA 343, (407) 823-2604. E-mail: mrogers@pegasus.cc.ucf.edu

Master of Public Administration

The Department of Public Administration’s Master of Public Administration (M.P.A.) degree program provides opportunities for students to prepare for employment or advance their careers as public administrators. Our intention is to produce graduates equipped with the public management skills and analytical techniques needed for successful careers in government, nonprofit, and closely related business fields.

Application Deadlines

Fall admission July 1
Spring admission December 1
Summer admission April 1

Admission

The Graduate Record Examination (GRE) is required of all graduate students. Minimum requirements for regular admission are (1) a grade point average (GPA) of 3.0 for the last 60 attempted semester hours of undergraduate study, (2) a grade point average of 3.0 in a previous graduate degree, or (3) a total score of 1000 or higher on the verbal-quantitative sections of the GRE. A limited number of students who do not meet these requirements but who do have at least a 2.5 GPA and an 800 GRE score may be admitted on a provisional basis. These students must demonstrate proven public sector leadership experience, present strong recommendations from either academic or professional advisers, and provide a clear statement of education goals. More specific information on provisional admissions may be obtained from the department. Individuals whose native language is other than English are required to have a minimum score of 213 (computer-based test) or 550 (paper-based test) on the Test of English as a Foreign Language (TOEFL). Students are expected to be computer literate upon entry to the program or are expected to obtain these skills immediately upon admission to the program.

Degree Requirements

The M.P.A. Program consists of 42 hours. Each student completes a core of nine courses (27 hours), an advanced curriculum of four courses (12 hours) selected in consultation with the adviser, and a capstone experience equivalent to one course (3 hours).

Minimum Core Requirements—27 Semester Hours

PAD 6053 Public Administrators in the Governance Process (3 hours)
PAD 6035 Public Administration in the Policy Process (3 hours)
PAD 6700 Analytic Techniques for Public Administrators I (3 hours)
PAD 6701 Analytic Techniques for Public Administrators II (3 hours)
PAD 6037 Public Organization Management (3 hours)
PAD 6207 Public Financial Management (3 hours)
PAD 6227 Public Budgeting (3 hours)
PAD 6417 Human Resource Management (3 hours)
PAD 6335 Strategic Planning and Management (3 hours)

Advanced Curriculum—12 Semester Hours

An advanced curriculum of at least four courses that concentrate on a specific area germane to the practice of public administration may be taken within the Department of Public Administration or from other departments. Those elective courses offered within the department will provide an emphasis on state and local government; however, other emphases may be developed in consultation with the adviser. (Those students without practical administrative experience in the public sector are strongly advised to complete an internship (3 hours) as part of the advanced curriculum. A research report option (3 hours) is available for students wishing to complete a more substantial research project than might be accommodated in the other courses).

Capstone Experience—3 Semester Hours

Students will engage in a capstone experience intended to bring together the various areas of knowledge and skills covered in the MPA program. Students will complete this requirement through enrollment in PAD 6062, Advanced Concepts and Applications in Public Administration.
Exit Requirements
Students must achieve a GPA of 3.0 in all courses listed under minimum core requirements.

Minimum Hours Required for M.P.A.—42 Semester Hours

Graduate Certificate in Public Administration

In recognition of the special needs of the Central Florida community, the University of Central Florida has introduced a Graduate Certificate in Public Administration.

The certificate program provides graduate-level continuing education for both in-service and pre-career students. The program will (1) emphasize managerial skills essential to a local government program oriented toward an evolving metropolitan environment and (2) strengthen the student's professional standing and help open doors to management and support positions.

The certificate program is affiliated with the Master of Public Administration (MPA) program and will be administered by the Department of Public Administration. The program follows the UCF policies and procedures for graduate certificate programs.

Who may be interested?

The certificate program may be of particular interest to students who:

- Do not have post-baccalaureate degrees and are not ready for the regular graduate program in public administration
- Are public employees and have post-baccalaureate degrees in other disciplines and are interested in learning advanced knowledge and skills in public administration; and
- Are enrolled in other programs at UCF and are interested in expanding the scope of their graduate education and enhancing their professional credentials.

Admission Requirements

Any student with an undergraduate baccalaureate degree or higher from an accredited university may apply. The GRE or any other graduate-level test is not required for enrollment in the certificate program.

How is the program structured?

The program consists of 18 semester hours at the graduate level, including 5 required core courses and 1 restricted elective course. Course descriptions are available in the graduate student handbook.

Required Courses—15 Semester Hours
Students are required to take the following 5 courses.
PAD 6035 Public Administration in the Public Process
PAD 6037 Public Organization Management
PAD 6053 Public Administrators in the Governance Process
PAD 6227 Public Budgeting
PAD 6417 Human Resource Management

Restricted Elective Course—3 Semester Hours
This course must be taken from the Public Administration Department with the approval from the graduate certificate program coordinator.
PAD 5425 Dispute Resolution in the Public Sector
PAD 5427 Labor Relations in the Public Sector
PAD 5806 Local Government Operations
PAD 5807 Administrative Practice in the Public Sector
PAD 5850 Grant and Contract Management
PAD 6307 Policy Implementation
PAD 6327 Public Program Evaluation Techniques
PAD 6335 Strategic Planning and Management

Certificate Requirements

- Students must receive a grade of B or better in all six (6) courses required for the certificate.
- No graduate credit hours taken at other institutions can be applied to a certificate program at UCF.
- No internship or independent study courses may be used in a certificate program.
- Student admitted to a graduate degree program or to non-degree-seeking status are eligible to take certificate programs. Non-degree-seeking students who are enrolled in a certificate program are not eligible for tuition waivers, assistantships, fellowships, or federal financial aid.
- All courses that are offered as part of a certificate program must be graduate-level courses. All courses that count toward a certificate must receive a grade of B or better. Courses may be retaken to achieve a better grade, with the consent of the program.
- A certificate program must be completed within three years of the start of the first course in the certificate program.
School of Social Work

Graduate Program Coordinator: Kenneth Kazmerski, D.S.W., HPA 204, (407) 823-2114. E-mail: kenkaz@aol.com

Master of Social Work

The master's degree program in Social Work (M.S.W.) educates students for community-based clinical social work practice with individuals, families, and groups. The curriculum draws from a generalist perspective, and emphasizes critical thinking skills, empirically-based and accountable practice, and ethical services for clients experiencing a wide range of problems. The program prepares students for clinical practice with clients serving in a wide range of settings.

The M.S.W. program is accredited by the Council on Social Work Education.

Application Deadline

Fall admission only March 1

Admission

Students begin course work in social work in the fall semester only. Potential students make application to the UCF Office of Graduate Studies (AD 144) and take the GRE test. UCF requires the following of all applicants to the M.S.W. program:

- Bachelor's degree from an accredited institution.
- Good standing with institution last attended.
- A 3.0 or better grade point average (GPA) on a 4.0 scale for the last 60 attempted semester hours of college studies or at least 1000 on the verbal and quantitative sections of the required GRE. Applicants must take all three sections of the GRE.
- One official transcript of all undergraduate and graduate course work attempted and/or completed.
- A resume that outlines work experience.
- Three references (one academic, one employment, and one of the applicant's choice other than a family member.) If an employment reference is not available, then a personal reference may be submitted in support of graduate study. If a person graduated more than five years ago, that applicant may substitute work or personal references in place of academic references.
- One college-level course in each of the following six areas: biology with human content, English or communication, diversity, statistics, psychology, and sociology.
- A medical history report on the UCF health form.
- A typed Personal Statement. Directions for completing this statement can be obtained from the School of Social Work. In the statement the applicant describes reasons and experiences leading to the choice of social work as a profession, professional goals and interests, and strengths and limitations related to the practice of social work. Applicants also discuss an issue facing social work from the perspective of the role and responsibility of the profession in relation to that issue.

- If you are an international student, a confidential financial statement on the form provided by the Office of Graduate Studies and test results of 550 or higher on the paper test or 213 or higher on the computer test on the Test of English as a Foreign Language (TOEFL)

To be accepted into and retained in the program, students are expected to demonstrate initiative, dependability, social concern, self awareness, appreciation for diversity in others, problem solving ability, ease in relating with others, skill in writing and speaking, and professional ethics.

It is important that applicants return all the materials in the application packet in one mailing to Graduate Studies to facilitate admission decisions.

Full-time Study

The full-time program includes two years of full-time study in residence. The first year of study includes 24 semester hours in class work and 6 semester hours in field education. The second year of study includes 22 semester hours in class work and 8 semester hours in the field.

Advanced Standing

If the criteria for admission are met, applicants with baccalaureate degrees in social work from a CSWE-accredited school/program are invited to apply for Advanced Standing admission to the Master of Social Work program. Admission with advanced standing is limited to those who demonstrate the academic and professional potential to meet the demands of the program and who will have adequate preparation for M.S.W. practice with only one year of graduate study.

In advanced standing admission, a maximum of 30 undergraduate credits may be accepted as transfer credits to the M.S.W. program. These credits are accepted to meet foundation year M.S.W. requirements, which consist of courses in human behavior and the social environment, policy, research, social work practice, and social work field placement.

To be considered for advanced standing admission, the bachelor's degree must have been completed within six (6) years of the time of initial enrollment in the master's program.

Part-time Study

For students who do not have B.S.W. degree, part-time education in the foundation curriculum is available only at the Brevard and Downtown Orlando campuses. For students who have received a B.S.W. degree from a CSWE accredited college or university within six years prior to enrollment, there is also a part-time program at the main campus in the advanced clinical curriculum.
Field Education

Field instruction is an integral part of graduate social work education. It provides the student with an opportunity to test classroom knowledge as well as to develop and refine foundation and advanced practice skills. Decisions regarding field assignment are determined by the Field Coordinator. Only agency sites approved by the School of Social Work may be used for field instruction. First-year M.S.W. students complete a minimum of 448 hours in the field; advanced students complete a minimum of 608 clock hours in the agency. Part of the required field hours consists of a field seminar.

Degree Requirements

Prerequisites—18 Semester Hours
Introductory college-level courses or equivalents are required before admission into the program.

<table>
<thead>
<tr>
<th>Biology with human content</th>
<th>English or Communication</th>
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<tbody>
<tr>
<td>Psychology</td>
<td>Statistics</td>
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<tr>
<td>Sociology</td>
<td>Diversity</td>
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</tbody>
</table>

Foundation Curriculum: Generalist Social Work Practice—30 Semester Hours
SOW 5305 Social Work Practice I: Generalist Practice (3 hours)
SOW 5306 Social Work Practice II: Interventions (3 hours)
SOW 5105 Human Behavior and Social Environment I: Individuals (3 hours)
SOW 5106 Human Behavior and Social Environment II: Social Systems (3 hours)
SOW 5132 Diverse Client Populations (3 hours)
SOW 5235 Social Welfare Policies and Services (3 hours)
SOW 5404 Social Work Research (3 hours)
SOW 5432 Evaluating Social Work (3 hours)
SOW 5532 Field Education I: Generalist Practice (224 clock hours) (3 hours)
SOW 5533 Generalist Field Education II (224 clock hours) (3 hours)

Advanced Curriculum: Clinical Specialist—30 Semester Hours
SOW 6348 Clinical Practice with Individuals (3 hours)
SOW 6324 Clinical Practice with Groups (3 hours)
SOW 6612 Clinical Practice with Families (3 hours)
SOW 6123 Psychosocial Pathology (3 hours)
SOW 6246 Policy Analysis and Social Change (2 hours)
SOW 6914 Integrative Research Project in Clinical Practice (2 hours)
SOW 6355 Clinical Field Education I (304 clock hours) (4 hours)
SOW 6536 Clinical Field Education II (304 clock hours) (4 hours)
Practice Elective (3 hours)
Practice or Approved General Elective* (3 hours)

Minimum Hours Required for M.S.W.—60 Semester Hours

* Approved general elective in consultation with student's advisor and M.S.W. graduate program coordinator.
School of Optics

The School of Optics offers a graduate program in optics, photonics, and laser education and research. It is one of only three independent optics academic departments in the nation. The School of Optics offers interdisciplinary graduate programs leading to Master’s and Doctoral degrees in Optics. The Center for Research and Education in Optics and Lasers (CREOL) is integrated in the school as its research arm. The School of Optics and faculty are the primary resources for the optical physics option in the M.S. and Ph.D. program in Physics and the electro-optics option in the M.S. and Ph.D. programs in Electrical Engineering. These two option programs are offered in partnership with academic departments. The faculty also actively participate in undergraduate and graduate teaching in the Physics, Electrical and Computer Engineering (ECE), Mechanical, Materials, and Aerospace Engineering (MMAE), and Chemistry Departments.

School Administration

M. J. Soileau, Professor and Director. CREOL 206, (407) 823-6834. E-mail: MJS@creol.ucf.edu
M. G. “Jim” Moharam, Professor and Associate Director for Academic Programs, CREOL 208, (407) 823-6833. E-mail: moharam@creol.ucf.edu
Thomas O’Neal, Associate Director for Business and Administration, CREOL 109, (407) 823-6807. E-mail: oneal@creol.ucf.edu

Faculty

Bruce Chai, Professor of Optics, Physics & ECE & MMAE
Glenn Boreman, Professor of Optics & ECE
Peter Delfyett, Professor of Optics, ECE & Physics
Luis Elias, Professor of Optics & Physics
M. G. “Jim” Moharam, Professor of Optics & ECE
Martin Richardson, Professor of Optics, Physics & ECE
George Stegeman, Cobb Family Chair and Professor of Optics, Physics & ECE
William Silfvast, Professor of Optics, Physics & ECE
M. J. Soileau, Professor of Optics, ECE & Physics
C. Martin Stickle, Professor of Optics & ECE
Eric Van Stryland, Professor Optics, Physics & ECE
Boris Zeidovich, Professor of Optics & Physics
David Hagan, Associate Professor of Optics, Physics & ECE
James Harvey, Associate Professor of Optics & ECE
Guifang Li, Associate Professor of Optics, Physics & ECE
Patrick LiKamWa, Associate Professor of Optics & ECE
Aravinda Kar, Associate Professor of Optics & MMAE
Kathleen Richardson, Associate Professor of Optics, Chemistry & MMAE
Nabeel Riza, Associate Professor of Optics & ECE
Jannick Rolland, Assistant Professor of Optics, ECE & Computer Science

Research Faculty
Leonid Glebov, Associate Research Scientist
Hans Jenssen, Senior Research Scientist
Aristide Dogariu, Assistant Research Scientist

Joint Appointees
Larry Andrews, Professor of Mathematics, ECE & Optics
Kevin Belfield, Associate Professor of Chemistry & Optics
Robert Peale, Associate Professor of Physics, ECE, & Optics
Ronald Phillips, Professor of ECE, Mathematics & Optics
Mubarak Shah, Professor of Computer Science & Optics
Alfonse Shulte, Associate Professor of Physics & Optics
Arthur Weeks, Associate Professor of ECE & Optics

Programs of Study

The School of Optics offers master’s (M.S.) and doctoral (Ph.D.) degree programs in optics for qualified applicants holding undergraduate degrees in engineering, physics, or closely related fields.

The program has a large offering of optics courses ranging from optical physics to optical engineering with more than twenty-five graduate courses. Research activities are performed at the new 82,000-sq.-ft. School of Optics/CREOL building dedicated to optics, photonics, laser education, and research. The facility houses ninety research laboratories equipped with more than $40 million of state-of-the-art equipment. The School has twenty full-time academic faculty supervising more than one hundred graduate students pursuing graduate education in all facets of optics.

Application Deadlines

Fall admission (priority) February 1*
Fall admission July 15
Spring admission December 1
Summer admission April 15

* Students applying for fellowships or assistantships must apply for the fall semester by the priority date.
Master of Science in Optics

Program Coordinator: M. G. “Jim” Moharam, CREOL 208, (407) 823-6833. E-mail: moharam@creol.ucf.edu

The M.S. program is intended for students with a baccalaureate degree in optics, electrical engineering, physics, or closely related fields.

Admission Requirements

The minimum admission requirement for the M.S. program is a minimum grade point average of 3.0 (A=4.0) in the last 60 attempted semester hours of the B.S. degree. A minimum quantitative and verbal combined GRE score of 1000 is required. It is highly recommended that the applicants also take and complete the analytical section of the GRE exam. A score of 213 (computer-based test) or 550 (paper-based test) on the Test of English as a Foreign Language (TOEFL) is required if the previous degree is from a country where English is not the official language. Students with degrees in related fields may be required to take undergraduate articulation courses determined by the Associate Director on a case-by-case basis.

Degree Requirements

The Master of Science in Optics requires a minimum of 36 credit hours. There are no specifically required courses for the M.S. degree, and students are allowed considerable freedom in planning their study programs. However, it is strongly recommended that students include at least five courses from the Ph.D. core courses (designated below) into the program of study. A minimum of two optics graduate laboratory courses (optics courses with an “L” suffix) must be part of the program. One required optics laboratory may be waived if the student can demonstrate an equivalent hands-on laboratory experience. Up to nine credit hours of appropriate graduate courses from accredited universities may be transferred with approval from the school. Only courses with grades of “B” or better can be transferred. A maximum of three semester credit hours of 4000-level courses may be applied to the M.S. or the Ph.D. program. There are two options in the M.S. program, a thesis and a non-thesis option.

Thesis Option

The thesis option program requires a minimum of six credit hours of thesis, a minimum of fifteen credit hours in approved optics courses, a minimum of six credit hours of optics laboratory courses (optics courses with an “L” suffix), and up to nine credit hours in appropriate optics, engineering and sciences relevant courses. Independent study and Directed Research credit hours are not allowed towards the degree requirements. The student must prepare an approved program of study and form a thesis committee upon completion of nine credit hours. The M.S. thesis committee consists of three members with at least two faculty members from the School of Optics. Students are required to write a thesis and pass an oral exam based primarily on the topics of the thesis and course work.

Non-thesis Option

The non-thesis option program requires a minimum of 21 course credit hours in approved optics courses, a minimum of six credit hours of optics laboratory courses (optics courses with an “L” suffix), and up to nine credit hours in appropriate engineering and sciences relevant courses. Up to three credit hours of Directed Research or Research Report may be included with prior approval of the school. Students must prepare an approved program of study upon completion of nine credit hours. Students are required to pass a final comprehensive examination based primarily on the course work. The purpose of the exam is for the student to demonstrate basic knowledge of the fundamentals of optics and photonics. Currently, the comprehensive examination is the written section of the Ph.D. Qualifying Examination with an adjusted passing threshold. The exam is held twice a year in the fall and spring semesters.

Doctor of Philosophy in Optics

Program Coordinator: M. G. “Jim” Moharam, CREOL 208, (407) 823-6833. E-mail: moharam@creol.ucf.edu

The Ph.D. program is intended for students with a master’s degree in optics, electrical engineering, physics, or closely related fields who wish to pursue a career in research or academia.

Admission Requirements

The minimum admission requirement for the Ph.D. program is a minimum grade point average of 3.5 (A=4.0) in the M.S. program. A minimum combined quantitative and verbal GRE score of 1100 is required. It is highly recommended that the applicants also take and complete the analytical section of the GRE exam. A minimum score of 213 (computer-based test) or 550 (paper-based test) on the Test of English as a Foreign Language (TOEFL) is required if the previous degree is from a country where English is not the official language. Students with degrees in related fields may be required to take undergraduate articulation courses determined by the Associate Director on a case-by-case basis.

Students are required to pass a Qualifying Examination, form a dissertation committee, and submit an approved program of study typically by the end of the second academic year in the program before being admitted to full doctoral status.
The School of Optics/CREOL brings together faculty and students from the sciences and engineering and offers cohesive, interdisciplinary graduate programs in optics and lasers.
Degree Requirements

The minimum requirement for the Ph.D. degree is 57 credit hours of approved graduate course work in optics and optics-related fields and 15 credit hours of dissertation. The 57 credit hours of course work must include a minimum of 30 credit hours in approved optics courses, a minimum of six credit hours in optics laboratory courses (optics courses with an “L” suffix), and up to 21 credit hours in appropriate engineering and sciences electives. At least six credit hours must be outside the major. One required optics laboratory may be waived if the student can demonstrate an equivalent hands-on laboratory experience. A maximum of 12 credit hours of combined Independent Study and Directed Research credit hours are allowed in the program of study but they may not be applied toward the optics course requirements. Up to 36 semester credit hours of appropriate graduate courses in the M.S. program from accredited universities may be transferred with approval from the school. Only courses with grades of “B” or better can be transferred. The Ph.D. core courses are not required, but they have been designed to include a significant portion of the material upon which the Qualifying Examination is based. Consequently, students are strongly encouraged to include most of these courses in their programs of study.

Qualifying Exam

Continuation in doctoral status is contingent upon passing a qualifying examination intended to evaluate the student’s knowledge of the fundamental of optics, photonics, and lasers and their readiness for the Ph.D. program. Students are required to take the qualifying exam within two years of admission into the program. Students have two attempts to pass the qualifying exam with the second and final opportunity following at the next available exam (if needed). The qualifying exam, which is held twice per year, consists of two sections: a closed book written examination and an oral examination administered to students who pass the written exam. The written exam is composed of two three-hour closed book written exams (over two days) in the general areas of the electromagnetic foundations of optics, interference, diffraction, coherence, geometrical optics, radiation and detection, optical properties of materials, Fourier optics, lasers, electro-optics, interaction of light with matter, and other fundamental aspects of optical science and engineering.

Candidacy Exam and Dissertation Proposal

Students write a proposal of the research planned for the dissertation. An oral examination is administered by the dissertation committee in the general research area. This examination can be attempted anytime after passing the qualifying examination, and after the student has begun research. After passing the candidacy examination, the student can register for official dissertation hours. The candidacy/proposal committee, which also serves as the student’s dissertation committee, must consist of at least three faculty members from the School of Optics and a minimum of one member from outside the school.

Dissertation Defense

The student must prepare a written dissertation describing the student’s research. The dissertation oral defense examination is administered by the student’s Ph.D. dissertation committee.

Optics Courses

The following optics courses are approved to meet the optics course requirements of the program.

Recommended Core Courses

OPX 5XXX Interference and Diffraction
EEL 5453 Geometrical Optics
EEL 5443 Electro-Optics
EEL 5660 Laser Engineering
EEL 5561 Fourier Optics
EEL 5656 Radiation and Detection
PHY 5431 Optical Properties of Materials
PHY 5446 Laser Principles

Electives

CHE 5XXX Optical Material Processing and Characterization Techniques
EEL 5441 Introduction to Wave Optics
EEL 5448 Fundamentals of Optoelectronic Devices
EEL 5450C Thin Film Optics
EEL 5451L Electro-Optics Laboratory
EEL 5563 Fiber Optics Communication
EEL 6446 Optical Systems Design
EEL 6457 Advanced Topics in Electro-Optics
EEL 6560L Laser Engineering Laboratory
EEL 6564 Statistical Optics with Applications
EMA 5610 Laser Material Processing
OPX 5XXX Optical Metrology Laboratory
OPX 6XXX High Speed Photonics
OPX 6XXX Solid State Lasers
PHY 6434 Nonlinear Optics
PHY 6435 Nonlinear Guided Wave Optics
PHY 6447 Quantum Optics
PHY 6448 Specific Laser Systems
PHZ 6204 Atomic and Molecular Spectroscopy

Fellowships and Research Assistantships

National Science Foundation Graduate Traineeships, CREOL Fellowships, Litton Fellowships, and Graduate Research assistantships, as well as other university awards, are available to qualified students. The stipend ranges up $18,000 per calendar year. Full tuition (both resident and non-resident portions), estimated at $10,000 per year, is provided for students receiving graduate fellowships and research assistantships. Applications received after February 1 may not be considered.
Course Descriptions

Classification of Courses

3000-4999  Junior- and senior-level courses 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 the college.

5000-5999  Beginning graduate-level courses; may be taken by seniors with college permission.

6000-6999  Courses open only to graduate students. (Seniors, within nine hours of graduation that have a minimum 3.0 GPA, and do not register for more than twelve hours may request college permission to take a 6000-level class.)

7000-7999  Doctoral-level courses.

Florida's Statewide Course Numbering System

Courses in this catalog are identified by prefixes and numbers that were assigned by Florida's Statewide Course Numbering System. This common numbering system is used by all public post-secondary institutions in Florida and by two participating private institutions. The major purpose of this system is to facilitate the transfer of courses between participating institutions.

Each participating institution controls the title, credit, and content of its own courses and assigns the first digit of the course number to indicate the level at which students normally take the course. Course prefixes and the last three digits of the course numbers are assigned by members of faculty discipline committees appointed for that purpose by the Florida Department of Education in Tallahassee. Individuals nominated to serve on these committees are selected to maintain a representative balance as to type of institution and discipline field or specialization.

The course prefix and each digit in the course number have meaning in the Statewide Course Numbering System (SCNS). The list of course prefixes and numbers, along with their generic titles, is referred to as the "SCNS taxonomy." Descriptions of the content of courses are referred to as "course equivalency profiles."

General Rule for Course Equivalencies

Equivalent courses at different institutions are identified by the same prefixes and same last three digits of the course number and are guaranteed to be transferable between participating regionally accredited post-secondary institution that offer the course, with few exceptions. (Exceptions are listed below.)

For example, a survey course in social problems is offered by 31 different post-secondary institutions. Each institution uses "SYG .010" to identify its social problems course. The level code is the first digit and represents the year in which students normally take this course at a specific institution. In the SCNS taxonomy, "SYG" means "Sociology, General," the century digit "0" represent "Entry-Level General Sociology," the decade digit "1" represents "Survey Course," and the unit digit "0" represents "Social Problems."

In science and other areas, a "C" or "L" after the course number is known as a lab indicator. The "C" represents a combined lecture and laboratory course that meets in the same place at the same time. The "L" represents a laboratory course or the laboratory part of a course, having the same prefix and course number without a lab indicator, which meet at different times or place.

Transfer of any successfully completed course from one participating regionally accredited post-secondary institution to another is guaranteed in cases where the course to be transferred is offered by the receiving institution and is identified by the same prefix and last three digits at both institutions. For example, SYG 1010 is offered at a community college. The same course is offered at a state university as SYG 2010. A student who has successfully completed SYG 1010 at the community college is guaranteed to receive transfer credit for SYG 2010 at the state university if the student transfers. The student cannot be required to take SYG 2010 again since SYG 1010 is equivalent to SYG 2010. Transfer credit must be awarded for successfully completed equivalent courses and...
used by the receiving institution to determine satisfaction of requirements by transfer students on the same basis as credit awarded native students. It is the prerogative of the receiving institution, however, to offer transfer credit for courses successfully completed which have not been designated as equivalent.

Sometimes, as in Chemistry, a sequence of one or more courses must be completed at the same institution in order for the courses to be transferable to another institution, even if the course prefix and numbers are the same. The information is contained in the individual SCNS course equivalency profiles for each course in the sequence.

The Course Prefix

The course prefix is a three-letter designator for a major division of an academic discipline, subject matter area, or subcategory of knowledge. The prefix is not intended to identify the department in which a course is offered. Rather, the content of a course determines the assigned prefix used to identify the course. See the “Alphabetical List of Course Prefixes” on page 216.

Authority for Acceptance of Equivalent Courses

State Board of Education Rule 6A-10.024(17), Florida Administrative Code, reads:

When a student transfers among regionally accredited postsecondary institutions that participate in the common course designation and numbering system, the receiving institution shall award credit for courses satisfactorily completed at the previous participating institutions when the courses are judged by the appropriate common course designation and numbering system faculty task forces to be equivalent to courses offered at the receiving institution and are entered in the course numbering system. Credit so awarded can be used by transfer students to satisfy requirements in these institutions on the same basis as native students.

Exceptions to the General Rule for Equivalency

The following courses are exceptions to the general rule for course equivalencies and may not be transferable. Transferability is at the discretion of the receiving institution:

A. Courses in the _900- _999 series (e.g., ART 2905)
B. Internships, practica, clinical experiences, and study abroad courses
C. Performance or studio courses in Art, Dance, Theater, and Music
D. Skills courses in Criminal Justice
E. Graduate courses

College preparatory, vocational preparatory courses may not be used to meet degree requirements and are not transferable.

Questions about the Statewide Course Numbering System and appeals regarding course credit transfer decisions should be directed to Dr. David Dees in Academic Services, AD 210, Phone (407) 823-2691 or the Florida Department of Education, Office of Post-secondary Education Coordination, 1101 Florida Education Center, Tallahassee, Florida 32399-0400. Special reports and technical information may be requested by calling telephone number (850) 488-6402 or Suncom 278-6402.

Special Courses

In addition to the regular courses listed in this catalog, special courses may be available. Consult an academic advisor for details. Only admitted graduate students may take special courses except the Special Topics/Seminars (5937 and 6938) which are open to eligible students with instructor permission.

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

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<th>Special Grad</th>
<th>Grad and Prof</th>
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<tbody>
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<td>Directed Research</td>
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<td>Special Topics/Seminars</td>
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<td>Internships, Practica, Clinical Practice</td>
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<td>Study Abroad</td>
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<td>Research Report</td>
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<td>Treatise (Thesis or Research Report)</td>
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<td>Thesis—Specialist</td>
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<tr>
<td>Doctoral Research</td>
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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 taken and passed 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
EN 3(2,3)

ECI 5215C is offered by the College of Engineering (EN), carries 3 hours of credit, but requires 5 contact hours which consist of 2 hours in class and 3 hours laboratory or field work.

Availability of Courses

The University does not offer all of the courses listed in the catalog each year. The Schedule of Classes should be consulted for those courses offered each semester.

College/Department Indicator

Following the Course Number for each course is an indicator denoting the college and department responsible for the course. The college designators are AS = Arts and Sciences, BA = Business Administration, ED = Education, EN = Engineering, and HPA = Health and Public Affairs.

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Graduate Courses

Availability of Courses

The university does not offer all of the courses listed in the catalog each year. The Schedule of Classes should be consulted to determine which courses are offered each semester.

ACG 5005 BA-ACCT 3(3,0)
Financial and Managerial Accounting Concepts: PR: Acceptance into the graduate program. (Not open to Accounting majors.) The conceptual background for understanding financial statements and management accounting reports.

ACG 5206 BA-ACCT 3(3,0)

ACG 5346 BA-ACCT 3(3,0)
Cost Accounting II: PR: Acceptance for graduate study, ACG 3361, ACG 3111, FIN 3403, ECO 3411. Overhead allocation, capital budgeting and analysis. EOQ analysis, decentralization, and quantitative decision analysis.

ACG 5506 BA-ACCT 3(3,0)
Accounting for Governmental and Non-business Organizations: PR: ACG 3501, ACG 3111 and acceptance for graduate study. Study of problems and methods of applying managerial accounting concepts in a nonprofit environment.

ACG 5625 BA-ACCT 3(3,0)
Auditing and EDP: PR: Acceptance for graduate study, ACG 3111, ACG 4401, and ACG 4651. An examination of auditing procedures followed when a company uses a computer to process financial records.

ACG 5636 BA-ACCT 3(3,0)
Advanced Auditing Topics: PR: Acceptance for graduate study and ACG 4651, STA 2023. Special topics relative to the standards, practices, and procedures followed in the audit function. Includes statistical sampling, advanced computer systems, advanced applications, and reporting problems.

ACG 5675 BA-ACCT 3(3,0)
Operational Auditing: PR: Acceptance for graduate study and ACG 3111. The standards, principles, practices, and procedures followed in the internal audit function.

ACG 6255 BA-ACCT 3(3,0)
International and Multinational Accounting: PR: Graduate standing and ACG 3111. An examination of the environmental factors affecting international accounting concepts and standards. Cross-country differences in accounting treatments are compared.

ACG 6356 BA-ACCT 3(3,0)
Seminar in Cost Accounting: 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 BA-ACCT 3(3,0)
Accounting Information Systems II: 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 BA-ACCT 3(3,0)
Managerial Accounting Analysis: PR: Graduate standing and ACG 5005, or one year of accounting, and ECO 5415. (Not open to accounting majors.) Accounting as an information measurement system for internal planning and control.

ACG 6519 BA-ACCT 3(3,0)
Seminar in Governmental and Nonbusiness Accounting and Auditing: PR: Graduate standing and all foundation courses for the accounting program or equivalents. Examination of current issues and topics with emphasis on current and future developments.

ACG 6685 BA-FIN 3(3,0)
Seminar in Fraud Auditing: PR: ACG 4651 and graduate standing. Theory and techniques relating to fraud auditing and fraud examination.

ACG 6696 BA-ACCT 3(3,0)
Seminar in Auditing: PR: ACG 5636, graduate standing, and all foundation courses for the accounting program or equivalents. A study of current auditing topics.

ACG 6805 BA-ACCT 3(3,0)
Seminar in Accounting Theory: 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 BA-ACCT 3(3,0)
Seminar in Professional Accounting Issues: PR: Graduate standing and all foundation courses for the accounting program or equivalents. An examination of current issues confronting the accounting profession.

ACG 7157 BA-ACCT 3(3,0)
Seminar in Financial Accounting Research: PR: Admission to doctoral program, equivalent of master's degree in accounting or taxation, QMB 7565, and GEB 7910; and C.I. Extensive coverage of empirical literature dealing with bankruptcy prediction, earnings forecasting, income smoothing, information content, analytical review, and related financial accounting research.

ACG 7399 BA-ACCT 3(3,0)

ACG 7698 BA-ACCT 3(3,0)
Directed Research Project in Auditing: PR: Admission to doctoral program and ACG 7699, or C.I. Highly individualized research project on a specific auditing research issue. Includes proposals development, methodology, data gathering, analysis, and reporting results.
ACG 7699 BA-ACCT 3(3,0)
Seminar in Auditing Research: PR: Admission to doctoral program, ACG 7157; and C.I. A thorough review and critical analysis of auditing research literature, with emphasis on emerging research issues and methods.

ACG 7887 BA-ACCT 1(1,0)
Accounting Research Forum: PR: Admission to doctoral program. Research and pedagogical issues in accounting, including research presentations by faculty, doctoral students, and invited scholars. May be taken for 4 hours credit.

ACG 7915 BA-ACCT 3(3,0)
Directed Research in Accounting: PR: GEB 7910 and C.I. Advanced study in specialized areas of accounting research. Study designed to lead toward publishable research or student's dissertation. By definition, topical areas will vary.

ACG 7917 BA-ACCT 3(3,0)

AMH 5116 AS-HIST 3(3,0)
Colloquium in U.S. Colonial History: PR: Senior Standing or C.I. Reading and discussion of the literature on selected topics in U.S. history.

AMH 5137 AS-HIST 3(3,0)
Colloquium in U.S. Revolutionary Period: PR: Senior Standing or C.I. Reading and class discussion of the literature on selected topics in the Revolutionary Era, 1763-1789.

AMH 5149 AS-HIST 3(3,0)
Colloquium in Early U.S. History, 1789-1815: PR: Senior Standing or C.I. Reading and class discussion of the literature on selected topics of the early national period.

AMH 5169 AS-HIST 3(3,0)
Colloquium Age of Jackson: PR: Senior Standing or C.I. Intensive reading and class discussion on selected topics of the Jacksonian age.

AMH 5176 AS-HIST 3(3,0)
Colloquium in Civil War and Reconstruction: PR: Senior Standing or C.I. Intensive reading and class discussion on selected topics of the Civil War and Reconstruction era.

AMH 5219 AS-HIST 3(3,0)
Colloquium in Late 19th Century U.S.: PR: Senior Standing or C.I. Reading and class discussion of the literature on selected topics of late 19th-century U.S.

AMH 5296 AS-HIST 3(3,0)
Colloquium in 20th Century U.S.: PR: Senior Standing or C.I. Reading and class discussion on selected topics in 20th-century U.S.

AMH 5391 AS-HIST 3(3,0)
Colloquium in U.S. Cultural History: PR: Senior Standing or C.I. Students will read and discuss a common or diverse body of the significant literature in the field.

AMH 5407 AS-HIST 3(3,0)
Colloquium in American South: PR: Senior Standing or C.I. Intensive reading and class discussion on selected topics of Southern history from colonial origins to the present.

AMH 5446 AS-HIST 3(3,0)
Colloquium in U.S. Frontier: PR: Senior Standing or C.I. Reading and class discussion of the literature on selected topics of frontier history.

AMH 5515 AS-HIST 3(3,0)
Colloquium in U.S. Diplomatic History: PR: Senior Standing or C.I. A survey of the historical literature of American foreign policy. May be repeated for credit when content is different.

AMH 5566 AS-HIST 3(3,0)
Colloquium: Women in American History: Intensive reading and class discussion on selected topics of women in American history from colonial time to the present.

AMH 5937 AS-HIST 3(3,0)
AP American History: Participants will enhance their knowledge of weighing evidence and interpretations presented in historical scholarship with respect to the social, cultural, intellectual, economic, and political-diplomatic history of the U.S.

AMH 6939 AS-HIST 3(3,0)
Seminar in U.S. History: May be repeated for credit when content is different.

AML 5156 AS-ENG 3(3,0)
Modern American Poetry: Study of trends, modes, major figures (Eliot, Pound, H.D., Lawrence, Stevens, Hart, Crane, Moore, W.C. Williams, etc.) within the Modernist movement in American poetry.

ANG 5166 AS-SOC/AN 3(3,0)
Problems in Maya Studies: PR: ANG 5168 or C.I. In-depth study of current methodological, theoretical, and/or topical problems in Maya studies.

ANG 5167 AS-SOC/AN 3(3,0)
Maya Hieroglyphs: PR: ANG 5168 or C.I. The study of Maya writing, the translation of Maya hieroglyphs, and the significance of translations to reconstructions of ancient Maya culture.

ANG 5168 AS-SOC/AN 3(3,0)
The Ancient Maya: PR: Bachelor's Degree or C.I. Overview of the archaeology of the ancient Maya of Mexico, Belize, Guatemala, and upper Mexico.

ANG 5228 AS-SOC/AN 3(3,0)
Maya Iconography: PR: ANG 5168 or C.I. Study and interpretation of ancient Maya iconography as reflected in art, artifacts, and constructed features.

ANG 5324 AS-SOC/AN 3(3,0)
Contemporary Maya: PR: Bachelor's degree or C.I. Overview of the cultures and peoples comprising the contemporary Maya of Central America.

ANT 5166 AS-SOC/AN 3(3,0)
Problems in Maya Studies: PR: ANT 5166 The Ancient Maya or C.I. In-depth study of current methodological, theoretical, and/or topical problems in Maya studies. May be repeated for credit.

ANT 5168 AS-SOC/AN 3(3,0)
The Ancient Maya: PR: B.A. or C.I. Overview of the archaeology of the ancient Maya of Mexico, Belize, Guatemala, and upper Central America.

ANT 5479 AS-SOC/AN 3(3,0)
Comparative Cultural Analysis: The dynamics of cultural processes in a multi-ethnic setting.

ARE 5251 ED-IP 3(2,1)
Art for Exceptionalities: Concepts, principles, and methods of integrating art processes into the education of the physically, emotionally, and mentally handicapped.
Terrestrial Cryptogams: survey course on the biodiversity and classification of terrestrial cryptogams (bryophytes, ferns, and fern allies) with special emphasis on those found in Florida.

Botanical Systematics: PR: Graduate standing or C.I. Evolutionary processes among plant taxa and populations utilizing cytology, morphology, biochemistry, breeding systems and co-evolution.

Terrestrial Vegetation: 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.

African-American (including Latin-American) arts. Themes include research on questions regarding continuities between African and African-American arts.

Arts Advocacy: The study and development of plans to produce arts advocacy programs for the public school system.

Research Trends in Art Education: PR: EDF 6481. This course will further prepare art education graduate students to identify and review landmark research and conduct relevant art education research. May be repeated for credit.

Artistic World Views: PR: Post-Baccalaureate status, 9 hours of art courses, or C.I. Art from individuals and cultural perspectives of varying ethnic, religious, occupational, regional, and generational groups.

Contemporary Women Artists: PR: 6 credits of art courses or C.I. An in-depth study on contemporary women artists from a feminist perspective.


Orlando Art Exhibition: PR: Graduate Standing or C.I. A partnership class which focuses on the study of an Art Exhibition in an Orlando art or history museum. May be repeated for credit.

Multi-Cultural Crafts Design: The content of this course will include an appreciation for and the production of Western and non-Western art forms.

Terrestrial Cryptogams: PR: BOT 4303C or C.I. A lecture-laboratory survey course on the biodiversity and classification of terrestrial cryptogams (bryophytes, ferns, and fern allies) with special emphasis on those found in Florida.

Plant Geography and Ecology: PR: PCB 3043 or C.I. The study of the abiotic and biotic processes that control the distribution of terrestrial flora at local, landscape, and global scales.

Trends in Marine Biology: PR: C.I. This course is presented at Sea World, and each term will focus on a single topic relating to marine biology. The course requires weekend trips. May be repeated for credit.

Biological Research Resources: PR: Graduate status. Research methodology including literature resources, problem conceptualization, research proposals, data collection, and analysis and presentation of findings.

Advanced Business Instruction Techniques: PR: Graduate standing or C.I. Research, methods, and materials related to current practices in business education.

Office Simulation Techniques: PR: Basic Teacher Certificate or C.I. Methods of office simulation for teachers at the developmental and performance levels.

Seminar in Business Education: PR: Graduate standing or C.I. Current problems, issues, and trends in business education.

Practicum Business Education: PR: Graduate standing. Techniques, materials, and instructional media; evaluation and new trends of instruction in all areas of business education.

Legal and Social Environment of Business: 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.
CAP 5415 AS-COMP 3(3,0) Computer Vision: PR: COP 3530C. Image formation, binary vision, region growing and edge detection, shape representation, dynamic scene analysis, texture, stereo and range images, and knowledge representation.


CAP 5725 AS-COMP 3(3,0) Computer Graphics Systems I: PR: COP 3530C or equivalent. Architecture of graphics processors, display hardware, principles of programming and display software; problems and applications of graphic systems.

CAP 6411 AS-COMP 3(3,0) Computer Vision Systems: PR: CAP 5410. Recent systems contributing toward recognition, reasoning, knowledge representation, navigation, and dynamic scene analysis. Comparisons, enhancements, and integrations of such systems.

CAP 6412 AS-COMP 3(3,0) Advanced Computer Vision: PR: CAP 5410. Computational theories of perception, shape from IX' techniques, multi-resolution image analysis, 3-D model based vision, perceptual organization, spatiotemporal model, knowledge-based vision systems.

CAP 6613 ED-IP 3(0) Utilizing Microcomputers in Education: Instruction in microcomputers emphasizing applications of software in the classroom and for school recordkeeping.

CAP 6640 AS-COMP 3(3,0) Computer Understanding of Natural Language: PR: CAP 5601. 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 6671 AS-COMP 3(3,0) Intelligent Systems: PR: CAP 5610. 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 6676 AS-COMP 3(3,0) Knowledge Representation: PR: CAP 5636. Topics covered include terminological languages, logicist approaches, ontologies, ontological and conceptual relativity, processes, intangibles, time, building large knowledge bases, and complexity analysis.

CAP 6701 AS-COMP 3(3,0) Computer Graphic Systems II: PR: CAP 5725. Modeling design and analysis of graphics systems; data structures, numerical techniques, algorithms, and optimum seeking methods for various problems in computer graphics.

CCJ 5015 HPA-CJ/LS 3(3,0) The Nature of Crime: This course provides an overview of major dimensions of crime in the U.S.; epidemiology of crime, costs of crime, and typologies of crime and criminals.
CCJ 6934 HPA-CJ/LS Criminal Justice, Crime, & Popular Culture: PR: Graduate standing, CCJ 5456, or C.I. Explore how Criminal Justice System, Criminals, and Crime are portrayed in entertainment and news media and the effects portrayals have on society and Criminal Justice.

CCJ 6938 HPA-CJ/LS Variable Special Topics in Criminal Justice: Students are exposed to in-depth coverage of a particular contemporary problem in criminal justice, for example, the death penalty or the influence of the media on crime and punishment.

CCJ 6946 HPA-CJ/LS Criminal Justice Practicum: Students will undertake a significant research project in a criminal justice agency.

CCJ 7457 HPA-CJ/LS Seminar in Criminal Justice Theory: PR: Admission to Ph.D. program or C.I. Examination of the theoretical basis of criminal justice policies. Focus on retribution, incapacitation, deterrence, rehabilitation, and restoration.

CCJ 7930 HPA-CJ/LS Seminar in Criminal Justice Policy Analysis: PR: Admission to Ph.D. program or C.I. Criminal justice policy formulation, implementation, and evaluation, with special emphasis on problems of conceptualization and methodology.

CDA 5106 AS-COMP Advanced Computer Architecture I: PR: CDA 4150. Instruction set architectures, processor implementation, memory hierarchy, pipelining, computer arithmetic, vector processing, and I/O.

CDA 5110 AS-COMP Parallel Architecture and Algorithms: PR: COT 4210, CDA 5106. General-purpose vs. special-purpose parallel computers: arrays, message-passing, shared-memory; taxonomy; parallelization techniques; communication synchronization and granularity; parallel data structures; automatic program restructuring.

CDA 5215 AS-COMP Architecture and Design of VLSI: PR: CDA 4150 or equivalent. Overview of VLSI technology. Logical design of basic subsystems; integrated system design tools; design of a VLSI computer system.


CDA 6107 AS-COMP Advanced Computer Architecture II: PR: CDA 5106. Multiprocessor systems; interconnection network; stack architectures; high-level language architecture; design languages; performance evaluation.

CDA 6108 AS-COMP Selected Topics in Computer Architecture: PR: CDA 5106. Selected research papers on multiprocessors, database machines, virtual machines, ultra-computer; connection machine, MPP; Butterfly flow architectures, object-based architectures, fault tolerant architectures.

CDA 6211 AS-COMP VLSI Algorithms and Architecture: PR: CDA 5210. VLSI algorithms, algorithms on regular geometries, hierarchically organized machines; illustrative algorithms: Matrix, DFT, recurrence evaluation, pattern matching, searching, sorting, graph, etc.; area-time complexity issues.

CDA 6520 AS-COMP Computer Networks Design and Distributive Processing: PR: CDA 5501 and COP 5611. Computer communications networks design considerations, network operating system, distributive processing.

CEG 5015 EN-CEE Geotechnical Engineering II: PR: CEG 4101C. Continuation of CEG 4101C with emphasis on shear strength and design factors for earth pressures, bearing capacity, and slope stability.

CEG 5700 EN-CEE Geo-Environmental Engineering: PR: CEG 4101C. Geotechnical applications to environmental problems, groundwater flow, soil contamination and groundwater contaminate transport, geosynthetic and stability of landfill design, control of contaminated sites.

CEG 6065 EN-CEE Soil Dynamics: PR: CEG 4101C. Comprehensive coverage in calculating the dynamic response of foundations, presenting a variety of contemporary techniques for fields and laboratory.


CEN 5016 AS-COMP Software Engineering: PR: COP 4020 and knowledge of Ada. Study of design techniques for large software systems, modularization, task assignment, management techniques, implementation techniques, testing, quality control, documentation, and maintenance.

CEN 5325 EN-CEE Geotechnical Engineering II: PR: CEG 4101C. Mechanics of soils and models; elasticity and plasticity of soil bodies; strength of soils and stability of soil structures.

CEN 5606 EN-CEE Advanced Steel Structures: PR: CEN 4605. Behavior and design of steel buildings: emphasis on AISC-LRFD building code; complex connections, tension members, stability of compression members, laterally unsupported beams, frames, and beam columns.

CES 5706 EN-CEE Advanced Reinforced Concrete: PR: CEN 4702 or C.I. Design of frames, two-way floor systems, shear walls; shear and torsion; compression field theory; inelastic analysis; wind and seismic design; introduction to prestressed concrete.

CES 5821 EN-CEE Masonry and Timber Design: PR: C.I. Structural properties of masonry and timber; design loads-codes and standards; analysis for axial loads, flexure and shear.
CENG 6116 EN-CEE 3(3,0)
Finite Element Structural Analysis: PR: CENG 4101 or C.I. Concept, theory, and application of the finite element method; analysis of one-, two-, and three-dimensional structural components and systems; stability and dynamics; applications.

CENG 6170 EN-CEE 3(3,0)
Boundary Element Methods in Civil Engineering: PR: C.I. Green’s theorems; integral formulations for two- and three-dimensional problems; applications to structural and geomechanics problems; programming.

CENG 6209 EN-CEE 3(3,0)
Dynamics of Structures: PR: C.I. Response analysis of single and multi-degree-of-freedom systems to periodic and non-periodic excitations; continuous systems; response spectra; applications to structural engineering.

CENG 6218 EN-CEE 3(3,0)

CENG 6220 EN-CEE 3(3,0)
Wind and Earthquake Engineering: PR: CENG 6209 or C.I. Wind characteristics; wind effects on structures; dynamic analysis for wind loads; nature of earthquake forces; response spectra and seismic design; wind and seismic codes.

CENG 6230 EN-CEE 3(3,0)
Advanced Structural Mechanics: PR: C.I. Review of biaxial bending and torsion; plate bending; theory of elasticity, visco-elasticity and plasticity; anisotropic elasticity and stability.

CENG 6715 EN-CEE 3(3,0)
Prestressed Concrete Structures: PR: CENG 4702 and CENG 5706 or C.I. Prestressed concrete behavior and design; applications in building and bridge design including pre- and post-tensioned girders, floors, roofs, and walls.

CENG 6840 EN-CEE 3(3,0)
Composite Steel Concrete Structures: PR: CENG 5606 and CENG 5706 or C.I. Fundamentals of composite action; high performance materials, design of composite beams, slabs, beam-columns, joints; applications of prestressing; composite buildings and bridges; construction methods.

CENG 6910 EN-CEE 3(3,0)
Research in Structural Engineering: PR: C.I. Behavior and design of steel, concrete, or composite structures under cyclic, wind, earthquake, impact, or blast loading.

CGN 5320C EN-CEE 3(2,2)
Geographic Information Systems: Programming theory and application of Geographic Information Systems to Civil Engineering projects.

CGN 5504C EN-CEE 3(2,2)
Civil Engineering Materials: PR: EGN 3365, EGN 3331, or C.I. Structure, properties, and applications of materials used in civil engineering including concrete, steel, asphalt, wood, soils, and composite materials.

CGN 5506C EN-CEE 3(2,2)
Asphalt Concrete Mix Design: PR: CEG 4101C. Properties of asphalt, aggregate and asphalt mixtures, Marshall mix design, Hveem mix design, pavement rehabilitation.
Graduate Courses 225

CHS 5250  AS-CHEM  2(2,0)
Chemical Synthesis I: PR: CHM 2211, 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 5262  AS-CHEM  2(2,0)
Industrial Chemical Processes: PR: CHM 3211 and 3411. Familiarization with basic considerations of large-scale inorganic and organic chemical manufacturing techniques, raw materials, and the petrochemical industry.

CHS 6240  AS-CHEM  2(2,0)
Chemical Thermodynamics: PR: CHM 3411 or equivalent. Classical and statistical thermodynamics with emphasis on industrial applications and estimation methods.

CHS 6251  AS-CHEM  2(2,0)

CHS 6260  AS-CHEM  2(2,0)
Chemical Unit Operations and Separations: PR: C.I. A study of the elements and dynamics that are fundamental to industrial separation methods and transport processes.

CHS 6261  AS-CHEM  2(2,0)
Chemical Process and Product Development: PR: C.I. Development of chemical products and processes including the determination of technical economic feasibility; use of experiment design in the optimization of variables and scale-up methods.

CHS 6513  AS-CHEM  3(3,0)
QA & Bioinformation: PR: C.I. and satisfaction of statistics and biology requirements. Principles of Quality Assurance, a description of current industrywide standards and procedures for locating, evaluating, and processing information about DNA.

CHS 6535  AS-CHEM  2(2,0)
Forensic Analysis of Biological Materials: PR: PCB 4524, C.I., and satisfaction of statistics and biology requirements. A lecture course for forensic biologists covering the procedures for recovering and typing DNA from evidentiary materials and the interpretation of data.

CHS 6535L  AS-CHEM  3(1,6)
Forensic Analysis of Biological Materials: PR: CHS 6535, PCB 4524, C.I. and satisfaction of biology requirements. A laboratory course for forensic molecular biologists covering the procedures for recovering and typing DNA from evidentiary materials.

CHS 6536  AS-CHEM  2(2,0)
Forensic Analysis of DNA Data: PR: C.I. and satisfaction of statistics and biology requirements. A lecture course for forensic scientists covering the analysis of laboratory derived DNA data and how they can be applied in an occupational context.

CHS 6613  AS-CHEM  3(3,0)
Current Topics in Environmental Chemistry: PR: CHM 2045, CHM 2046, or the equivalent of a B.S. in biological, molecular, chemical or engineering sciences, or C.I. Advanced principles of environmental chemistry, environmental law, current remediation technologies and industrial practices relating to the environment.

CIS 6611  AS-COMP  3(3,0)
Software Engineering II:
CLP 6491C AS-PSYCH 3(2,2)
Treatment Development: PR: Acceptance to Clinical Psychology Ph.D. program or C.I. Major preventative treatment approaches, including the appropriate uses of manualized/modular therapy. Studies participate in a faculty member's treatment development program. This course is intended for the Ph.D. in Clinical Psychology; in certain instances graduate students in other programs may enroll.

CLP 6932 AS-PSYCH 3(3,0)
Ethical and Professional Issues in Mental Health Practices: PR: Graduate admission, C.I. Examination of codes of ethics, laws, and professional standards in the mental health field.

CLP 6943C AS-PSYCH 2(2,8)
Clinical Practicum: PR: Acceptance to Clinical Psychology Ph.D. program or C.I. Clinical activities performed in an approved university or community setting under faculty/staff supervision. This course is intended for the Ph.D. in Clinical Psychology; in certain instances graduate students in other programs may enroll. May be repeated for credit.

CLP 6944 AS-PSYCH 3(3,0)
Clinical Supervision Seminar/Practicum: PR: Acceptance to Clinical Psychology Ph.D. program or C.I. The concepts and skills needed to be a clinical supervisor. Includes applications, ethics, and professional responsibilities in a multicultural context. This course is intended for the Ph.D. in Clinical Psychology; in certain instances graduate students in other programs may enroll.

CLP 6949 AS-PSYCH 2(0,40)
Predoctoral Internship: PR: Acceptance to Clinical Psychology Ph.D. program or C.I. Placement in an approved setting on a full-time basis for one calendar year. Required of all clinical Ph.D. students. This course is intended for the Ph.D. in Clinical Psychology; in certain instances graduate students in other programs may enroll.

COM 6106 AS-COMM 3(3,0)
International Communication: Case studies on global communication, coping with cultures, communicating across cultures, global media, global news flow and persuasive communication. May be repeated for credit.

COM 6121 AS-COMM 3(3,0)

COM 6303 AS-COMM 3(3,0)
Communication Research I: Analysis of theory and methodology in communication research, with emphasis on persuasion, nonverbal communication, and interpersonal communication.

COM 6304 AS-COMM 3(3,0)
Communication Research II: PR: Statistics and COM 6303. Planning and implementation of research in persuasion, nonverbal communication, and interpersonal communication.

COM 6468 AS-COMM 3(3,0)
Communication and Conflict: Research seminar in the study of communication and conflict.

COP 5021 AS-COMP 3(3,0)

COP 5570 AS-COMP 3(3,0)
Software Tools: PR: COP 4600 and COP 5021. Systems programming languages, concurrent programming, design and implementation of software development/maintenance tools. A large programming project is required.

COP 5611 AS-COMP 3(3,0)
Operating Systems Design Principles: PR: COP 4600. Structure and functions of operating systems, process communication techniques, high-level concurrent programming, virtual memory systems, elementary queuing theory, security, distributed systems, case studies.

COP 5711 AS-COMP 3(3,0)
Parallel and Distributed Database Systems: PR: COP 4710. Storage manager, implementation techniques for parallel DBMSs, distributed DBMS architectures, distributed database design, query processing, multidatabase systems.

COP 6614 AS-COMP 3(3,0)
Operating Systems Techniques: PR: COP 5611. Techniques in the design and implementation of operating systems. Case studies of several experimental and commercial operating systems.

COP 6615 AS-COMP 3(3,0)
Compiler Construction: PR: COP 5021, COP 5310. Techniques in the design and implementation of compilers. Optimization, code generation, error recovery, attributed grammars. A project is required.

COP 6730 AS-COMP 3(3,0)

COP 6731 AS-COMP 3(3,0)
Advanced Database Systems: PR: COP 5711. Selected topics concerning object-oriented databases, multimedia databases, active databases, temporal databases, spatial databases, and information systems.

COT 5310 AS-COMP 3(3,0)
Formal Languages and Automata Theory: PR: COP 4020 and COP 4210. Classes of formal grammars and their relation to automata, normal forms, closure properties, decision problems, LR(K) grammars.

COT 5405 AS-COMP 3(3,0)

COT 5507 AS-COMP 3(3,0)
Computational Methods/Applications: PR: COP 4500. Computational solution techniques for algebraic equations, ODE and PDE Models of applications selected from science, engineering, applied mathematics, and computer science.

COT 5510 AS-COMP 3(3,0)
Computational Methods/Linear Systems: PR: COP 4500 and MAS 3113. Mathematical models for linear systems, lineal programming, the simplex method, integer and mixed-integer programming, introduction to nonlinear optimization and linearization.
### Graduate Courses 227

#### COT 5520 AS-COMP 3(3,0)
**Computational Geometry:** CR: COT 5405. Geometric searching, point location, convex hulls, proximity problems, Voronoi diagrams, spanning trees, triangulation, intersection arrangement applications.

#### COT 6300 AS-COMP 3(3,0)
**The Theory of Parsing and Translation:** PR: COT 5310. Methods of top-down and bottom-up parsing, LL(k), recursive descent, precedence, bounded-context, SLR(k), LALR(k), LR(k), parser compression and generation.

#### COT 6410 AS-COMP 3(3,0)
**Computational Complexity:** PR: COT 5405. 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 6415 AS-COMP 3(3,0)
**Complexity of Parallel Computation:** PR: CDA 5110, COT 6410. Theoretical models – justification and buildability inherent parallelism and communication costs. Lower and upper complexity bounds. Parallel computation thesis. NC, SC classes; paradigms of parallel algorithms.

#### COT 6505 AS-COMP 3(3,0)
**Computational Methods/Analysis I:** PR: COT 5515. Analysis of direct and iterative solutions of systems of linear equations, eigenvalues and vectors and roots of nonlinear equations, error analysis.

#### CPO 6091 AS-POLS 3(3,0)
**Seminar in Comparative Politics:** 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.

#### CRW 5020 AS-ENG 3(3,0)
**Graduate Writers’ Workshop:** Student writers present their own work, receiving detailed analysis of its strengths and weaknesses from their fellow writers and from the teacher.

#### CRW 5932 AS-ENG 3(2,1)
**Teaching Creative Writing:** PR: C.I. Creative writing practicum. May be repeated for credit.

#### CRW 6025 AS-ENG 3(3,0)
**Graduate Writing Workshop:** PR: Admission to the Creative Writing Specialization of the English M.A. program. Writing and revising in one established form. Graduate Writing Workshop must be taken three times (for a total of 9 hours) in order to produce a book-length manuscript (fiction, poetry, or other genre). May be repeated for credit.

#### CWR 5205 EN-CEE 3(3,0)
**Hydraulic Engineering:** PR: CWR 4101C and CWR 4203C. Concepts of fluid mechanics and hydrodynamics applied to natural and man-made flow of intent to civil and environmental engineering.

#### CWR 5355 EN-CEE 3(3,0)
**Groundwater Hydrology:** PR: CWR 4203C or equivalent. Theories of groundwater movement, geological factors, analysis and design techniques, etc. Emphasis on practical considerations.

#### CWR 6125 EN-CEE 3(3,0)
**Groundwater Modeling:** PR: CWR 6125. Review of contemporary computer-based groundwater flow models and their application to environmental engineering problems.

#### CWR 6235 EN-CEE 3(3,0)
**Open Channel Hydraulics:** PR: CWR 4203C or C.I. Free surface flow studies by empirical and theoretical methods for the design, operation, and management of open channels.

#### CWR 6236 EN-CEE 3(3,0)
**River Engineering and Sediment Transport:** PR: CWR 4203C and CWR 4101C. River morphology and regime with stabilization and modification of river courses. Sediment transport including control methods and modeling.

#### CWR 6635 EN-CEE 3(3,0)
**Modeling Water Resources Systems:** PR: CWR 4101C and CWR 4203C. Contemporary mathematical models for water quality and quantity considerations including computer-based hydraulic and hydrologic models.

#### CWR 6539 EN-CEE 3(3,0)
**Finite Differences/Elements in Surface Water Modeling:** PR: C.I. Theory, applications and error analysis for two commonly employed discretization methods as applied to surface water modeling.

#### CYP 6948 AS-PSYCH 3(2,20)
**Psychology Internship:** PR: Graduate admission, second-year status, and C.I. Supervised placement in community setting for 8-20 hours per week. May be repeated for credit.

#### DEF 5057 AS-PSYCH 3(3,0)
**Developmental Psychology:** PR: Graduate admission or C.I. Psychological aspects of development including intellectual, social, and personality factors.

#### EAB 5765 AS-PSYCH 3(3,0)
**Applied Behavior Analysis with Children and Youth:** PR: DEF 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.

#### EAS 5123 EN-MMAE 3(3,0)
**Intermediate Aerodynamics:** PR: EAS 4134; CR: EML 5060. Aerodynamic characteristics of airfoils, finite wings, waves, wing-body combinations, viscous flow and flow instabilities. Airfoil design.

#### EAS 5157 EN-MMAE 3(3,0)
**V/Stol Aerodynamics and Performance:** PR: EAS 4105; CR: EML 5060. Momentum theory, blade element theory, hover and forward flight, stability, aerelasticity.

#### EAS 5302 EN-MMAE 3(3,0)
**Direct Energy Conversion:** PR: EML 3101 and EML 4142. Direct methods of energy conversion; particular emphasis on fuel cells, thermoelectrics, thermionics, solar energy, photovoltaics and magnetohydrodynamics. Analysis and systems design.

#### EAS 5315 EN-MMAE 3(3,0)
**Rocket Propulsion:** PR: EAS 4134 or EML 4703. Analysis and performance of rocket motors; selection and thermochemistry of chemical propellants; liquid and solid propellant rockets.
### Graduate Courses

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Department</th>
<th>Title</th>
<th>Credits</th>
<th>Prerequisites</th>
</tr>
</thead>
<tbody>
<tr>
<td>EAS 6138</td>
<td>EN-MMAE</td>
<td>Advanced Gas Dynamics</td>
<td>3(3,0)</td>
<td>EML 5713 or EML 5060. Analysis of steady and unsteady transonic, supersonic and hypersonic flows. Shock waves, nozzles, diffusers, and high speed wind tunnels.</td>
</tr>
<tr>
<td>EAS 6185</td>
<td>EN-MMAE</td>
<td>Turbulent Flow</td>
<td>3(3,0)</td>
<td>EML 5060 and EML 5713. Phenomena and methods of characterizing turbulence; spatial and temporal velocity correlation; energy spectra; transition prediction; turbulent boundary layer equations; hot wire and LDV measurement techniques.</td>
</tr>
<tr>
<td>EAS 6507</td>
<td>EN-MMAE</td>
<td>Topics of Astrodynamics</td>
<td>3(3,0)</td>
<td>EML 5271 or C.I. Spacecraft attitudes. Optimal control of aerospace vehicles. Emphasis on recent developments and applications.</td>
</tr>
<tr>
<td>ECM 5135</td>
<td>EN-ECE</td>
<td>Engineering Math Analysis I</td>
<td>3(3,0)</td>
<td>MAP 2302. Topics in advanced engineering mathematics, including systems of differential equations, phase plane, linear algebra, and vector differential calculus.</td>
</tr>
<tr>
<td>ECM 5741C</td>
<td>EN-ECE</td>
<td>Microcomputer-based Monitoring and Control Systems</td>
<td>3(2,3)</td>
<td>EEL 3342 or EEL 4767C or C.I. Machine language programming; software development aids; systems design; interfacing considerations.</td>
</tr>
<tr>
<td>ECM 6235</td>
<td>EN-ECE</td>
<td>Engineering Math Analysis II</td>
<td>3(3,0)</td>
<td>EEL 5135. Advanced engineering math topics including Fourier series, partial differential equations, and complex variables.</td>
</tr>
<tr>
<td>ECO 5005</td>
<td>BA-ECON</td>
<td>Economic Concepts</td>
<td>3(3,0)</td>
<td>Acceptance into the graduate program. Introduction to micro and macro economic analysis.</td>
</tr>
<tr>
<td>ECO 5415</td>
<td>BA-ECON</td>
<td>Statistics for Business and Economics</td>
<td>3(3,0)</td>
<td>Acceptance into the graduate program and MAC 2233. Statistical theory and problems relating to business and economics, including time series and correlation theory, index number theory and statistical inference.</td>
</tr>
<tr>
<td>ECO 6115</td>
<td>BA-ECON</td>
<td>Economic Analysis of the Firm</td>
<td>3(3,0)</td>
<td>Graduate standing and ECO 5005 or equivalent. Commodity price and output determination; factor price determination and functional income distribution; analysis of different types of markets.</td>
</tr>
<tr>
<td>ECO 6206</td>
<td>BA-ECON</td>
<td>Aggregate Economic Conditions and Analysis</td>
<td>3(3,0)</td>
<td>Graduate standing and ECO 5005 or equivalent. An analysis of aggregate economic conditions including the determination of output, employment, and income levels.</td>
</tr>
<tr>
<td>ECO 6226</td>
<td>BA-ECON</td>
<td>Seminar in Money, Banking, and Monetary Policy</td>
<td>3(3,0)</td>
<td>Graduate standing and ECO 5005 or equivalent. Study of the structural foundation and policy-making activities of the monetary authorities.</td>
</tr>
<tr>
<td>ECO 6266</td>
<td>BA-ECON</td>
<td>Business Cycles and Forecasting</td>
<td>3(3,0)</td>
<td>ECO 5005 and ECO 6146 or equivalent. Graduate standing. Use of economic tools for measuring changes in aggregate economic activity, changes in production and prices, and the use of statistical techniques.</td>
</tr>
<tr>
<td>ECO 6305</td>
<td>BA-ECON</td>
<td>History of Economic Thought</td>
<td>3(3,0)</td>
<td>Graduate standing and ECO 5005 or equivalent. A study of the leading ideas of the major contributors to the development of economic thought.</td>
</tr>
<tr>
<td>ECO 6416</td>
<td>BA-ECON</td>
<td>Statistical Methods for Business Decisions</td>
<td>3(3,0)</td>
<td>Graduate standing and ECO 5415 or equivalent. Multivariate methods and related tools applied to analyze business and economic data as an aid in decision making.</td>
</tr>
<tr>
<td>ECO 6424</td>
<td>BA-ECON</td>
<td>Econometrics</td>
<td>3(3,0)</td>
<td>ECO 6416 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.</td>
</tr>
<tr>
<td>ECO 6505</td>
<td>BA-ECON</td>
<td>Public Finance and Fiscal Policy</td>
<td>3(3,0)</td>
<td>Graduate standing and ECO 6115 or equivalent. Analysis of the role of government and the effects of spending, taxing, and borrowing on the economy.</td>
</tr>
<tr>
<td>ECO 6705</td>
<td>BA-ECON</td>
<td>Seminar in International Economics</td>
<td>3(3,0)</td>
<td>Graduate standing and ECO 6115 or equivalent. An inquiry into the theory of international trade and finance, commercial policy, and economic integration.</td>
</tr>
<tr>
<td>ECO 7116</td>
<td>BA-ECON</td>
<td>Microeconomic Theory</td>
<td>3(3,0)</td>
<td>Graduate standing and ECO 6115 or equivalent. Advanced treatment of demand, production cost, market theory under varying competitive conditions.</td>
</tr>
<tr>
<td>ECO 7205</td>
<td>BA-ECON</td>
<td>Macroeconomic Theory</td>
<td>3(3,0)</td>
<td>Graduate standing and master's-level macroeconomics. Includes sectoral components of the economy, fluctuation and stabilization policies and special macro topics.</td>
</tr>
<tr>
<td>ECO 7424</td>
<td>BA-ECON</td>
<td>Applied Models I</td>
<td>3(3,0)</td>
<td>Graduate standing, and ECO 6146 or equivalent. Advanced coverage of standard regression methods and models plus nonparametric statistics.</td>
</tr>
<tr>
<td>ECO 7425</td>
<td>BA-ECON</td>
<td>Applied Models II</td>
<td>3(3,0)</td>
<td>Graduate standing and ECO 7424. Advanced treatment of sophisticated regression methods and models plus complex nonregression models.</td>
</tr>
<tr>
<td>ECO 7428</td>
<td>BA-ECON</td>
<td>Time Series</td>
<td>3(3,0)</td>
<td>Graduate standing and ECO 6424. Advanced treatment of time series analytical techniques including vector autoregression, cointegration, and nonstationarity.</td>
</tr>
<tr>
<td>ECO 7433</td>
<td>BA-ECON</td>
<td>Econometrics</td>
<td>3(3,0)</td>
<td>Graduate standing and ECO 7425. Advanced coverage of sophisticated models; estimation methods and forecasting.</td>
</tr>
<tr>
<td>ECP 6205</td>
<td>BA-ECON</td>
<td>Labor Economics</td>
<td>3(3,0)</td>
<td>Graduate standing and ECO 6115 or equivalent. An investigation into the nature and function of the labor markets, with specific concern for both institutional and noninstitutional imbalance.</td>
</tr>
</tbody>
</table>
### Graduate Courses

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Department</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ECP 6405</td>
<td>BA-ECON</td>
<td>Industrial Organization and Performance</td>
<td>3(3,0)</td>
</tr>
<tr>
<td>ECP 6605</td>
<td>BA-ECON</td>
<td>Economics of Urban and Regional Problems</td>
<td>3(3,0)</td>
</tr>
<tr>
<td>ECP 6705</td>
<td>BA-ECON</td>
<td>Managerial Economics</td>
<td>3(3,0)</td>
</tr>
<tr>
<td>ECS 6006</td>
<td>BA-ECON</td>
<td>Seminar in Comparative Economic Systems</td>
<td>3(3,0)</td>
</tr>
<tr>
<td>ECS 6015</td>
<td>BA-ECON</td>
<td>Economic Development</td>
<td>3(3,0)</td>
</tr>
<tr>
<td>EDA 6061</td>
<td>ED-ED S</td>
<td>Organization and Administration of Schools</td>
<td>3(3,0)</td>
</tr>
<tr>
<td>EDA 6106</td>
<td>ED-ED S</td>
<td>Trends in Educational Administration</td>
<td>3(3,0)</td>
</tr>
<tr>
<td>EDA 6232</td>
<td>ED-ED S</td>
<td>Legal Aspects of School Operation</td>
<td>3(3,0)</td>
</tr>
<tr>
<td>EDA 6240</td>
<td>ED-ED S</td>
<td>Educational Financial Affairs</td>
<td>3(3,0)</td>
</tr>
<tr>
<td>EDA 6260</td>
<td>ED-ED S</td>
<td>Educational Systems Planning and Management</td>
<td>3(3,0)</td>
</tr>
<tr>
<td>EDA 6300</td>
<td>ED-ED S</td>
<td>Community School Administration</td>
<td>3(3,0)</td>
</tr>
<tr>
<td>EDA 6502</td>
<td>ED-ED S</td>
<td>Organization and Administration of Instructional Programs</td>
<td>3(3,0)</td>
</tr>
<tr>
<td>EDA 6540</td>
<td>ED-ED S</td>
<td>Organization and Administration of Higher Education</td>
<td>3(3,0)</td>
</tr>
<tr>
<td>EDA 6931</td>
<td>ED-ED S</td>
<td>Contemporary Issues in Educational Leadership</td>
<td>3(3,0)</td>
</tr>
<tr>
<td>EDA 6946</td>
<td>ED-ED S</td>
<td>Internship</td>
<td>1-6</td>
</tr>
<tr>
<td>EDA 7101</td>
<td>ED-ED S</td>
<td>Organizational Theory in Education</td>
<td>3(3,0)</td>
</tr>
<tr>
<td>EDA 7192</td>
<td>ED-ED S</td>
<td>Educational Leadership</td>
<td>4(4,0)</td>
</tr>
<tr>
<td>EDA 7195</td>
<td>ED-ED S</td>
<td>Politics, Governance, and Financing of Educational Organizations</td>
<td>4(4,0)</td>
</tr>
<tr>
<td>EDA 7205</td>
<td>ED-ED S</td>
<td>Planning, Research, and Evaluation Systems in Educational Administration</td>
<td>4(4,0)</td>
</tr>
<tr>
<td>EDA 7225</td>
<td>ED-ED S</td>
<td>Educational Personnel, Contracts, and Negotiations</td>
<td>4(4,0)</td>
</tr>
<tr>
<td>EDA 7235</td>
<td>ED-ED S</td>
<td>Seminar in School Law</td>
<td>3(3,0)</td>
</tr>
<tr>
<td>EDA 7260</td>
<td>ED-ED S</td>
<td>Educational Facilities</td>
<td>3(3,0)</td>
</tr>
<tr>
<td>EDA 7274</td>
<td>ED-ED S</td>
<td>Seminar: Applications of Technology to Educational Leadership</td>
<td>3(4,0)</td>
</tr>
</tbody>
</table>
### Graduate Courses

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Department</th>
<th>Units</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDA 7919</td>
<td>ED-ED</td>
<td>1-6</td>
<td>Dissertation Research: PR: C.I.</td>
</tr>
<tr>
<td>EDA 7930</td>
<td>ED-ED</td>
<td>3(3,0)</td>
<td>Seminar in School Administration: PR: C.I. Discussion of problems in school administration, patterns of curriculum organization, and research projects.</td>
</tr>
<tr>
<td>EDA 7943</td>
<td>ED-ED</td>
<td>3(3,0)</td>
<td>Field Project: PR: C.I. 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.</td>
</tr>
<tr>
<td>EDA 7980</td>
<td>ED-ED</td>
<td>1-20</td>
<td>Dissertation: PR: Admission to candidacy.</td>
</tr>
<tr>
<td>EDE 6205</td>
<td>ED-IP</td>
<td>3(3,0)</td>
<td>Elementary School Curriculum: 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.</td>
</tr>
<tr>
<td>EDF 5245</td>
<td>ED-ED</td>
<td>3(3,0)</td>
<td>Preparation and Management of Classroom Instruction: PR: C.I. Study of strategies for instructional planning and classroom management that result in optimum learning.</td>
</tr>
<tr>
<td>EDF 5259</td>
<td>ED-ED</td>
<td>3(3,0)</td>
<td>Classroom Management and Teaching: PR: C.I. Study of teaching behaviors and strategies for classroom management that result in a minimum of behavior problems and sound instructional planning.</td>
</tr>
<tr>
<td>EDF 6155</td>
<td>ED-ED</td>
<td>3(3,0)</td>
<td>Lifespan Human Development and Learning: Research in childhood, adolescent, and adult development relevant to contemporary American education. Emphasis on application of theory to educational practice.</td>
</tr>
<tr>
<td>EDF 6233</td>
<td>ED-ED</td>
<td>3(3,0)</td>
<td>Analysis of Classroom Teaching: PR: EDF 6481 or C.I. Analyses of effective teaching practices and their effect on classroom instruction and learning.</td>
</tr>
<tr>
<td>EDF 6236</td>
<td>ED-ED</td>
<td>3(3,0)</td>
<td>Principles of Instruction and Learning: The analysis and application of selected concepts and theories of learning in relation to curriculum design, classroom strategies, and instructional techniques.</td>
</tr>
<tr>
<td>EDF 6259</td>
<td>ED-ED</td>
<td>3(3,0)</td>
<td>Strategies of Classroom Management: Study of strategies of classroom management that result in optimum learning and a minimum of behavior problems.</td>
</tr>
<tr>
<td>EDF 6401</td>
<td>ED-ED</td>
<td>3(3,0)</td>
<td>Statistics for Educational Data: PR: EDF 6481 or C.I. Design of educational evaluation; analysis of data, descriptive and inferential statistics, interpretation of results.</td>
</tr>
<tr>
<td>EDF 6432</td>
<td>ED-ED</td>
<td>3(3,0)</td>
<td>Measurement and Evaluation in Education: PR: Graduate standing. Concepts of measurement and evaluation, classroom test construction, creation and use of derived scores, selection and use of published measurement instruments, current issues.</td>
</tr>
<tr>
<td>EDF 6447</td>
<td>ED-ED</td>
<td>3(3,0)</td>
<td>Development and Validation of Educational Tests and Measures: PR: EDF 6401, EDF 6432. Criterion and norm-referenced test development for educational agencies: specifications, item development and trial, scaling, passing scores, and test norms.</td>
</tr>
<tr>
<td>EDF 6481</td>
<td>ED-ED</td>
<td>3(3,0)</td>
<td>Fundamentals of Graduate Research in Education: PR: Graduate standing. Review and critique of research literature, use of library resources for educational research, and introduction to the concepts of research design and data analysis.</td>
</tr>
<tr>
<td>EDF 6486</td>
<td>ED-ED</td>
<td>3(3,0)</td>
<td>Research Design in Education: PR: EDF 7403 or C.I. An examination of methodological techniques for specific educational problems. Intended for students in the process of designing independent research studies.</td>
</tr>
<tr>
<td>EDF 6517</td>
<td>ED-ED</td>
<td>3(3,0)</td>
<td>History and Philosophy of American Education: PR: C.I. A critical analysis of the conceptual and operative educational systems developed in the United States.</td>
</tr>
<tr>
<td>EDF 6608</td>
<td>ED-ED</td>
<td>3(3,0)</td>
<td>Social Factors in American Education: Analysis of general and specific aspects of American education as they relate to social and behavioral sciences.</td>
</tr>
<tr>
<td>EDF 6886</td>
<td>ED-ED</td>
<td>3(3,0)</td>
<td>Multicultural Education: A survey of multicultural education; analysis of the relationship between cultural transmission, cultural pluralism, and the learning process within American schools.</td>
</tr>
<tr>
<td>EDF 7232</td>
<td>ED-ED</td>
<td>3(3,0)</td>
<td>Analysis of Learning Theories in Instruction: PR: Advanced graduate standing or C.I. Analysis of theories and research relevant to understanding learning in educational settings.</td>
</tr>
<tr>
<td>EDF 7403</td>
<td>ED-ED</td>
<td>3(3,0)</td>
<td>Quantitative Foundations of Educational Research: 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.</td>
</tr>
<tr>
<td>EDF 7463</td>
<td>ED-ED</td>
<td>3(3,0)</td>
<td>Analysis of Survey, Record, and Other Qualitative Data: PR: EDF 6401. Applications of summative evaluation for education: interpretation of impact data, measurement scales, survey and record data.</td>
</tr>
<tr>
<td>EDF 7475</td>
<td>ED-ED</td>
<td>3(3,0)</td>
<td>Qualitative Research in Education: PR: EDF 7463 or C.I. Introduction to the philosophical and conceptual basis of qualitative research methods, strategies for gathering, analyzing, and interpreting qualitative data, emerging issues.</td>
</tr>
<tr>
<td>EDG 5325</td>
<td>ED-ED</td>
<td>3(3,0)</td>
<td>Techniques for the Developing Professional in Education: PR: C.I. Analysis, study, development, and use of techniques for enhanced instruction in the educational setting.</td>
</tr>
<tr>
<td>EDG 5337</td>
<td>ED-ED</td>
<td>3(3,0)</td>
<td>Teaching Individuals, Small and Large Groups: PR: C.I. Study of teaching skills for effectively instructing individuals in various educational groups, with consideration of developmental and behavioral characteristics of students.</td>
</tr>
<tr>
<td>EDG 5745</td>
<td>ED-ED</td>
<td>3(3,0)</td>
<td>Teaching the Non-English Student: PR: FLE 3063 or C.I. Bilingual and non-linguistic instruction in curriculum areas in English as a second language.</td>
</tr>
<tr>
<td>EDG 5941</td>
<td>ED-ED</td>
<td>2-8(0,11)</td>
<td>Clinical Practice: PR: Admission to STEP II, III or IV. Clinical Internship in an appropriate educational setting under the direction of a university supervisor or peer teacher.</td>
</tr>
</tbody>
</table>
### Graduate Courses

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDG 6046</td>
<td>Contemporary Issues in Education: An analysis of current trends in education and their impact on educational programs.</td>
<td>3(3,0)</td>
</tr>
<tr>
<td>EDG 6223</td>
<td>Curriculum Theory and Organization: An exploration and examination of the foundations, design, development, and organization of curriculum in K-Plus settings and professionals’ roles in curriculum decision making.</td>
<td>3(3,0)</td>
</tr>
<tr>
<td>EDG 6253</td>
<td>Curriculum Inquiry: Provides participants with the knowledge and skills necessary to understand, plan, and implement effective curriculum practices and change in K-Plus and other instructional settings.</td>
<td>3(3,0)</td>
</tr>
<tr>
<td>EDG 6285</td>
<td>Evaluation of School Programs: PR: Graduate standing. History of program evaluation, systems approaches to program evaluation, concepts of stakeholder and qualitative approaches to program evaluation, the role of evaluator and administrator.</td>
<td>3(3,0)</td>
</tr>
<tr>
<td>EDG 6327</td>
<td>Techniques of Game Use in Education: Analysis, development, and use of educational games as an approach to classroom teaching.</td>
<td>3(3,0)</td>
</tr>
<tr>
<td>EDG 6940</td>
<td>Graduate Internship: 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.)</td>
<td>1-8(0,1-8)</td>
</tr>
<tr>
<td>EDG 6946</td>
<td>Practicum, Clinical Practice: PR: C.I.</td>
<td>1-2</td>
</tr>
<tr>
<td>EDG 7221</td>
<td>Advanced Curriculum Theory: PR: EDG 6223 or C.I. An analysis of the research base which supports the various dimensions of the curriculum field.</td>
<td>3(3,0)</td>
</tr>
<tr>
<td>EDG 7356</td>
<td>Models of Teaching and Instructional Theory: PR: EDG 6223; EDF 7232 or C.I. Examination of models of teaching. Focus on the roles of the teacher, applicable contexts and learning goals; historical, philosophical, learning, and research bases.</td>
<td>3(3,0)</td>
</tr>
<tr>
<td>EDG 7692</td>
<td>Issues in Curriculum: PR: EDG 7221; EDG 7356; EDF 7232 or C.I. Examination of the relationships between the research bases of instructional and curriculum theories with emphasis on current issues and concerns.</td>
<td>3(3,0)</td>
</tr>
<tr>
<td>EDF 6053</td>
<td>The Community College in America: PR: C.I. Study of the history, philosophy, goals, and mission of the community college. Functions, policies, practices to satisfy local needs.</td>
<td>3(3,0)</td>
</tr>
<tr>
<td>EDF 6061</td>
<td>Contemporary Problems in Community Colleges: PR: EDF 6204 or C.I. Analysis of the critical issues facing community colleges today and in the near future.</td>
<td>3(3,0)</td>
</tr>
<tr>
<td>EDH 6065</td>
<td>History and Philosophy of Higher Education: PR: C.I. Early European and American universities, both state and private. Also considers small and private junior and senior colleges.</td>
<td>3(3,0)</td>
</tr>
<tr>
<td>EDH 6204</td>
<td>Community College Organization, Administration, and Supervision: PR: C.I. An analysis of the organizational structure and administrative functions of the community college as they relate to instruction and curriculum.</td>
<td>3(3,0)</td>
</tr>
<tr>
<td>EDH 6215</td>
<td>Community College Curriculum: PR: C.I. Examination of the background, development, function, and goals of the curriculum of the community college.</td>
<td>3(3,0)</td>
</tr>
<tr>
<td>EDH 6305</td>
<td>Teaching and Learning in the Community College: PR: EDF 7232. Focuses on teaching effectiveness in the community college.</td>
<td>3(3,0)</td>
</tr>
<tr>
<td>EDH 6505</td>
<td>Finance in Higher Education: PR: Completion of Phase II of Education Professional Preparation or C.I. Fundamental considerations in the finance of institutions of higher education.</td>
<td>3(3,0)</td>
</tr>
<tr>
<td>EDM 5235</td>
<td>Teaching in the Middle School: Methods of middle school teaching; team planning and teaching; developmental and learning patterns of the emerging adolescent; use of alternative teaching strategies.</td>
<td>3(3,0)</td>
</tr>
<tr>
<td>EDP 6056</td>
<td>Advanced Educational Psychology: PR: Graduate admission and C.I. Principles of educational psychology for teaching, intervention, and educational services in schools.</td>
<td>3(3,0)</td>
</tr>
<tr>
<td>EDS 5356</td>
<td>Supervision of Professional Laboratory Experiences: 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.</td>
<td>3(2,1)</td>
</tr>
<tr>
<td>EDS 6050</td>
<td>Supervision of Instruction: Effective supervisory principles and practices which can be used for instructional improvement.</td>
<td>3(3,0)</td>
</tr>
<tr>
<td>EDS 6053</td>
<td>Trends in Educational Supervision: PR: Basic supervision course or C.I. Examination and analysis of the trends, issues, and problems in educational supervision.</td>
<td>3(3,0)</td>
</tr>
<tr>
<td>EDS 6100</td>
<td>Leadership: PR: C.I. Analysis of the interactive process within and between groups, emphasizing the formation and functioning of groups; development of skills essential for effective leadership.</td>
<td>3(3,0)</td>
</tr>
<tr>
<td>EDS 6123</td>
<td>Educational Supervisory Practices I: PR: Basic Teacher Certificate or C.I. Analysis of effective supervisory behavior as it relates to human relations/communication skills; leadership; motivation; curriculum development; community relations; and service to teaching.</td>
<td>3(3,0)</td>
</tr>
<tr>
<td>EDS 6130</td>
<td>Educational Supervisory Practices II: PR: Basic Teacher Certificate or C.I. Analysis of effective supervisory behavior as it relates to planning and change; observation and conferencing skills; staff and group development, problem solving; and decision making.</td>
<td>3(3,0)</td>
</tr>
</tbody>
</table>
EDS 7111  ED-ED S  3(2,1)
Administration and Supervision of Staff Development: PR: [Blank]
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.

EEC 5205  ED-IP  3(3,0)
Programs and Trends in Early Childhood Education: PR: [Blank]
Regular Certificate or C.I. Philosophy, content, facilities, instructional materials, and activities appropriate for children ages 3 to 8 years; current research; issues and trends. Concurrent laboratory experiences.

EEC 5206  ED-IP  3(3,0)
Organization of Instruction in Early Childhood Education: PR: [Blank]
Regular Certificate or C.I. Organization in instruction relating to language arts, social sciences, mathematics, health and physical education, problems relating to reading readiness and cognition (K-3). Concurrent laboratory experiences.

EEC 5208  ED-IP  3(3,0)
Creative Activities in Early Childhood: PR: [Blank]
Regular 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.

EEC 6268  ED-IP  3(3,0)
Play Development, Intervention, and Assessment: Explores play development, facilitation, intervention, and assessment.

EED 6071  ED-E PE  3(3,0)
Behavior Disorders in Schools: PR: Basic Teacher Certificate or C.I. Assessment analysis of behavior disorders, cause and effects, identification and theories.

EED 6226  ED-E PE  3(3,0)
Theory and Application for EH: PR: 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.

EEL 5173  EN-ECE  3(3,0)
Linear Systems Theory: PR: EEL 3657. Models and properties of linear systems, transformation, controllability and observability, control and observer designs, MFD, and realization theory.

EEL 5245C  EN-ECE  3(2,1)

EEL 5322C  EN-ECE  3(2,1)
Thin Film Technology: PR: EEL 3306 or equivalent. Presents the various thin film deposition techniques for the fabrication of microelectronic, semiconductor, and optical devices.

EEL 5352  EN-ECE  3(3,0)
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Department</th>
<th>Course Title</th>
<th>Prerequisites</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>EEL 5513</td>
<td>EN-ECE</td>
<td>Digital Signal Processing Applications</td>
<td>PR: EEL 4750</td>
<td>3(3,0)</td>
</tr>
<tr>
<td>EEL 5517</td>
<td>EN-ECE</td>
<td>Surface Acoustic Wave Devices and Systems</td>
<td>PR: EEL 3552C</td>
<td>3(3,0)</td>
</tr>
<tr>
<td>EEL 5542</td>
<td>EN-ECE</td>
<td>Random Processes I</td>
<td>PR: EEL 3552C and STA 3032</td>
<td>3(3,0)</td>
</tr>
<tr>
<td>EEL 5547</td>
<td>EN-ECE</td>
<td>Introduction to Radar Systems</td>
<td>PR: EEL 3552C</td>
<td>3(3,0)</td>
</tr>
<tr>
<td>EEL 5555C</td>
<td>EN-ECE</td>
<td>RF and Microwave Communications</td>
<td>PR: EEL 3552C, EEL 3470</td>
<td>3(2,2)</td>
</tr>
<tr>
<td>EEL 5563</td>
<td>EN-ECE</td>
<td>Fiber Optics Communication</td>
<td>PR: EEL 3552C, EEL 3470</td>
<td>3(5,0)</td>
</tr>
<tr>
<td>EEL 5630</td>
<td>EN-ECE</td>
<td>Digital Control Systems</td>
<td>PR: EEL 3657</td>
<td>3(3,0)</td>
</tr>
<tr>
<td>EEL 5704</td>
<td>EN-ECE</td>
<td>Computer Aided Logical Design</td>
<td>PR: EEL 4767C</td>
<td>3(3,0)</td>
</tr>
<tr>
<td>EEL 5708</td>
<td>EN-ECE</td>
<td>High Performance Computer Architecture</td>
<td>PR: EEL 4767</td>
<td>3(3,0)</td>
</tr>
<tr>
<td>EEL 5741C</td>
<td>EN-ECE</td>
<td>Microcomputer-based Monitoring and Control Systems</td>
<td>PR: EEL 3342, EEL 4767C, or C.I.</td>
<td>3(2,3)</td>
</tr>
<tr>
<td>EEL 5762</td>
<td>EN-ECE</td>
<td>Performance Analysis of Computer and Communication Systems</td>
<td>PR: EEL 4767C, STA 3032</td>
<td>3(3,0)</td>
</tr>
<tr>
<td>EEL 5771C</td>
<td>EN-ECE</td>
<td>Engineering Applications of Computer Graphics</td>
<td>PR: EGN 3420 or C.I.</td>
<td>3(2,3)</td>
</tr>
<tr>
<td>EEL 5820</td>
<td>EN-ECE</td>
<td>Image Processing</td>
<td>PR: MAP 2302, EGN 3420, EEL 4750 or C.I.</td>
<td>3(3,0)</td>
</tr>
<tr>
<td>EEL 5825</td>
<td>EN-ECE</td>
<td>Pattern Recognition</td>
<td>PR: MAP 2302, EGN 3420</td>
<td>3(3,0)</td>
</tr>
<tr>
<td>EEL 5874</td>
<td>EN-ECE</td>
<td>Expert Systems and Knowledge Engineering</td>
<td>PR: EEL 4872 or C.I.</td>
<td>3(3,0)</td>
</tr>
<tr>
<td>EEL 5891</td>
<td>EN-ECE</td>
<td>Software Engineering I</td>
<td>PR: EGN 3420, EEL 4851 or C.I.</td>
<td>3(3,0)</td>
</tr>
<tr>
<td>EEL 6208</td>
<td>EN-ECE</td>
<td>Advanced Machines</td>
<td>PR: EEL 4205</td>
<td>3(3,0)</td>
</tr>
<tr>
<td>EEL 6246</td>
<td>EN-ECE</td>
<td>Power Electronics II</td>
<td>PR: EEL 5240</td>
<td>3(3,0)</td>
</tr>
<tr>
<td>EEL 6255</td>
<td>EN-ECE</td>
<td>Advanced Power Systems Analysis</td>
<td>PR: EEL 4216 or C.I.</td>
<td>3(3,0)</td>
</tr>
<tr>
<td>EEL 6269</td>
<td>EN-ECE</td>
<td>Advanced Topics in Power Engineering</td>
<td>PR: EEL 6255</td>
<td>3(3,0)</td>
</tr>
<tr>
<td>EEL 6338</td>
<td>EN-ECE</td>
<td>Advanced Topics in Microelectronics</td>
<td>C.I.</td>
<td>3(3,0)</td>
</tr>
<tr>
<td>EEL 6354</td>
<td>EN-ECE</td>
<td>Advanced Semiconductor Device II</td>
<td>PR: EEL 3306</td>
<td>3(3,0)</td>
</tr>
<tr>
<td>EEL 6371</td>
<td>EN-ECE</td>
<td>Advanced Electronics I</td>
<td>PR: EEL 5357 or EEL 5370</td>
<td>3(3,0)</td>
</tr>
</tbody>
</table>
Advanced Topics in Electronics: PR: EEL 6371 or C.I. Advanced and current topics in electronics such as power electronics and semiconductor integrated circuits.


Optical Systems Design: PR: EEL 5453 or C.I. Design principles of lens and mirror optical systems; evaluation of designs using computer techniques.

Advanced Topics in Electro-Optics: PR: C.I. Current research topics in electro-optics, such as optical computing, binary optics, advanced system design issues, novel laser systems.

Antenna Analysis and Design II: PR: EEL 5462C. Moment method, GTD, aperture antennas, reflectors, frequency independent antennas and microstrip antennas.


Advanced Topics in Electromagnetics and Microwaves: PR: C.I. Advanced and current topics in EM fields, antennas, and microwaves.

Adaptive Digital Signal Processing: PR: EEL 5513 or C.I. Weiner filtering, Least Mean Square and Recursive Least Squares based algorithms, adaptive prediction and identification with applications such as echo cancellation, etc.


Multidimensional Digital Processing: PR: EEL 5513 or C.I. Multidimensional signals and systems. Two-dimensional transforms and filters. Image processing applications.

Communication Theory: PR: EEL 5542 or C.I. Communication in the presence of noise; analog and pulse modulation; use of phase-locked loops, synthesizers, VCOs, system implementations.

Detection and Estimation: PR: EEL 6543. Use of hypothesis testing (Bayes, Minimax, Neyman-Pearson) and estimation theory (Bayes, Maximum-likelihood) for detecting or estimating signals in noise. Application in communications and radar.


Advanced Topics in Digital Signal Processing: PR: C.I. Advanced and current topics in digital signal processing, such as neural network, spectral analysis, speech processing.

Laser Engineering: PR: EEL 5441 or C.I. Principles of laser amplification and oscillations; design of lasers; general characteristics of excitation systems.

Laser Engineering Laboratory: PR: EEL 6560, PHY 5446, or C.I. Designing and device implementation of diode pumped solid-state lasers, nonlinear frequency conversion, Q-switching, mode locking, and pulse second harmonic generation.


Statistical Optics with Applications: PR: EEL 5441 and EEL 5542, or C.I. Characterization of random optical waves with applications in communications, turbulence scattering, and imaging.


Advanced Topics in Communications: PR: C.I. Advanced and current topics in communications, such as coding theory, information theory, spread spectrum, etc.


EEL 6674 EN-ECE 3(3,0) 
Optimal Estimation for Control: PR: EEL 5173 or C.I. Optimal filtering, smoothing, and prediction methods are analyzed with applications to a number of linear and nonlinear dynamic systems.

EEL 6680 EN-ECE 3(3,0) 
Advanced Topics in Modern Control Systems: PR: C.I. Introduces students to present-day issues in control systems design, analysis, and implementation.

EEL 6707 EN-ECE 3(3,0) 
Parallel Processing: PR: EEL 5707, EEL 5762. Systems with one or more central I/O processors. Types of parallelism granularity and memory organization. Processor/memory message passing systems. Shared memory multiprocessors.

EEL 6708 EN-ECE 3(3,0) 

EEL 6743C EN-ECE 3(2,3) 
Microcomputer Applications Design: PR: EEL 5741C or C.I. Advanced applications of microcomputer systems. Design of systems and software to implement a case study in microcomputer usage.

EEL 6753 EN-ECE 3(3,0) 
Current Topics in Parallel Processing: PR: EEL 6708 or C.I. Research topics in parallel architectures, including, but not limited to, systolic architectures, wavefront arrays, interconnection networks, reconfigurable architectures and fast algorithms.

EEL 6759 EN-ECE 3(3,0) 

EEL 6785 EN-ECE 3(3,0) 

EEL 6812 EN-ECE 3(3,0) 
Introduction to Neural Networks: PR: EEL 5825 or C.I. Artificial neural network theory, models, and architectures. Neurobiological basis, learning theory, applications, and hardware implementation issues.

EEL 6823 EN-ECE 3(3,0) 
Image Processing II: PR: EEL 5820 or C.I. Advance topics in image processing: nonlinear and adaptive filtering morphological processing, color image processing, texture analysis, and image encoding.

EEL 6843 EN-ECE 3(3,0) 
Machine Perception: PR: EEL 5820 or EEL 5825 or C.I. Advanced methods of machine understanding; simulation of intelligent machine systems; automatic recognition systems; visual tracking systems; multispectral feature analysis.

EEL 6845 EN-ECE 3(3,0) 
Intelligent Control: PR: C.I. Design and development of intelligent machine systems; decision theory; intelligence modeling; neural models; advanced techniques in intelligent control.

EEL 6857 EN-ECE 3(3,0) 
Engineering Data Reduction: PR: C.I. Digital analysis of multidimensional data. Applications of multidimensional orthogonal transforms.

EEL 6875 EN-ECE 3(3,0) 
Engineering of Artificial Intelligence Systems: PR: EEL 5874 or C.I. Introduction to the engineering of knowledge-based automated reasoning systems including the use of representation languages and object-oriented techniques. It is based on LISP.

EEL 6876 EN-ECE 3(3,0) 
Current Topics in Artificial Intelligence in Engineering Systems: PR: EEL 6875 or C.I. Research in current topics including artificial intelligence, relevant to engineering systems including causal modeling, qualitative reasoning, temporal reasoning, and inductive reasoning. Review of current literature.

EEL 6878 EN-ECE 3(3,0) 
Modeling and Artificial Intelligence: PR: EEL 6875 or C.I. Introduction to various applications of artificial intelligence techniques as they affect the engineering aspects of computer-based simulation, modeling, and training. The course will be taught as a seminar, making significant use of the current research literature. Topics include Intelligent Tutoring Systems, Situational Awareness, Intelligent Instructor Support, and Qualitative Modeling.

EEL 6883 EN-ECE 3(3,0) 
Software Engineering II: PR: EEL 5881 or equivalent; C.I. Continuation of EEL 5881. Emphasis on term projects and case studies.

EEL 6885 EN-ECE 3(3,0) 

EEL 6887 EN-ECE 3(3,0) 
Software Engineering Life-Cycle Control: PR: EEL 5881, EEL 6883. Issues in software development life-cycle control including project cost and time estimation, methods and models, manpower allocation, and system configuration management.

EEL 6893 EN-ECE 3(3,0) 
Continuous System Simulation II: PR: EEL 5891. Continuation of EEL 6426 including advanced features of Continuous Simulation Languages such as user-defined macros, linear analysis package, sampled data systems. A simulation study term project is required.

EEL 6895 EN-ECE 3(3,0) 

EEL 6897 EN-ECE 3(3,0) 

EES 5415C EN-CCE 3(2,3) 
Potable Water Treatment: PR: EES 4202C and 4111C. Engineering application of potable water chemistry involving coagulation, softening, filtration, corrosion, disinfection quality and drinking water.

EES 5605 EN-CCE 3(3,0) 
Outdoor Noise Control: PR: C.I. Community noise evaluation and control, legislative standards, instrumentation and measurement, abatement methods, and noise modeling.
EEX 5051 ED-E PE Exceptional Children in the Schools: PR: Senior standing or C.I. Characteristics, definitions, educational problems, and appropriate educational programs for the exceptional children in schools. 3(3,0)

EEX 5702 ED-E PE Planning Curriculum for Pre-kindergarten Children with Disabilities: Focus on curriculum planning; developmentally appropriate practices and implementation of individualized instruction for pre-kindergarten children with disabilities. 3(3,0)

EEX 5750 ED-E PE Communication with Parents and Agencies: Presentation of methods of interacting with community agencies, supporting and collaborating with families, developing a case management system, and facilitating program transition. 3(3,0)

EEX 6017 ED-E PE Typical and Atypical Applied Child Development: Focus on the stages and sequence of development and the impact of disabilities and biomedical risk factors on learning and development. 3(3,0)

EEX 6061 ED-E PE Instructional Strategies PREK-6: A varying exceptionalities strategies (SLD,EH,MH) course using a cross-categorical model. The course is concerned with the pre-k handicapped child through grade 6. A required field experience must be completed with the class depending on prior experience. 3(3,0)

EEX 6065 ED-E PE Instructional Strategies 6-12: A varying exceptionalities strategies (SLD,MH,ED) course using a cross-categorical model. The course is concerned with grades 6-12 and low incidence populations. A required field experience must be completed with the class depending on prior experience. 3(3,0)

EEX 607 ED-E PE Teaching Spoken and Written Language: Diagnosis and remediation of spoken and written language problems found in the exceptional populations. Overview of alternative methods of communication. 3(3,0)

EEX 6224 ED-E PE Observation and Assessment of Young Children: Study of formal and informal observation and assessment. 3(3,0)

EEX 6266 ED-E PE Assessment and Curriculum Prescriptions for the Exceptional Population: Addresses contemporary assessments and models for assessing exceptional children. Also addresses curriculum and prescription. 3(3,0)

EEX 6342 ED-E PE Seminar: Critical Issues in Special Education: PR: EEX 5051. An examination of research and current literature dealing with some of the critical issues in all areas of special education. 3(3,0)

EEX 6524 ED-E PE Organization and Collaboration in Special Ed: PR: C.I. Addresses evaluation, assessment, personnel resource, grant writing, and other administrative issues. Presents collaborative models of intervention and service delivery. 3(3,0)

EEX 6612 ED-E PE Methods of Behavioral Management: Analysis of the principles of behavior management and precision teaching and application of these principles to the solving of classroom management problems. 3(3,0)

EEX 6863 ED-E PE Supervised Teaching Practicum with Exceptional Children: PR: Bachelor’s degree, approved program, and C.I. Supervised observation and teaching of an exceptional student. 2-7(12-40)

EGC 5036 ED-ED S Guiding Human Relationships: PR: Senior standing or basic teacher certificate. Human relationship skills which will enhance intra- and interpersonal relation skills in classrooms. 3(3,0)

EGC 6437 ED-ED S Advanced Counseling Techniques: PR: MHS 6400, MHS 6401, or C.I. A presentation of advanced techniques, approaches and strategies to counseling and psychotherapy. Includes an experiential component. 3(3,0)

EGI 6051 ED-IP Understanding the Gifted/Talented Student: A study of characteristics of the gifted/talented students; theories and research; identification procedures; special problems; educational forces. 3(3,0)

EGI 6245 ED-IP Program Planning and Methodology for Gifted/Talented Students: A study of organization, curriculum, strategies, and activities for the gifted/talented student; diagnostic teaching; learning-teaching styles; instructional materials; individualized instruction. 4(4,0)

EGI 6246 ED-IP Education of Special Populations of Gifted Students: Focuses on needs of gifted subgroups, including females, minorities, handicapped, and students with learning and emotional problems. S.E. 3(3,0)

EGN 5035 EN-ENGR Topics in Technological Development: PR: C.I. Selected topics in the technological development of Western civilization including the weight-driven clock, steam engine, electric light, etc. 3(3,0)

EGN 5720 EN-IEEMS Internal Combustion Engine Analysis and Optimization: PR: EGN 3343 or EGN 3358 or C.I. Internal combustion engine operating principles. Topics covered include engine design and operating parameters, combustion, thermodynamics, induction flow, and basic mathematical models. 3(2,3)

EGN 5840 EN-ENGR Small Rocket Applications for Teachers: PR: Admission to Martin Marietta/UCF Academy. Earth and space environments, rocket propulsion, meteorological and environmental measurements, payload launch procedures, orbits and trajectories, safety, model rocket experiments, field trips, student science experiments. 3(3,0)

EGN 5855C EN-IEEMS Metrology: PR: EIN 4391C or C.I. Advanced topics in inspection and measurement with applications in engineering and manufacturing. 3(2,2)

EGN 5855C EN-IEEMS Introduction to Rapid Prototyping: PR: Basic knowledge and/or experience in CAD/CAM technology or C.I. Topics fundamental to rapid prototyping and automated fabrication technologies. Actual design and fabrication of a part using in-house laboratory facilities. 3(2,2)

EGN 6721C EN-IEEMS Experimental Methods for High Performance Engine Manufacturing: PR: EGN 5270C; ESI 6247; STA 5205 OR STA 6207; or C.I. This course examines the unique problems encountered when one-off manufacturing of high performance engines due to the high level of component interaction. 3(2,3)
EIN 5108  EN-IEMS  3(3,0)
The Environment of Technical Organizations: PR: Graduate status or C.I.; EGN 4624 recommended. Presentation and investigation into the principles required to transform technologists into managers focusing on engineers, scientists, and other professionals providing services in technically-oriented organizations.

EIN 5117  EN-IEMS  3(3,0)
Management Information Systems I: PR: C.I. The design and implementation of computer-based Management Information Systems. Consideration is given to the organizational, managerial, and economic aspects of MIS.

EIN 5140  EN-IEMS  3(3,0)
Project Engineering: PR: Graduate standing or C.I. Role of engineer in project management with emphasis on project life cycle, quantitative and qualitative methods of cost, schedule, and performance control.

EIN 5248C  EN-IEMS  3(2,2)
Ergonomics: PR: C.I. Applications of anthropometry, functional anatomy, and physiology of musculoskeletal system concepts in the engineering design of industrial tools, equipment, and workstations.

EIN 5251  EN-IEMS  3(3,0)
Human-Computer Interaction: Usability Evaluation: Usability paradigms/principles; cognitive walkthroughs; heuristic, review-based, model-based, empirical and storyboard evaluation; techniques; query techniques; laboratory techniques; and field study approaches.

EIN 5255  EN-IEMS  3(3,0)
Interactive Simulation: PR: Post-Baccalaureate status or C.I. Introduction to significant topics relative to the development and use of simulators for knowledge transfer in the technical environment.

EIN 5566  EN-IEMS  3(3,0)
Cost Engineering: Cost estimation and control of engineering systems throughout the product life cycle.

EIN 5568C  EN-IEMS  3(2,2)

EIN 5581  EN-IEMS  3(3,0)
Engineering Logistics: Study of the logistics life cycle involving planning, analysis and design, testing, production, distribution, and support.

EIN 5588  EN-IEMS  3(3,0)
Forecasting: PR: STA 5156. Industrial applications of forecasting methods with emphasis on microcomputer-based packages.

EIN 5592C  EN-IEMS  3(2,2)
Manufacturing Systems Engineering: PR: EIN 4391C or C.I. The integration of manufacturing technologies and information processing concepts into a system for controlling the manufacturing enterprise.

EIN 5610C  EN-IEMS  3(3,0)
Tool Engineering and Manufacturing Analysis: PR: EIN 4411. Tools materials and design, tolerance technology, theory of metal cutting, and machineability.

EIN 5607C  EN-IEMS  3(2,2)
Computer Control of Manufacturing Systems: PR: EIN 4391C, and EIN 4411C or EML 4535C; or C.I. Automated systems for manufacturing, numerical control (NC) machines, NC programming, robot control and programming, machine and system control.

EIN 5936  EN-IEMS  3(1,0)
Seminar in Industrial Engineering: Doctoral Research: PR: C.I. Essential topics for doctoral research including research areas, skills, funding, proposals, ethics, mentors, seminars, societies, conferences, presentations, interviewing, grants, and publishing.

EIN 5937  EN-IEMS  3(3,0)
Taguchi’s Quality by Design: Taguchi methods for design of experiments and quality improvement.

EIN 6125  EN-IEMS  3(3,0)

EIN 6249C  EN-IEMS  3(2,2)
Biomechanics: PR: EIN 5248C or C.I. Applications of body link system, kinematic aspect of body movement and mechanics of the human body concepts in the engineering design of work-systems.

EIN 6252  EN-IEMS  3(3,0)
Human-Virtual Environment Interaction: Sense of presence, cybersickness, health and safety, integration of multi-modal inputs and outputs, user differences, design metaphors, design constraints, social impact of the technology.

EIN 6258  EN-IEMS  3(2,2)
Human Computer Interaction: Computer task analysis, human-computer design guidelines and history, usability testing, next generation user interfaces, human-virtual environment interaction.

EIN 6264C  EN-IEMS  3(2,2)
Industrial Hygiene: PR: EIN 5248C or C.I. Evaluation and control of occupational hazards including heat, cold, noise, vibration, radiation, solid waste, air contaminants, illumination, ventilation, and other work environments.

EIN 6270C  EN-IEMS  3(2,2)
Work Physiology: PR: EIN 5248 or C.I. Applications of the concepts of endurance fatigue, recovery and the energy cost of work in the determination of work capacity, job design, personnel assignment, and work/rest scheduling.

EIN 6317  EN-IEMS  3(3,0)
Training Systems Engineering: How human performance deficiencies should be addressed from a systems engineering point of view. Manpower, personnel, and training considerations will be examined.

EIN 6322  EN-IEMS  3(3,0)
Engineering Management: PR: EIN 5117, EIN 5356, and EIN 5140. Capstone investigation and analysis of topics for improving engineering enterprises in national and international competitive environments. Quantitative engineering tools/methods will be used.

EIN 6330  EN-IEMS  3(3,0)
Quality Control in Automation: PR: ESI 4234 or C.I. Quality control applications in industrial automation, implementation of quality control through automated inspection, statistical tolerancing, application of statistics in quality control.
EIN 6336 EN-IEMS 3(3,0)
Production and Inventory Control: PR: EIN 4333 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 6339 EN-IEMS 3(3,0)
Operations Engineering: PR: STA 5156, ESI 5316, or C.I. Methods and models for design, management, and control of operational processes in engineering and technical organizations. Includes considerations of quality, productivity, performance, benchmarking, constraints, and strategy.

EIN 6357 EN-IEMS 3(3,0)
Advanced Engineering Economic Analysis: PR: EGN 3613; EIN 2032 or equivalent. Topics include measuring economic worth, economic optimization under constraints. Analysis of economic risk and uncertainty, foundations of utility functions.

EIN 6398 EN-IEMS 3(3,0)

EIN 6399 EN-IEMS 3(3,0)
Concurrent Engineering: Elements of concurrent engineering and its applications. Topics include quality function deployment, design for manufacturability, and design for assembly.

EIN 6417 EN-IEMS 3(3,0)
Precision Engineering: PR: EGN 5855C or C.I. Designing for high precision, machine accuracy, error reduction, thermal effects, coordinate measuring machines, and machine calibration with laser interferometry.

EIN 6418C EN-IEMS 3(3,0)
Electronics Manufacturing: PR: EIN 4391 or C.I. Electronics fabrication and assembly, FMS and CAD/CAM in electronics, information and control systems, micromachining with lasers, and surface mount technology.

EIN 6425 EN-IEMS 3(3,0)
Scheduling and Sequencing: Basic problems, models and techniques of scheduling. Emphasis on general job-shop scheduling problems. Analytical, graphical and heuristic methods are examined.

EIN 6524 EN-IEMS 3(3,0)
Simulation Modeling Paradigms: PR: STA 5156 and one of ESI 5531, ESI 6546 or EIN 6645. Modeling techniques and designs for simulation, conditions for use, and implementation algorithms. Introduction to modeling theory and formalisms for computer simulation.

EIN 6529 EN-IEMS 3(3,0)
Simulation Design and Analysis: PR: All required courses in Simulation Modeling and Analysis or Interactive Simulation and Training Systems curricula. Integrates all aspects of the curriculum in a project-focused capstone course. Involves design, development, implementation, validation, and evaluation of a simulation project.

EIN 6603 EN-IEMS 3(3,0)
Readings in Expert Systems/AI in Industrial Engineering: PR: EIN 5620C or equivalent. Reading and discussing current topics in expert systems/AI as applied to IE. Current literature in intelligent simulation training systems.

EIN 6645 EN-IEMS 3(3,0)

EIN 6647 EN-IEMS 3(2,2)
Intelligent Simulation: PR: EIN 6645 and EIN 6649. The range of architectures and technologies relative to the simulation of intelligent processes.

EIN 6649 EN-IEMS 3(2,2)
Intelligent Simulation Training System Design: PR: EIN 6317. A systems approach to building intelligent simulation training systems. Emphasis on removing the human instructor from the content training.

EIN 6930 EN-IEMS 3(3,0)

EIN 6933 EN-IEMS 3(3,0)
Systems Acquisition: What the engineer needs to know about the systems acquisition process when dealing with government contracting agencies.

EIN 6934 EN-IEMS 3(3,0)

EIN 6935 EN-IEMS 3(3,0)
Advanced Ergonomics Topics: PR: C.I. Seminar treatment of selected advanced topics in ergonomics.

EIN 6936 EN-IEMS 3(3,0)
Seminar in Advanced Industrial Engineering: Topical seminar. Potential topic areas include quality function deployment, axiomatic design, design quality, benchmarking, re-engineering processes.

ELD 6248 ED-E PE 3(3,0)
Instructional Strategies for Students with Learning Disabilities: Instructional strategies for students with specific learning disabilities to include development, implementation, and evaluation of individualized educational plans and adaptation of curriculum and materials.

ELD 6944 ED-E PE 1(0,1)
Diagnostic Learning-Disabilities Laboratory: A laboratory designed for individual competence measurement of testing-evaluation skills. Must be scheduled concurrently with ELD 6112, Foundations and Diagnosis of LD.

EMA 5060 EN-MMAE 3(3,0)
Polymer Science and Engineering: PR: EGN 3365. Structure and properties of polymers, preparation and processing of polymers, mechanical properties, use in manufacturing and high tech applications.

EMA 5104 EN-MMAE 3(3,0)
**EMA 5106 EN-MMAE**  
Metallurgical Thermodynamics: PR: EGN 3343 and EGN 3365. Laws of thermodynamics, phase equilibria, reactions between condensed and gaseous phases, reaction equilibria in condensed solution and phase diagrams.

**EMA 5108 EN-MMAE**  
Surface Science: PR: PHY 2049 and C.I. Methods of chemical and physical analysis of surfaces, with emphasis on ultra-high vacuum spectroscopies utilizing electron, ion and photon probes.

**EMA 5140 EN-MMAE**  
Introduction to Ceramic Materials: PR: EGN 3365. Uses, structure, physical and chemical properties, and processing of ceramic materials. Discussions will include recent developments for high technology applications.

**EMA 5206 EN-MMAE**  

**EMA 5504 EN-MMAE**  
Modern Characterization of Materials: PR: EMA 5014 or C.I. Techniques and operation of instrumentation (light, scanning, transmission, and auger microscopy) for the characterization of structure, defects, composition, and surfaces.

**EMA 5505 EN-MMAE**  
Scanning Electron Microscopy: PR: EMA 5014 or C.I. A review of electron optics, beam/specimen interactions, image formation, x-ray analysis, specimen preparation, microelectronic applications and crystallography in the SEM.

**EMA 5504 EN-MMAE**  

**EMA 5610 EN-MMAE**  
Laser Materials Processing: PR: EGN 3343 or EMA 5106 or C.I. Laser beam optics; laser-material interactions; laser heating, melting, vaporization. Plasma formation; laser surface treatment, welding, machining; laser material synthesis. Thin film deposition, crystal growth.

**EMA 5705 EN-MMAE**  
High Temperature Materials: PR: EMA 5104. Desired material properties for high temperature applications, physical metallurgy of such materials, corrosion, hot corrosion and oxidation properties, aero- and land-based gas turbine requirements.

**EMA 6126 EN-MMAE**  
Physical Metallurgy: PR: EMA 5104 or EML 3124. Analytical methods in crystallography, dislocation theory, annealing, solid solutions, phases and phase diagrams, ferrous and non-ferrous alloy systems.

**EMA 6129 EN-MMAE**  
Solidification and Microstructure Evolution: PR: EML 4142, EMA 5104, or C.I. Cooling process, nucleation, spinodal decomposition, interface instability, cells, dendrites, eutectic and peritectic microstructures, solute segregation, modeling project.

**EMA 6130 EN-MMAE**  
Phase Transformation in Metals and Alloys: PR: EMA 5104 and EMA 5106 or C.I. Principles of thermodynamics, kinetics, and phase diagrams for the understanding of diffusion and diffusionless phase transformations in ferrous and non-ferrous alloys.

**EMA 6136 EN-MMAE**  
Diffusion in Solids: PR: EMA 5104 and EML 5060 or C.I. Fundamental equations and mechanisms of diffusion. Diffusion in metallic, ionic, and semiconducting materials with emphasis on measurement techniques.

**EMA 6149 EN-MMAE**  
Imperfections in Crystals: PR: EMA 5104 or C.I. Describes point, line, and planar defects in crystalline materials. Discusses vacancy formation, dislocation theory, plasticity, grain boundary modeling, and the interaction between defects.

**EMA 6156 EN-MMAE**  
X-Ray Diffraction and Crystallography: PR: EMA 5104 or C.I. Theory and experimental techniques of x-ray diffraction of materials. Topics include the structure of crystalline solids, including lattices, point group and space group theory.

**EMA 6158 EN-MMAE**  

**EMA 6505 EN-MMAE**  
Materials Processing Techniques: PR: EMA 5104 or C.I. Phase transformation; grain size; surface, powder, and composite processing; shape forming; polymer processes; liquid and vapor phase synthesis; radiation-induced processes, mathematical analysis, project.

**EMA 6526 EN-MMAE**  
Mechanical Metallurgy: PR: EMA 5104 or EMA 4223. Elastic behavior and plasticity; dislocation theory, mechanical behavior of materials, fracture, elements of fracture mechanics, environment-assisted cracking, creep and fatigue failures.

**EMA 6528 EN-MMAE**  

**EME 5051 ED-ED S**  
Technologies of Instruction and Information Management: Theories and practices in utilizing instructional media and information technologies. Emphasis on new and emerging technologies and their effects on the school and media program.

**EME 5052 ED-ED S**  
Electronic Resources for Education: PR: EME 5051 or EME 6938 or C.I. Study and application of electronic resources available for education including techniques for locating, evaluating, and integrating them into the classroom.

**EME 5054 ED-ED S**  
Instructional Systems Technology: A Survey of Applications: 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 5056 ED-ED S**  
Communication for Instructional Systems—Process: Principles of written and oral communications for instructional technologists: development of assertiveness and interpersonal skills; conducting training programs for employees; creating hard copy materials.
EME 5057  ED-ED S  3(3,0)
Communication for Instructional Systems—Application: PR: EME 5056. Applications of technology, communications theory, platform skills, and instructional design to the effective presentation of training programs and instruction.

EME 5020  ED-ED S  3(3,0)
Production Techniques for Instructional Settings: PR: EME 5051. Skills in producing instructional materials. Emphasis on graphic, audio, video, and photographic skills and the application of instructional and communication theories.

EME 5225  ED-ED S  3(3,0)
Media for Children and Young Adults: Survey of materials for children's and young adults' informational and recreational needs; analysis, evaluation, and utilization of print and non-print materials.

EME 5408  ED-ED S  3(3,0)
Computer Applications in Instructional Technology: Techniques and skills for the use of computers for productivity and instruction by the instructional technologist.

EME 5810  ED-ED S  1(1,0)
Teaching and Learning with Technology: Overview of technologies for teaching and for learning. Practical strategies for using technology in the classroom. (May be repeated 3 times for credit.)

EME 6053  ED-ED S  3(3,0)
Current Trends in Instructional Technology: PR: EME 6613. Survey of current trends and issues of importance to the field of instructional technology.

EME 6058  ED-ED S  3(3,0)
Current Trends in Educational Media: PR: C.I. Survey of current trends and issues of importance to the field of educational media.

EME 6062  ED-ED S  3(3,0)
Research in Instructional Technology: PR: or CR: EDF 6481, EME 6613, or EME 6605. Critical review and evaluation of landmark research in the areas of educational media, instructional design, and instructional systems.

EME 6105  ED-ED S  3(3,0)

EME 6208  ED-ED S  3(3,0)

EME 6209  ED-ED S  3(3,0)

EME 6313  ED-ED S  3(3,0)
Media Systems Design: PR: EME 5054, EME 6613. Principles of communication, learning theory, and research in instructional technology applied to the design of mediated instructional messages.

EME 6405  ED-ED S  3(3,0)
Application Software for Educational Settings: PR: EME 6938; basic computer skills; basic skills in using application programs for general productivity. Use of software applications in instructional settings by students and teachers. Includes integrated packages (word processing, database, spreadsheet, telecommunications) graphics software, presentation software, and desktop publishing software as they relate to the K-12 curriculum, students, and teacher productivity.

EME 6457  ED-ED S  3(3,0)
Distance Education: Technology Process/Production: PR: EME 5408 or C.I. Instruction and how it is delivered at a distance. Examines technologies, processes, and products of distance education with emphasis on the relationship between high tech and high touch interactivity.

EME 6507  ED-ED S  3(3,0)
Multimedia in the Classroom: PR: EME 6938; basic computer skills; basic skills in using application programs for general productivity. Emphasis on the elements and applications of multimedia programs for use by K-12 students and teachers. Includes authoring, design, delivery systems, hardware, software.

EME 6602  ED-ED S  3(3,0)
Integrating Technology into the Curriculum: PR: EME 5051; basic computer skills. Resources, materials, and strategies for systemic achievement of curriculum goals; investigation of innovative and effective technological advances and practices for use in teaching and learning.

EME 6605  ED-ED S  3(3,0)
Role of the Media Specialist in Curriculum and Instruction: PR: PR or CR: EME 5051. Development of skills in instruction and instructional design. Emphasis on teaching, consultation, and media skills and curricular involvement of the media specialist.

EME 6607  ED-ED S  3(3,0)
Planned Change in Instructional Technology: PR: EME 6705 or EME 6706. In-depth study of the processes of planned change and adoption/rejection of innovations in educational settings.

EME 6613  ED-ED S  3(3,0)
Instructional System Design: PR: EME 5054. 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.

EME 6705  ED-ED S  3(3,0)
Administration of Instructional Systems: PR: EME 5408, EME 6613. Provides opportunities for students to examine parameters, problems, and areas of importance in the management of instructional systems.

EME 6706  ED-ED S  3(3,0)
Administrative Principles in Media Centers: PR: EME 5051, EME 6105. Principles of planning, evaluating, budgeting, staffing, and marketing the school media program. Development of policies and procedures for the school media center, legislation technology, professionalism.

EME 6707  ED-ED S  3(3,0)
Technology Coordinator in the Schools: PR: EME 5051, EME 6405, EME 6602. A graduate course in educational technology designed to provide a context for the role of a school-based professional with skills in educational technology. Includes planning, administration, training, leadership, budgeting, ethics, evaluation, and grant writing.
**EME 6805**  ED-ED S  3(3,0)
Organization of Media and Information: Methods for organizing print and non-print media, with instruction in cataloging and classification, using standard bibliographic tools and procedures.

**EME 6807**  ED-ED S  3(3,0)
Information Sources and Services: PR: EME 6105. Development of skills in identifying appropriate information sources for school media centers, providing reference services, and teaching research and study skills.

**EME 6809**  ED-ED S  3(3,0)
Information Retrieval Systems: PR: EME 5408. Examines applications of information retrieval that are appropriate for instructional technologists. Includes elements of search strategy construction, database and index structure, and online search procedures.

**EME 6940**  ED-ED S  3(3,0)
Theory into Practice in Educational Technology: PR: Completion of all core courses in educational technology. Practicum in facilitating the utilization of instructional media and information technologies.

**EML 5025C**  EN-MMAE  3(2,2)
Engineering Design Practice: PR: C.I. The course is designed to familiarize students with basic CAD/CAM solid modeling techniques in a project oriented environment. Students will construct part models, drawings, and assemblies. Use of in-house software.

**EML 5060**  EN-MMAE  3(3,0)

**EML 5066**  EN-MMAE  3(3,0)

**EML 5105**  EN-MMAE  3(3,0)
Gas Kinetics and Statistical Thermodynamics: PR: EAS 4134 or EML 4703. Molecular and statistical viewpoint of gases and thermodynamics; Boltzmann collision integral, partition functions, non-equilibrium flows. Applications in thermo-fluid systems.

**EML 5131**  EN-MMAE  3(3,0)

**EML 5152**  EN-MMAE  3(3,0)

**EML 5211**  EN-MMAE  3(3,0)
Continuum Mechanics: PR: EML 3500 or EML 4703 or EAS 4200 or C.I. Introduction to tensors; deformation and strain; stress; balance laws, applications in Newtonian fluid dynamics and isotropic linear elasticity.

**EML 5224**  EN-MMAE  3(3,0)
Acoustics: PR: EML 4220. CR: EML 5060. 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 5225**  EN-MMAE  3(3,0)

**EML 5237**  EN-MMAE  3(3,0)

**EML 5245**  EN-MMAE  3(3,0)
Tribology: PR: EGN 3365, EGN 3331 and EML 3701. Principles of fluid film lubrication (liquid and gas, journal and thrust bearings), contact mechanics (rolling element bearings), design of bearings and load bearing surfaces, friction and wear of materials, tribotesting.

**EML 5271**  EN-MMAE  3(3,0)

**EML 5311**  EN-MMAE  3(3,0)
System Control: PR: EML 3312C; CR: EML 5060. Modern control theory for linear and non-linear systems; controllability and observability. Linear state feedback and state estimators, compensator design.

**EML 5402**  EN-MMAE  3(3,0)
Turbomachinery: PR: EML 3101, EML 4703 or EAS 4134. Application of the principles of fluid mechanics, thermodynamics, and aerodynamics to the design and analysis of steam and gas turbines, compressors, and pumps.

**EML 5522C**  EN-MMAE  3(2,3)
Computer-Aided Design for Manufacture: PR: EGN 4535C. Builds on introductory material covered in EML 4535C. Topics include computer modeling for the synthesis, simulation, design and manufacture of mechanical, thermal, and aerospace systems.

**EML 5546**  EN-MMAE  3(3,0)

**EML 5572**  EN-MMAE  3(3,0)

**EML 5573**  EN-MMAE  3(3,0)

**EML 6062**  EN-MMAE  3(3,0)
Boundary Element Methods in Engineering: PR: EML 5237 or EML 5713 or C.I. Integral (numerical) solution of potential, Poisson and diffusion equations; applications to heat transfer and fluid flow; complex variable boundary element methods.
Two-Phase Buckling. Impact on systems.

Emphasis placed on convection heat, mass, and momentum transfer in laminar and turbulent flows. Applications to gaseous radiation problems.


Computational Fluid Dynamics and Heat Transfer I: PR: EML 5152 or C.I. General understanding of elementary concepts. Practical application enabling useful prediction of fracture safety and characteristics. Some general knowledge of fracture mechanisms and fracture criteria.


Teaching Students with Mental Disabilities: Strategies for teaching students with mental disabilities: development, implementation, and evaluation of individualized plans; special approaches to teaching functional skills; developmental programming; data-based management.

Production and Publication Methods: Theory and practice of production and publication methods for technical writers.


Writing for the Business Professional: PR: Graduate status or C.I. A study of the major document designs for professionals in business, focusing on audience, purpose, style, arrangements, and content.
ENC 5267  AS-ENG  3(3,0)
Styles in Technical Writing: PR: Graduate Standing or C.I. This course focuses on all the strategies necessary to write effective technical prose.

ENC 5306  AS-ENG  3(3,0)
Persuasive Writing: Theory and practice of writing persuasively.

ENC 5337  AS-ENG  3(3,0)
Modern Rhetorical Theory: With special attention to the rhetoric-audience relationship, the course studies history and practice of modern rhetorical theory.

ENC 5344  AS-ENG  3(3,0)

ENC 5372  AS-ENG  3(2,1)
Theory and Practice in Composition: PR: Senior standing or C.I. Intensive study of theories of composition, with practical experience in the writing laboratory and in composition classes.

ENC 5427  AS-ENG  3(3,0)
Hypertext: PR: Senior or Graduate standing. A study of the theory and practice of computer-driven hypertext.

ENC 6217  AS-ENG  3(3,0)
Technical Editing: Study of language, style, mechanics, graphics, and management necessary for technical editing.

ENC 6244  AS-ENG  3(3,0)
Teaching Technical Writing: The techniques and theories of teaching technical writing.

ENC 6261  AS-ENG  3(3,0)
Technical Writing, Theory and Practice: A study of major trends in technical communication theory and the practices this theory generates.

ENC 6292  AS-ENG  3(3,0)
Project Management for Technical Writers. Managing a writing project from inception to production: planning, budgeting, personnel, writing, and editing.

ENC 6296  AS-ENG  3(3,0)
Computer Documentation: The theory and practice of producing software documentation from planning through production.

ENG 5009  AS-ENG  3(3,0)
Methods of Bibliography and Research: Bibliographical, library and systematic approaches to research at the graduate level in language and literature.

ENG 5018  AS-ENG  3(3,0)
Literary Criticism: PR: Graduate standing or C.I. Historical survey of major critics from classical antiquity to the modern era.

ENL 5237  AS-ENG  3(3,0)
Eighteenth Century Studies: Reading, analysis, and discussion of literature in English:1660-1880.

ENL 5250  AS-ENG  3(3,0)
The Victorian Age: Poetry: PR: Graduate standing or C.I. Poets of the Victorian period, including Tennyson, the Brownings, Arnold, Hopkins, Hardy, the Rossettis, Emily Bronte, and others.

ENL 5256  AS-ENG  3(3,0)
Victorian Literature: PR: Graduate Standing or C.I. A study of the major prose works and selected poetry of British Victorian writers.

ENL 5269  AS-ENG  3(3,0)
Nineteenth-Century Essays: PR: Graduate standing or C.I. English non-fiction prose of the 19th century.

ENL 5335  AS-ENG  3(3,0)
Studies in Shakespeare: PR: Senior standing or C.I. A selection of representative plays, with emphasis on Shakespeare's development as an artist; aesthetics of dramatic literature.

ENL 5347  AS-ENG  3(3,0)

ENV 5071  EN-CCE  3(3,0)

ENV 5116C  EN-CCE  3(2,3)
Air Pollution Monitoring: PR: ENV 4121C or C.I. Air Pollution sampling techniques, equipment, and monitor siting. Emphasis on theory and direct applications in air pollution monitoring.

ENV 5334  EN-CCE  3(3,0)
Characterization of Hazardous Waste Sites: PR: CWR 4101C and ENV 4341 or C.I. Practical and comprehensive methods of hazardous waste site characterization to determine site properties, contamination type, magnitude and risk, and remedial actions.

ENV 5335  EN-CCE  3(3,0)
Hazardous Waste Management: PR: EGN 3704 or C.I. Engineering planning and analysis associated with the handling, storage, transportation, and disposal of hazardous wastes.

ENV 5410  EN-CCE  3(3,0)
Drinking Water Treatment: PR: ENV 4561. Drinking water treatment using existing and newly developed processes. Fe, Mn, As, NO3, DBP3, SOCs and other contaminants using oxidation, membranes, ion exchange, precipitation, sorption, and other processes.

ENV 5505  EN-CCE  3(3,0)
Sludge Management Operations in Environmental Engineering: PR: ENV 4561. Theory and design of sludge management operations and processes in environmental engineering, including stabilization, dewatering, and ultimate disposal.

ENV 6015  EN-CCE  3(3,0)
Physical/Chemical Treatment Systems in Environmental Engineering: PR: ENV 4561 and EES 4202C or C.I. Theory and design of physical and chemical operations and processes in environmental engineering using latest technologies.

ENV 6016  EN-CCE  3(3,0)
Biological Treatment Systems in Environmental Engineering: PR: EES 4111C and ENV 4561 or C.I. Theory and design of biological operations and processes in environmental engineering using the latest technologies.

ENV 6046  EN-CCE  3(3,0)
Membrane Mass Transfer: PR: ENV 6015 or C.I. Introduction to modeling of mass transfer in membrane systems; membrane morphology, mathematical development of mass transfer coefficients; fouling mechanisms, system modeling, and applications.
ENV 6055 EN-C EE 3(3,0)
Fate and Transport of Subsurface Contaminants: PR: EES 4111C, EES 4202C, CWR 6125. Principal concepts and modeling of the physical, chemical, and biological transport and transformation processes for subsurface contaminants.

ENV 6106 EN-C EE 3(3,0)
Theory and Practice of Atmospheric Dispersion Modeling: PR: ENV 4121C or C.I. Atmospheric composition and dynamics. Engineering methods of mathematical modeling, both for point source and mobile source. Current computer models will be used.

ENV 6126 EN-C EE 3(3,0)
Design of Air Pollution Controls: PR: ENV 4121C. Current methods for engineering design and performance analysis of air pollution control equipment to include scrubbers, baghouses, electrostatic precipitators, VOC incinerators, others.

ENV 6336 EN-C EE 3(3,0)
Site Remediation and Hazardous Waste Treatment: PR: EES 4111C, EES 4202C, and ENV 4561 or C.I. Biological and physical/chemical remediation technologies, including theory and application, for groundwater and hazardous wastes.

ENV 6347 EN-C EE 3(3,0)
Hazardous Waste Incineration: Theory and applications of design and operations of hazardous waste incinerators. Includes detailed consideration of air pollution control equipment.

ENV 6504L EN-C E L 3(1,6)
Unit Operation and Processes Laboratory: PR: ENV 6015 or equivalent. Bench and small pilot plant experimentation with sedimentation, coagulation, sorption gas-stripping, oxidation ion-exchange, etc. in water, waste-water industrial waste, or hazardous waste treatment.

ENV 6519 EN-C EE 3(3,0)
Aquatic Chemical Processes: PR: EES 4202C and EES 4111C or C.I. The applicability of water chemistry and physical chemistry on natural waters and waste-water with emphasis on environmental engineering problems.

ENV 6558 EN-C EE 3(3,0)
Industrial Waste Treatment: PR: ENV 4561. Theories, methods, unit operations of management, reduction, treatment, disposal of industrial wastes.

ENV 6616 EN-C EE 3(3,0)
Receiving Water Impacts: PR: EES 4202C and EES 4111C or C.I. Study of fate and transport of pollutant loadings into receiving waters, based on physical, chemical, and biological interactions in natural systems.

EPH 5335 ED-IP 3(3,0)
Physical and Sociological Implications of Handicapping Conditions: 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 ED-IP 3(3,0)
Secondary School Curriculum Improvement I: PR: Regular Certificate or C.I. Secondary School self studies for curriculum projects, accreditation reports, or staff development.

ESE 6235 ED-IP 3(3,0)
Curriculum Design: PR: Basic Teacher Certificate or C.I. Goal analysis, task analysis, needs assessment, and writing performance objectives for developing courses of study.

ESE 6416 ED-IP 3(3,0)
Curriculum Evaluation: PR: ESE 6235 or an equivalent curriculum course.

ESI 5236 EN-IEMS 3(3,0)
Reliability Engineering: PR: ESI 4312 or equivalent, or C.I. Reliability theory and modeling approaches. Topics include: failure data analysis, maintainability, reliability standards (DOD), software reliability, reliability in design, and electronic systems reliability.

ESI 5315 EN-IEMS 3(3,0)
Research Foundations for IE and OR Modeling: PR: MAP 2032; STA 5156 or equivalent; ESI 4312; and C.I. Research foundations for IE/OR modeling, including constructive analysis of published research, methods of proof, research foundations in decision theory, optimization, and related areas.

ESI 5316 EN-IEMS 3(3,0)
Operations Research: PR: STA 3032. Methods of operations research, including formulation for models and derivation of solutions; linear programming, network models queuing theory, simulation, and nonlinear optimization techniques.

ESI 5318 EN-IEMS 3(3,0)
Military Applications of Operations Research: PR: ESI 4312 or ESI 5316. Course covers application of operations research models to military planning and operations. Use of optimization, simulation, probability, and statistical modeling to evaluate force alternatives.

ESI 5359 EN-IEMS 3(3,0)
Risk Assessment and Management: PR: STA 5156 or STA 5032. Problems and complexities involved in risk assessment and management. Selected methodologies are illustrated through realistic applications in engineering and the sciences.

ESI 5419C EN-IEMS 3(2,2)
Engineering Applications of Linear and Nonlinear Optimization: PR: ESI 4312 or ESI 5316. Course covers linear and nonlinear optimization applications in production planning, staffing, engineering design, distribution networks, and other engineering areas. Focuses on practicing OR analysts.

ESI 5451 EN-IEMS 3(3,0)
Network Based Project Planning, Scheduling, and Control: PR: ESI 4312 or ESI 5316. Probabilistic and deterministic approaches for planning, scheduling, and controlling complex, large-scale projects. PERT, CPM, resource leveling, risk analysis.

ESI 5531 EN-IEMS 3(3,0)
Discrete Systems Simulation: PR: STA 3032, CGS 3422. Methods for performing discrete systems simulation, including network modeling, will be treated.

ESI 6217 EN-IEMS 3(3,0)
Statistical Aspects of Digital Simulation: 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 6224 EN-IEMS 3(3,0)
Quality Assurance Management: PR: ESI 4234 or equivalent or C.I. Implementation and management of the quality assurance function. Planning and organization for quality, quality cost, Quality Audit and Corrective Actions.

ESI 6225 EN-IEMS 3(3,0)

Experience and maintenance of efficient, reliable systems. Methodologies, and systems management for the design, production, application of systems science, operations research, systems development techniques for building large process-based discrete systems.

Advanced Systems Simulation: Seminar in Advanced Operations Research:

- Introduction to Simulated Annealing and Tabu Search
- Genetic Algorithms
- Neural Networks
- Analysis and Dynamic Process Simulation
- Experience and Maintenance of Efficient, Reliable Systems
- Methodologies and Systems Management

Total Quality Management: PR: ESI 6225 or equivalent. Origins and practices of the U.S. TQM movement. TQM as a competitive strategy. Productivity and performance improvement strategies with TQM.

Experimental Design and Taguchi Methods: PR: STA 3032 and ESI 4234. Introduction to Taguchi Concepts and Methodologies, use of design of experiments for quality design and improvement.


Decision Analysis: PR: ESI 4212 or ESI 5316. Classical Bayesian analysis; utility and its measurement; multiattribute utility methods; influence diagrams; Analytic Hierarchy Process; behavioral aspects; simulation.

Linear Programming and Extensions: PR: ESI 4312 or ESI 5316. Simplex and Revised Simplex Method; interior-point methods; duality; large-scale optimization; decomposition algorithms; upper bounds; linearization; parametric LP; goal programming.

Nonlinear Mathematical Programming and Dynamic Programming: PR: ESI 4312 or ESI 5316. Optimal conditions and algorithms for unconstrained and constrained nonlinear problems. Introduction to dynamic programming approach to multistage problems.


Systems Engineering: PR: ESI 4312 or ESI 5316. Integration and application of systems science, operations research, systems methodologies, and systems management for the design, production, and maintenance of efficient, reliable systems.


Operations Research Practicum: PR: C.I. Involves full-time participation and experience in an organization conducting operations research analyses.

Colloquium in Europe from 1919-1939:

Colloquium in Europe Since World War II:

Colloquium in Spanish History:

Colloquium in Soviet Russia: PR: Senior standing or C.I. Reading and class discussion of the literature on selected topics in Russian history, 1911-present.

Colloquium in Czarist Russia: PR: Senior standing or graduate status. Selected topics on the literature of Russia under the Czars prior to 1917.

Colloquium European Intellectual History: PR: Senior standing or C.I. Reading and class discussion of the literature on selected topics of European intellectual history.

Seminar in European History: May be repeated for credit when content is different.

Cooperative Programs in Vocational Education: PR: Regular 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.

Applied Clinical Teaching Techniques in Vocational Education: PR: Regular Certificate or C.I. Study and practice of clinical teaching methods, development of student performance assessment instruments, planning clinical learning experiences, and record keeping.

Student Guidance in the Vocational Program: 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.

Management of Vocational Programs: PR: Rank III 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.

Administration in Vocational Education: PR: Basic Teacher Certificate or C.I. Administrative responsibilities in a local program of vocational education that includes two or more fields of occupational education.
EVT 6265 ED-IP 3(3,0)
Supervision in Vocational Education: 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 ED-IP 2-4(2-4,0)
Vocational Program Planning, Development, and Evaluation: 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 ED-IP 2-4(2-4,0)
School/Community Relations for Vocational Education: 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 5208 AS-PSYCH 3(3,0)
Sensation and Perception: PR: C.I. A study involving human information processing with regard to physical and psychological variables in sensory and perceptual phenomena.

EXP 5256 AS-PSYCH 3(3,0)
Human Factors I: Survey of human factors literature. Introduction to topics including human capabilities and human interfaces with human-machine systems.

EXP 5257 AS-PSYCH 3(3,0)
Human Factors II: PR: EXP 5256 (HFI). The second in the series of basic human factors courses involving an in-depth examination of issues.

EXP 5258 AS-PSYCH 3(3,0)

EXP 5445 AS-PSYCH 3(3,0)
Psychology of Learning and Motivation: PR: DEP 5005 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.

EXP 6126 AS-PSYCH 3(3,0)
Psychoacoustics: PR: Graduate standing. The psychology, physics, and physiology of hearing and the auditory system.

EXP 6259 AS-PSYCH 3(3,0)
Human Performance: PR: C.I. Human performance dimensions and concepts of assessment of human capabilities; performance acquisition, information processing and decision making; applications of principles to the understanding of stress and performance effectiveness.

EXP 6506 AS-PSYCH 3(3,0)

EXP 6541 AS-PSYCH 3(3,0)
Advanced Human-Computer Interaction: PR: EIN 6258 or C.I. Principles and guidelines of advanced human-computer interaction as they apply to a variety of complex Human-Machine Systems.

EXP 6938 AS-PSYCH 3(3,0)
Teaching Seminar: PR: C.I. Orientation to and supervision in teaching assigned courses.

EXP 6946 AS-PSYCH 8(0,12)
Human Factors Internship: PR: EXP 5256, EXP 6257, PSY 6216, PSY 6217, EXP 6255, INP 6330. Supervised placement in an industrial, governmental, or consulting setting. Student completes a specific project under the supervision of an organizational sponsor and a faculty member.

FIN 5405 BA-FIN 3(3,0)
Financial Concepts: PR: Acceptance into the graduate program, ACG 5005 and ECO 5005 and ECO 5415 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 6314 BA-FIN 3(3,0)
Management of Financial Institutions: PR: Graduate standing and FIN 6406. Analysis of management policies of financial institutions including asset, liability, and capital management. Study of the legal, economic, and regulatory environment faced by banks.

FIN 6326 BA-FIN 3(3,0)
Commercial Bank Management: PR: Graduate standing and FIN 6406 or C.I. Analysis of the interactions of banking policies and current approaches to managing specific products.

FIN 6406 BA-FIN 3(3,0)
Financial Analysis and Management: PR: Graduate standing and FIN 5405 or equivalent. Conceptual and practical problems associated with financial management of the nonprofit corporation.

FIN 6425 BA-FIN 3(3,0)
Asset Management and Financial Decisions: PR: Graduate standing and FIN 6406. Considers the interrelated decision-making process of asset allocation, corporate fundraising, dividend policies, and market maximization.

FIN 6475 BA-FIN 3(3,0)
Business Valuation: PR: Graduate standing and FIN 6406. Theory and practice of estimating the value of small, closely held businesses.

FIN 6506 BA-FIN 3(3,0)
Analysis of Investment Opportunities: PR: Graduate standing and FIN 6406. Deals with the theory and tools of analysis required in the management of financial assets.

FIN 6507 BA-FIN 3(3,0)
Seminar in Investments: PR: Graduate standing, FIN 6406, and FIN 6506. Analysis of options, futures, and other derivative securities and their use in hedging strategies. Other topics include institutional equity and bond portfolio management techniques.

FIN 6627 BA-FIN 3(3,0)
International Financial Management: PR: ECO 6416, FIN 6406. The theory of finance as applied to the operations of multinational firms and international capital markets.

FIN 7807 BA-FIN 3(3,0)
Corporate Finance Theory: PR: Admission to the Business doctoral program and FIN 6406 or equivalent; ECO 6416 or equivalent; or C.I. Elaborate coverage of significant theoretical/classical literature and review of empirical literature to provide a sound framework of conceptual knowledge for doctoral students.
<table>
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<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credit hours</th>
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<tbody>
<tr>
<td>FIN 7813</td>
<td>Seminar in Financial Markets and Institutions: PR: Admission to Business doctoral program and FIN 6406 or equivalent, ECO 6416 or equivalent, and C.I. Extensive study of the theoretical and empirical literature dealing with current theory of the operation of financial markets and financial intermediaries.</td>
<td>3(3,0)</td>
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<tr>
<td>FIN 7816</td>
<td>Investment Theory: PR: Admission to business doctoral program, FIN 7807, QMB 7565, and C.I. Extensive coverage of theoretical and empirical literature dealing with modern investment thought, portfolio theory, capital market equilibrium, and related topics.</td>
<td>3(3,0)</td>
</tr>
<tr>
<td>FIN 7915</td>
<td>Directed Research in Finance: PR: FIN 7813, FIN 7816, and C.I. Advanced study of theory and evidence in specialized areas of finance. Study designed to lead toward student's dissertation. By definition, topical areas will vary.</td>
<td>3(3,0)</td>
</tr>
<tr>
<td>FIN 7930</td>
<td>Seminar in Finance: PR: FIN 7813, FIN 7816, and C.I. Study of private sector financial theory, policy, empire, and decision making.</td>
<td>3(3,0)</td>
</tr>
<tr>
<td>FLE 5870</td>
<td>Methods of Teaching Spanish: PR: Graduate Standing or C.I. Topics to be examined include language proficiency and achievement, theoretical perspectives in methodology, and test design/evaluation as applicable for teaching Spanish language and culture.</td>
<td>3(3,0)</td>
</tr>
<tr>
<td>FLE 5875</td>
<td>Computer Application in Teaching the Spanish Language: PR: Graduate Standing or C.I. Survey, analysis, and evaluation of computer software and Internet materials for graduate students of Spanish.</td>
<td>3(3,0)</td>
</tr>
<tr>
<td>FSS 6365</td>
<td>Management of Food Service Operations: PR: Graduate standing. The examination of techniques and mechanisms employed in the management of food service operations. Comparisons, case studies, and selected topics focus on private and public operations.</td>
<td>3(0,0)</td>
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<tr>
<td>GEB 6115</td>
<td>Entrepreneurship: PR: Graduate standing. Seminar on topics concerning the entrepreneurial process in small and large organizations, including needs assessment, sources and methods of innovation, financing, and barriers to entrepreneurship.</td>
<td>3(3,0)</td>
</tr>
<tr>
<td>GEB 6365</td>
<td>International Business Environment: PR: Graduate standing, MAN 5050, MAR 5055, ACG 5005, FIN 5405, and ECO 5005. Extensive coverage of international business environment with emphasis on the functional operation of multinational firms.</td>
<td>3(3,0)</td>
</tr>
<tr>
<td>GEB 7910</td>
<td>Research Methods in Business: PR: Admission to Business doctoral program and ECO 6416 or equivalent; or C.I. A foundation research course in business, exposing students to a full range of research experiences.</td>
<td>3(3,0)</td>
</tr>
<tr>
<td>GEB 7932</td>
<td>Business Ph.D. Foundations: PR: Admission to the Ph.D. Program. A multidisciplinary introduction to doctoral-level study of business administration.</td>
<td>3(3,0)</td>
</tr>
<tr>
<td>HFT 6240</td>
<td>Managing Hospitality and Guest Services Organizations: PR: Graduate standing. Analysis of the unique problems of managing organizations in hospitality and guest services industry.</td>
<td>3(3,0)</td>
</tr>
</tbody>
</table>

**HFT 6251** BA-HOSP 3(3,0) The Management of Lodging Operations: PR: Acceptance into the graduate program. Presentation and analysis of the unique management techniques applicable in the diverse segments of the lodging industry.

**HFT 6710** BA-HOSP 3(3,0) International Tourism Management: PR: Graduate standing. A review and critical analysis of the issues and techniques of international tourism management with specific attention to the economic, sociocultural, and environmental impacts.

**HFT 7258** BA-HOSP 3(3,0) Strategies & Tactics: Lodging: PR: Admission to Ph.D. program in Business Administration. Extensive review of the theoretical and empirical literature related to current strategies and operations of lodging enterprises throughout the world.

**HFT 7546** BA-HOSP 3(3,0) Strategies & Tactics: Guest Service Management: PR: Admission to Ph.D. program in Business Administration. Comprehensive review of the theory, methods, and research findings related to the management of guest service organizations, with special emphasis on hospitality and tourism enterprises.

**HFT 7715** BA-HOSP 3(3,0) Strategies & Tactics: Travel & Tourism: PR: Admission to Ph.D. program in Business Administration. An in-depth investigation of the various components of travel and tourism focusing on the role of policy in their operation and development.

**HFT 7876** BA-HOSP 3(3,0) Strategies & Tactics: Foodservice: PR: Admission to Ph.D. program in Business Administration. Extensive review of the theoretical and empirical literature related to current strategies and operations of lodging enterprises throughout the world.

**HIS 5158** AS-HIST 3(3,0) Classic and Contemporary Historical Thought: PR: Graduate Standing. Course will explore work of important historians influenced by social theory to gain an understanding of their main concepts.

**HIS 6159** AS-HIST 3(3,0) Historiography: Selected topics in the study of history. May be repeated for credit with consent of instructor.

**HIS 6942** AS-HIST 3(3,0) Internship: PR: C.I. The Graduate internship in Archival Arrangement is a one semester course in which students seeking their Master's degree in History learn principles of managing and preserving manuscript collections.

**HIS 6946** AS-HIST 3(3,0) Teaching Practicum: Student observation, participation, direction, and leadership in a college survey course.

**HSA 5198** HPA-H&PT 3(3,0) Information Systems and Computer Applications in Medicine: PR: CGS 2100 or equivalent. Overview of health information systems, with an emphasis on computer applications. Discussion of software and hardware requirements.

**HSA 6107** HPA-H&PT 3(3,0) Health Care Organization and Management I: Study of health care organizations, including modern management, organizational structure, systems control, human performances, planning, and leadership.
HSC 6126  HPA-H&PT  3(3,0)
Principles of Managed Care: The course will acquaint students with the components of managed care, contract stipulations, provider practice patterns, and financing aspects.

HSA 6188  HPA-H&PT  3(3,0)
Health Care Organization and Management II: PR: HSA 6107, HSA 5148, HSC 6911. Emphasis on planning, development, marketing approaches, and problem solving using computer methods.

HSA 6385  HPA-H&PT  3(3,0)

HSA 6508  HPA-H&PT  3(3,0)
Principles of Practice Management: Studies the various models of practice organization and delivery. Emphasis is on risk management as it applies to medical practices.

HSA 6815  HPA-H&PT  2-6(0,20)
Practicum in Health Care Management: PR: Graduate status or C.I. Supervised practicum in health care institution management.

HSA 6925  HPA-H&PT  3(3,0)
Capstone Symposium: PR: HSA 6107, HSA 6108, HSA 6126, HSC 6636, PHC 6160, PHC 6420. Course draws on information from other required courses, and prepares students for comprehensive examinations. Discussions, lectures, debates, guest speakers, and guest faculty highlight course.

HSC 5595  HPA-H&PT  3(3,0)
AIDS: A Human Concern: Focus on epidemiology, transmission, prevention, legal and health care issues, economic impact, psychosocial aspects, sexuality, substance abuse, ethics, hotlines, referral services and the decision making process.

HSC 6132  HPA-H&PT  3(3,0)
Health Care Finance: 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 6175  HPA-H&PT  3(3,0)
Advanced Trends in Health Care Finance Theory: PR: PHC 6160 or C.I. Public health funding philosophies; evolving market strategies of insurers and managed care organizations; macroeconomic implications of alternative financing policies.

HSC 6245  HPA-H&PT  3(3,0)
Community Health Education: Development and evaluation of community health education programs within voluntary health organizations, HMOs, hospitals, and academic institutions.

HSC 6306  HPA-H&PT  3(3,0)
Organization and Management of Health Science Programs: PR: Graduate status or C.I. Management of professional health education programs in various institutional settings: university, community college, academic medical centers. Includes program planning, development, and evaluation.

HSC 6402  HPA-H&PT  3(3,0)
Environmental Health: 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  HPA-H&PT  3(3,0)
Epidemiology: PR: Graduate status or C.I. A study of the distribution and determinants of diseases and injuries in human populations.

HSC 6513  HPA-H&PT  3(3,0)
Principles and Practice of Medicine: PR: Graduate status or C.I. A comprehensive survey of medicine.

HSC 6568  HPA-H&PT  3(3,0)
Issues in Geriatric Health Care: 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 6575  HPA-H&PT  3(3,0)
Principles of Preventive Medicine: Total concept of health care including methods of screening, diagnosis, treatment, rehabilitation, and promotion of health in diverse populations.

HSC 6605  HPA-H&PT  3(3,0)
Health and Society: PR: Graduate status or C.I. Understanding health and illness as defined by patients, providers, and other persons in the social system.

HSC 6636  HPA-H&PT  3(3,0)

HSC 6815  HPA-H&PT  2-6(0,20)
Practicum in Health Science Education: PR: Graduate status or C.I. Supervised practicum in academic, clinical, or community instructional program.

HSC 6911  HPA-H&PT  3(3,0)
Scientific Inquiry in the Health Profession: PR: Graduate status or C.I. Research design and statistical evaluation in health professions.

HSC 7118  HPA-H&PT  3(3,0)
Advanced Health Care Organization Theory: PR: Admission to the Ph.D. program in Public Affairs or C.I. New theories of health care management, emphasizing organizational structure, health care leadership, and information management in health care decision making.

HSC 7930  HPA-H&PT  3(3,0)
Special Issues in Health Services Administration: PR: Admission to the Ph.D. program in Public Affairs or C.I. Selected problems in health services administration. Course may be repeated with different content.

HUN 5937  HPA-NURS  3(3,0)
Nutrition and Exercise Physiology: This course correlates human nutrition with exercise physiology. Nutritional concepts are related to human performance and fitness.

IDS 6933  ED-ED S  3(3,0)
Seminar in Teaching Mathematics and Science: PR: Graduate standing and valid Florida Teaching Certificate or C.I. This course is designed so that graduate students may study specific areas related to curriculum, instruction, and assessment in mathematics and science education. (May be repeated for credit.)

IDS 6934  ED-ED S  3(2,1)
Using Technology in Mathematics and Science: PR: Graduate standing and valid Florida Teaching Certificate or C.I. This course emphasizes the learning and use of technology in the teaching of mathematics and science.
IDS 6937  ED-ED S  3(3,0)
Reflecting on Instruction of Mathematics and Science: PR: Graduate standing and valid Florida Teaching Certificate or C.I. Focuses on the work of Dewey and Piaget as it applies to mathematics and science teaching. Emphasizes integrating math and science teaching.

IDS 6939  ED-IP  3(3,0)
Reforming Curriculum in Mathematics and Science Education: PR: Graduate standing and valid Florida Teaching Certificate or C.I. Emphasizes the reform movement including technology, history of curriculum, curriculum theory, and standards documents.

INP 5825  AS-PSYCH  3(3,0)
Human-computer Interface (HCI) design: A Team Approach: PR: Graduate standing or C.I. Interdisciplinary approach to human-computer interface design, including behavior, engineering, computer science, and instructional aspects. Tools and techniques for team development and the evaluation of software for usability

INP 6058  AS-PSYCH  3(3,0)

INP 6215  AS-PSYCH  3(3,0)
Assessment Centers and Leadership: PR: Graduate admission and C.I. Survey of assessment center technology and application with emphasis on leadership theory and practice.

INP 6317  AS-PSYCH  3(3,0)

INP 6605  AS-PSYCH  3(3,0)
Training and Performance Appraisal: PR: Graduate admission and C.I. Survey of theories, research and practice in the areas of industrial/organizational training and performance appraisal.

INP 6939  AS-PSYCH  3(3,0)
Current Topics and Applied Problems in Industrial/Organizational Psychology: PR: Graduate admission and C.I. Survey of current topics in industrial/organizational psychology with emphasis on applied problems.

INP 6946  AS-PSYCH  3(1,6)
Industrial Psychology Practicum I: PR: Graduate admission and C.I. Supervised placement in an applied setting.

INP 6947  AS-PSYCH  3(3,0)
Industrial Psychology Practicum II: PR: Graduate admission and C.I. Supervised research in industry. May be repeated for credit.

INR 6007  AS-POLS  3(3,0)
Seminar in International Politics: Introduces the student to the advances in international relations theory and research through a broad sampling of approaches and methods.

INR 6086  AS-POLS  3(3,0)
International Public Policy: PR: Graduate standing. Examines endogenous and exogenous variables involved in selected issues in the arena of international public policy.

ISM 5021  BA-MAN  3(3,0)
Introduction to Management Information Systems: 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.

ISM 6121  BA-MAN  3(3,0)
Systems Analysis and Development: PR: MAN 5050 and graduate standing. Study and application of systems concepts for the improvement of organizational work and information systems.

ISM 6305  BA-MAN  3(3,0)
Information Resources Management: PR: ISM 5021, MAN 5050, MAN 5501, and graduate standing. An advanced study of information system management including system planning, project selection and management, and organizational information management policies.

ISM 6395  BA-MAN  3(3,0)
Seminar - Management Information System: PR: ISM 6305, ISM 6121, and graduate standing. This seminar covers theoretical foundations and current research directions in management information systems. Topics include organizational and managerial processing; systems design, development and implementation.

ISM 7029  BA-MAN  3(3,0)
Doctoral Seminar in MIS: PR: MAN 7207. Examination of impacts of IT, IT-based innovation, and IT management.

LAE 5195  ED-IP  3(3,0)
CFWP Teacher Consultant: PR: C.I. This course is designed for Fellows of the CFWP Summer Institute who will plan, practice, and present writing inservice components to public schools.

LAE 5295  ED-IP  1-3(1-3,0)
Writing Workshop I: PR: C.I. Students will engage in exploration and practice of effective writing strategies. May include teaching small groups of students. May be repeated for credit.

LAE 5319  ED-IP  3(3,0)
Methods of Elementary School Language Arts: PR: EDG 4323. Principles, procedures, organization and current practices in reading, writing, listening, and talking.

LAE 5337  ED-IP  3(3,0)
Literacy Strategies for Middle and Secondary Teaching: PR: Graduate standing or C.I. Designed to assist teachers and graduate students in understanding the adolescent learner. This course will examine theory, strategies, research, resources and implementation options for effective middle and secondary literacy programs.

LAE 5367  AS-ENG  3(3,0)
English Composition and Literature for Teachers of Advanced Placement: PR: Graduate standing and C.I. A two-week summer institute for secondary school teachers preparing to teach Advanced Placement courses.

LAE 5372  AS-ENG  3(2,1)
Theory and Practice in Composition: PR: Senior standing or C.I. Intensive study of theories of composition, with practical experience in the writing laboratory and in composition classes.

LAE 5415  ED-IP  3(3,0)
Children's Literature in Elementary Education: Survey of children's literature: criteria for selection according to literary elements and child development needs. Methods for presenting to children; integrating literature with elementary curricula.
Trends in Language Arts Education: PR: Basic Teacher Certificate or C.I. Historical development and trends; English usage systems; materials; instructional strategies.

Investigation in Children's Literature: PR: A previous survey course in children's literature. Learning through the utilization of children's literature; literature analysis and evaluation; storytelling; visual and reference materials.

Studies in Adolescent Literature: Analysis of major works in genre, examination of criticism, instructional strategies, and research in teaching adolescent literature.

Research in Teaching English: Examination and interpretation of major research in English education. Design of models for research in language instruction in secondary schools.

CFWP Teacher/Researcher: PR: C.I. Teachers who have completed a NWP Summer Institute will examine classroom research methods and trends, and design a study to conduct the following year.

Colloquium in U.S.-Latin American Relations: PR: Senior Standing and C.I. The course will analyze U.S.-Latin American relations from an historical perspective. It will be presented through readings and discussion of selected materials.

Seminar in Latin American History: May be repeated for credit when content is different.

Recreation: A comprehensive study of public, private, and school recreation programs.

Linguistics: PR: Senior or graduate standing or C.I. Modern linguistic theories and studies focusing on language acquisition and development, contemporary American English, semantics, and para-linguistics.

Psycholinguistics: 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.

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

Form and Theory of Short Story: PR: Graduate status or C.I. Evolving forms and theories of short fiction and the implications of form and theory.

Studies in Contemporary Poetry: English language poetry from 1945 to the present. Emphasis will be on American poets, but others such as English or Australian will be included.

Studies in Contemporary Fiction: PR: Senior standing or C.I. Fiction in the last 20 years in the United States and Britain. May be repeated for credit when content is different.

The Victorian Age: Poetry: PR: Graduate standing or C.I. Poets of the Victorian period, including Tennyson, the Brownings, Arnold, Hopkins, Hardy, the Rossettis, Emily Bronte, and others.

Nineteenth-Century Essays: PR: Graduate standing or C.I. English non-fiction prose of the 19th century.

Popular Culture and Media: PR: Graduate standing or C.I. Study of contemporary media and the literature of popular culture.

The Romantic Revolt (19th Century Literature): PR: Senior standing or C.I. The romantic revolt in poetry and prose; English, American and Continental literature from 1798 to 1832.

Literary Genres: PR: Graduate standing. Provenance, structure, and critical problems in a specific genre such as tragedy, the epic, the novel, or the lyric. May be repeated for credit when content is different.

World Literature: PR: Graduate standing. Study of the influence on British and American literature of selected foreign works read in translation. May be repeated for credit when content is different.

Movements in Literature: PR: Graduate standing. Study of a movement such as naturalism, romanticism, or classicism, or of a literary period such as the Baroque or the Modern period, including Tennyson, the Brownings, Arnold, Hopkins, Hardy, the Rossettis, Emily Bronte, and others.

Major Authors: PR: Graduate standing. Study of a single author or of two or three associated authors, with emphasis on biography, bibliography, and style. May be repeated for credit when content is different.

Topics in Advanced Calculus: PR: MAA 4226 or equivalent. Topics in multivariable calculus, including limits, continuity, integration, differentiation, Taylor's theorem, inverse and implicit function theorems.
MAE 5358  ED-IP  3(3,0)
Teaching General Mathematics in the Secondary School: PR: MAE 3330 or C.I. This course addresses specific techniques for developing general mathematics skills and concepts beginning in grade 6. Problem solving, motivation, and innovative methods are explored.

MAE 5395  ED-IP  3(3,0)
Teaching Measurement in Schools: Metric system, methods of developing different measurement skills and concepts, and curriculum changes needed to accommodate measurement.

MAE 5935  AS-MATH  3(3,0)
Post-Secondary Mathematics: The course will focus on issues which are faced by teachers of collegiate mathematics. Topics will be selected from teaching issues, program issues, and other issues.

MAE 6145  ED-IP  3(3,0)
Mathematics Curriculum, K-12: PR: At least 6 semester hours 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 6337  ED-IP  3(3,0)
Teaching Algebra in the Secondary School: PR: MAE 3330 or C.I. Addresses specific techniques for developing algebra skills for pre-algebra through precalculus algebra needs. Logical deductions, problem solving, computer applications, and innovative methods are explored.

MAE 6338  ED-IP  3(3,0)
Teaching Geometry in the Secondary School: PR: MAE 3330 or C.I. This course addresses specific techniques for developing geometry skills beginning in the general mathematics classes of grade 6 through the high school geometry course.

MAE 6517  ED-IP  3(3,0)
Diagnosis/Remediation of Difficulties in Mathematics for the Classroom Teacher: PR: Basic Teacher Certificate or C.I. The study of techniques for diagnosis and remediation of difficulties in mathematics.

MAE 6611  ED-IP  3(2,1)
Problem Solving and Critical Thinking Skills: 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 6656  ED-IP  3(3,0)
Using Technology in the Instruction of K-12 Mathematics: PR: CAP 6613 or C.I. The application of computer technology to mathematics instruction including calculators, CAI, CMI, application software, simulators, and video disc technology.

MAE 6899  ED-IP  3(3,0)
Seminar in Teaching Mathematics: 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.)

MAE 7795  ED-IP  3(3,2)
Seminar on Research in Mathematics Education: PR: Doctoral standing.

MAN 5050  BA-MAN  2(2,0)
Management Concepts: PR: Acceptance in MBA program. Theory and practice of managing organizations to include planning, organizational theory, human behavior, and control.

MAN 5501  BA-MAN  2(2,0)
Introduction to Production/Operations Management: PR: Acceptance into the graduate program and ECO 5415 or equivalent. Introduction to the fundamental concepts, processes, and institutions involved in the production of goods and services required by modern society.

MAN 6055  BA-MAN  3(3,0)
Planning and Control Analysis: PR: Graduate standing and MAN 5050 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  BA-MAN  3(3,0)
History of Management Thought: PR: Graduate standing and MAN 5050. 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  BA-MAN  3(3,0)
Group Decisions and Analysis: PR: Graduate standing and MAN 5050 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 6158 BA-MAN 3(3,0) Human Resources Management Issues: PR: MAN 6156 or C.I. A course providing advanced study in selected topics of current interest in human resource management.

MAN 6245 BA-MAN 3(3,0) Organizational Behavior and Development: PR: Graduate standing and MAN 5050 or equivalent. The analysis of human behavior in organizations in terms of the individual, small group, intergroup relationships, and the total organization.

MAN 6296 BA-MAN 3(3,0) Executive Leadership: PR: Admission to the Executive MBA Program. A review of the theory, research, and practice of leadership in organizations. Special attention to contemporary leadership issues, including transactional and transformational leadership.

MAN 6299 BA-MAN 3(3,0) Creative and Innovative Management: This course examines the emerging theories and practices related to creative and innovative management. It combines the creativity of new concepts, new ideas, new directions, and the like with their innovative implementation in a management context.

MAN 6305 BA-MAN 3(3,0) Personnel Resources Administration: 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 6515 BA-MAN 3(3,0) Research and Development Management: PR: Graduate standing and MAN 5050. An examination of the function of research and development and the impact of technological innovation on our economic and social systems.

MAN 6546 BA-MAN 3(3,0) Quantitative Models for Business Decisions: PR: Graduate standing and ECO 5415 or equivalent. Quantitative techniques useful for the solution of business problems. Mathematical model building to aid the decision-making process is stressed.

MAN 6547 BA-MAN 3(3,0) Expert Systems for Business Application: PR: Graduate standing and C.I. if non-Business student. An introduction and application of the fundamentals of artificial intelligence (AI) knowledge-based expert systems technology to problem solution needs of business and other disciplines.

MAN 6565 BA-MAN 3(3,0) Production/Operations Analysis: PR: MAN 5050, MAN 5501 or equivalents and MAN 6546. Study of the production/operations environment and the development of the organization's operations strategy and plan.

MAN 6721 BA-MAN 3(3,0) Business Policy and Responsibility: PR: Graduate standing and completion of all MBA 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 7207 BA-MAN 3(3,0) Organization Theory: PR: Doctoral standing. Study of impact of environment, technology, size, and innovation on organization structure, functions, and development.

MAN 7275 BA-MAN 3(3,0) Organizational Behavior: In-depth review of the classic and modern organizational behavior research literature, which deals with management of individual and group behavior in organizations.

MAN 7776 BA-MAN 3(3,0) Business-level Strategic Management: PR: Admission to doctoral program and C.I. In-depth review of the classic and modern business-level strategy research literature, which deals with topics such as competitive strategy, industry analysis and the strategy process.

MAN 7777 BA-MAN 3(3,0) Corporate-level Strategic Management: PR: Admission to doctoral program and C.I. In-depth review of the classic and modern corporate-level strategy research literature, which deals with topics such as diversification, cooperative alliances and acquisitions strategies.

MAP 5336 AS-MATH 3(3,0) Ordinary Differential Equations and Applications: PR: MAP 2302 or C.I. Existence and uniqueness of solutions of differential equations, systems of ordinary differential equations, autonomous systems, phase plane analysis, stability, bifurcations.

MAP 5385 AS-MATH 3(3,0) Applied Numerical Mathematics: PR: MAP 2302 or C.I. Classical topics or numerical analysis and their applications, Romberg integration, Richardson extrapolation, Gaussian quadrature schemes.

MAP 5396 AS-MATH 3(3,0) Splines and Data Fitting: PR: MAS 3106, MAS 3105, MAP 2302, or C.I. Univariate splines and their application to data fitting. Applications to regression analysis, differential and integral equations. Algorithms to use different types of splines in computation.

MAP 5404 AS-MATH 3(3,0) Mathematical Foundations for Industrial Engineering and Operations: PR: MAP 2302, STA 5156 or equivalent, ESI 4312, or C.I. Methods of proof, set theory; basic elements of topology, real analysis, graph theory, and matrix analysis.


MAP 5426 AS-MATH 3(3,0) Special Functions: PR: MAP 2302 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 5435 AS-MATH 3(3,0) Advanced Mathematics for Engineers: PR: MAP 2302 or C.I. Linear Algebra and matrix methods, ordinary differential equations, Fourier series, partial differential equations, numerical methods for differential equations, and applications to engineering.

MAP 5514 AS-MATH 3(3,0) Linear and Nonlinear Waves I: PR: MAP 2302, MAP 4363, or C.I. Equations of motion in inviscous and viscous fluids, energy equation and energy flux, linear theory of gravity and capillary-gravity waves, variational principles for water waves.

MAP 5931 AS-MATH 1(1,0) Research Seminar: Four instructors will introduce the students to a research area by presenting necessary background and presenting current investigations. Different branches of mathematics will be presented for a sense of diversity.
### Advanced Transform Methods:
- Hilbert problem.
- Scales, WKB theory.
- Fourier transforms of distributions, and applications to signal analysis and optics.
- Radon transforms, singular perturbation expansions, boundary layer, multiple analysis and sliding-window Fourier transform, sampling theory.

### Integral Equations:
- Hankel, and other integral transforms, inversion theorems; the MAP 6424 AS-MATH
- Asymptotic methods including Green's functions and integral representations; introduction to nonlinear equations; applications.
- Linear and nonlinear waves, Lie group methods, parabolic, elliptic, or free boundary value problems, spectral analysis.
- Multivariate splines and surface fitting, box splines, surface fitting, applications to statistics, computer graphics.
- Approximation of functions of several variables, tensor product splines, theory of multivariate splines, box splines, surface fitting, applications to statistics, computer graphics.
- Study of functions, institutions, and basic marketing of goods in the U.S. economy.
- Small Business Consulting: PR: Graduate status, all foundation classes, FIN 6406, MAR 6816. Provides students opportunity to apply knowledge learned in classroom to real business situations. Open to undergraduate majors in the College of Business Administration at approval of the department chair.
Contemporary Marketing Problems: PR: Graduate standing, MAR 6816, or C.I. Analysis of contemporary marketing problems resulting from social, economic, and political developments.

Sales Management and Control: PR: Graduate standing and MAR 5055 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.

Advanced Industrial Marketing Management: PR: MAR 5055 or equivalent or C.I. This course provides a comprehensive introduction to the distinctive characteristics of industrial markets. The course reviews what is known about organizational buying behavior which provides the foundation necessary to formulate marketing strategies.

Marketing Research Methods: PR: Graduate standing, ECO 6416. 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.

Marketing Policy: PR: Graduate standing or MAR 5055 or equivalent or C.I. This course provides an overview of mathematical models utilized in marketing contexts.

Seminar in Consumer Behavior: PR: ECO 7424. Provide doctoral students with a broad exposure to the literature of consumer behavior theories and methods.

Seminar in Marketing Theory, Scaling, and Measurement: PR: ECO 7424. Provide doctoral students with a foundation in marketing theory, scaling, and measurement.

Seminar in Marketing Models: PR: ECO 7424 and ECO 7425. Course provides an overview of mathematical models utilized in marketing contexts.

Seminar in Marketing Strategy: PR: ECO 7424. Provide doctoral students with a broad exposure to the literature surrounding marketing strategy and management issues.

Advanced Linear Algebra and Matrix Theory: PR: MAS 3105. LU and LDU decompositions, linear spaces, inner product spaces, systems of linear equations, eigenvalues and canonical forms, variational principles and applications.

Abstract Algebra with Applications: PR: MAS 4301 or undergraduate abstract algebra. Group actions, the class equation, Sylow Theorems, polynomial rings, Euclidean domains, principal ideal domains, field extensions, modules, and semi-simple rings.

Doubly Stochastic Measures: PR: MAP 6506, MAP 5416, MAP 6111, MAP 6110, or C.I. Doubly stochastic matrices, Birkhoff's theorem, double stochastic measures, Douglas-Linden-strauss theorem, copulas, Frechet bounds, dependence of random variables, Markov operators.

Infectious Processes: PR: MCB 3020C or C.I. Discussion of current theories of the infectious process and the response of host cells and tissue to infection.

Molecular Biology of Disease: PR: Graduate standing or C.I. An in-depth study of the molecular biological mechanisms of diseases in experimental animal models and human populations.

Variable Current Topics in Molecular Biology: PR: Graduate standing or C.I. Selected current research topics from the primary literature reflecting recent advances in molecular biology. May be repeated for credit.


Applied Microbiology: PR: MCB 3020C or C.I. Microbial biochemistry of industrial processes including: economics, screening, scale up, quality control and applied genetics.

Laboratory Methods in Molecular Biology: PR: PCD 4524 and MCB 4404, or C.I. Experimental techniques and design in laboratory biological research.

Microbial Metabolism: PR: C.I. Relationship between microbial metabolism and principal cellular activities, emphasizing transport, respiration, differentiation, and synthesis.

Introduction to the Counseling Profession: PR: Completion of Phase II of Education Professional Preparation or C.I. Overview of the philosophy, organization, administration, and roles of counselors in various work settings.

Mental Health Care Systems: PR: MHS 5005 or C.I. Foundations of mental health counseling including organizational, administration, fiscal, and accountability structures.

Diagnosis and Treatment in Counseling: PR: MHS 6400, MHR 6401. Examines diagnosis in the assessment and treatment of mental disorders and the use of the DSM IV. Disorders reviewed with emphasis on symptoms and implications for treatment.

Individual Psychoeducational Testing I: An overview of appraisal instruments for individual testing with emphasis on administration, scoring, and interpretation. Designed for practitioners interested in understanding individual assessment.

Individual Psychoeducational Testing II: 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.
### Theories of Counseling and Personality: PR: MHS 5005 or MHS 6020, EDF 6481, or C.I. Major theories and approaches to counseling, correlating them with counterpart theories of personality and learning. **MHS 6400 ED-ED S 3(3,0)**

### Techniques of Counseling: PR: MHS 6400 or C.I. The nature of counseling and its relationships to theoretical concepts. **MHS 6401 ED-ED S 3(1,2)**

### Counseling Special Populations: PR: MHS 5005 or MHS 6020 or C.I. Application of counseling principles with various special populations including multicultural subgroups, persons of abuse, exceptional children, gay and lesbian people, etc. **MHS 6420 ED-ED S 3(3,0)**

### Play Process in Counseling with Children: PR: SDE 6411 or C.I. Theories and application of the principles of play in the counseling process with children. **MHS 6421 ED-ED S 3(3,0)**

### Family Counseling I: PR: MHS 5005 or MHS 6020 or C.I. Presentation of specific family counseling theories. An evolution and current state of the art. **MHS 6430 ED-ED S 3(1,2)**

### Family Counseling II: PR: MHS 6430, EDF 6481, or C.I. Presentation of techniques to work with entrenched, paradoxical, and “fixed” family systems that pose problems for the family and the counselor. **MHS 6431 ED-ED S 3(1,2)**

### Counseling Substance Use and Abuse: PR: MHS 5005 or MHS 6020, or 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. **MHS 6450 ED-ED S 3(3,0)**

### Human Sexuality and Relationships: A basic course in understanding how human beings form intra- and interpersonal relationships and how sexuality develops. **MHS 6480 ED-ED S 3(3,0)**

### Group Procedures and Theories in Counseling: PR: MHS 6401. This course is designed to give the student an understanding of the role of theories in group counseling as well as the many process applications of groups. **MHS 6500 ED-ED S 3(3,0)**

### Advanced Counseling: PR: MHS 6500 or C.I. This course is designed to give students practical experience in leading groups. It is also intended to challenge students to explore professional and advanced issues in group counseling. **MHS 6510 ED-ED S 3(1,2)**

### Consultation, Staffing, and Case Management: PR: MHS 6500 or C.I. Understanding the counselor’s role as consultant and staffing team member. Study of case management procedures. **MHS 6600 ED-ED S 3(2,0)**

### Ethical and Legal Issues: Studies of ethical standards and legal issues in counseling and other human service professions. **MHS 6780 ED-ED S 3(3,0)**

### Practicum in Counseling Education: PR: MHS 6500 or C.I. Supervised counseling emphasizing competence in (1) individual counseling; (2) working with groups; (3) tests in educational-career-personal counseling. May be repeated for credit. **MHS 6800 ED-ED S 3(1,3)**

### Counseling Internship: PR: C.I. Supervised placement in setting appropriate for program track. (May be repeated for credit) **MHS 6830 ED-ED S 1-6(1,1-6)**

### Current Trends in Counselor Education: PR: MHS 5005 or 6500 or C.I. Current trends affecting the rapid changes in the counseling field. **MHS 6930 ED-ED S 3(3,0)**

### Legal and Ethical Issues for Communication: A study of social, ethical and legal issues for Communications practitioners and the impact on media consumers. **MHC 6202 AS-COMM 3(3,0)**

### Mass Media Research I: Qualitative approaches to mass communication research. **MHC 6446 AS-COMM 3(3,0)**

### Seminar in New Media: A study of the development and convergence of new technologies and their mediation. **MHC 6567 AS-COMM 3(3,0)**

### Communication and Government: A study of the relationship between the media and government. **MHC 6612 AS-COMM 3(3,0)**

### Trends in Arts Education: PR: Initial Certification or C.I. Investigation of current trends in arts education; development of strategies for utilizing understandings of arts education in the total curriculum of elementary students. **MUE 5955 ED-IP 3(3,0)**

### Teaching Performing Organizations: PR: Basic Teacher Certificate or C.I. Techniques and skills for planning, administering, and directing performing music organizations. Examination of historical and philosophical foundations of music education. **MUE 6155 ED-IP 3(3,0)**

### Graduate Courses

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Title</th>
<th>Units</th>
<th>Notes</th>
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</thead>
<tbody>
<tr>
<td>MUE 6946</td>
<td>Practicum in Music Education: PR: Basic Teacher Certificate.</td>
<td>3(0,14)</td>
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<td></td>
<td>MUE 6349 and MUE 6155, MUE 6610 and MUE 6630 or C.I. Field experience in teaching music. (May be repeated for credit.)</td>
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<td>MUS 5526</td>
<td>AS-MUSIC</td>
<td>3(3,0)</td>
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<td>Music and Technology: PR: Graduate Student. The emergence of technology in music including MIDI, CD ROM, and the high-tech music classroom.</td>
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<td>MUT 5381</td>
<td>AS-MUSIC</td>
<td>3(3,0)</td>
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<td>MVB 5451</td>
<td>AS-MUSIC</td>
<td>2(1,0)</td>
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<td>Trumpet V: PR: C.I. May be repeated for credit.</td>
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<td>MVB 5452</td>
<td>AS-MUSIC</td>
<td>2(1,0)</td>
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<td>French Horn V: PR: C.I. May be repeated for credit.</td>
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<td>MVB 5453</td>
<td>AS-MUSIC</td>
<td>2(1,0)</td>
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<td>Trombone V: PR: C.I. May be repeated for credit.</td>
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<td>MVB 5454</td>
<td>AS-MUSIC</td>
<td>2(1,0)</td>
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<td>Baritone V: PR: C.I. May be repeated for credit.</td>
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<td>MVB 5455</td>
<td>AS-MUSIC</td>
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<td>Tuba V: PR: C.I. May be repeated for credit.</td>
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<td>MVK 5451</td>
<td>AS-MUSIC</td>
<td>2(1,0)</td>
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<td>Piano V: PR: C.I. May be repeated for credit.</td>
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<tr>
<td>MVK 5453</td>
<td>AS-MUSIC</td>
<td>2(1,0)</td>
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<td></td>
<td>Organ V: PR: C.I. May be repeated for credit.</td>
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<td>MVO 5250</td>
<td>AS-MUSIC</td>
<td>1(1,0)</td>
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<td>Advanced Secondary Instruction: PR: Graduate standing and C.I. Advanced instructional techniques on a secondary instrument or in voice. May be repeated for credit.</td>
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<td>MVP 5451</td>
<td>AS-MUSIC</td>
<td>2(1,0)</td>
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<td></td>
<td>Percussion V: PR: C.I. May be repeated for credit.</td>
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<td>MVS 5451</td>
<td>AS-MUSIC</td>
<td>2(1,0)</td>
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<td></td>
<td>Violin V: PR: C.I. May be repeated for credit.</td>
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<td>MVS 5452</td>
<td>AS-MUSIC</td>
<td>2(1,0)</td>
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<td></td>
<td>Viola V: PR: C.I. May be repeated for credit.</td>
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<td>MVS 5453</td>
<td>AS-MUSIC</td>
<td>2(1,0)</td>
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<td></td>
<td>Cello V: PR: C.I. May be repeated for credit.</td>
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<tr>
<td>MVS 5454</td>
<td>AS-MUSIC</td>
<td>2(1,0)</td>
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<td></td>
<td>Bass V: PR: C.I. May be repeated for credit.</td>
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<td>MVS 5455</td>
<td>AS-MUSIC</td>
<td>2(1,0)</td>
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<td></td>
<td>Harp V: PR: C.I. May be repeated for credit.</td>
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<td>MVS 5456</td>
<td>AS-MUSIC</td>
<td>2(1,0)</td>
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<td></td>
<td>Guitar V: PR: C.I. May be repeated for credit.</td>
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<td>MVV 5451</td>
<td>AS-MUSIC</td>
<td>2(1,0)</td>
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<td></td>
<td>Voice V: PR: C.I. May be repeated for credit.</td>
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<td>MVW 5451</td>
<td>AS-MUSIC</td>
<td>2(1,0)</td>
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<td>Flute V: PR: C.I. May be repeated for credit.</td>
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<td>MVW 5452</td>
<td>AS-MUSIC</td>
<td>2(1,0)</td>
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<td></td>
<td>Oboe V: PR: C.I. May be repeated for credit.</td>
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<td>MVW 5453</td>
<td>AS-MUSIC</td>
<td>2(1,0)</td>
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<td>Clarinet V: PR: C.I. May be repeated for credit.</td>
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<td>MVW 5454</td>
<td>AS-MUSIC</td>
<td>2(1,0)</td>
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<td>Bassoon V: PR: C.I. May be repeated for credit.</td>
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<td>MVW 5455</td>
<td>AS-MUSIC</td>
<td>2(1,0)</td>
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<td>Saxophone V: PR: C.I. May be repeated for credit.</td>
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<td>NGR 5141</td>
<td>HPA-NURS</td>
<td>3(3,0)</td>
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<td>Pathophysiological Bases for Advanced Nursing Practice: PR: Baccalaureate Degree in Nursing. Critical examination of the physiological and pathophysiological mechanisms affecting individuals.</td>
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<td>NGR 5720</td>
<td>HPA-NURS</td>
<td>3(3,0)</td>
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<td>Organizational Dynamics: PR: Baccalaureate Degree in Nursing. Analysis of theories and models of health care organizational systems. Emphasis on nursing administration roles.</td>
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<td>NGR 6192</td>
<td>HPA-NURS</td>
<td>3(3,0)</td>
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<td>Pharmacology for Advanced Nursing Practice: PR: NGR 5141. Comprehensive study of medications used in the promotion and maintenance of health across the lifespan. Examination of the implications for advanced nursing practice.</td>
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<tr>
<td>NGR 6722</td>
<td>HPA-NURS</td>
<td>3(3,0)</td>
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<tr>
<td>NGR 6723</td>
<td>HPA-NURS</td>
<td>4(2,2)</td>
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<td>Nursing Administration I: PR: Admission to MSN program, NGR 5720. Theories and principles of nursing administration: Nursing care delivery systems, program evaluation, staffing, personnel management, issues and trends.</td>
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<tr>
<td>NGR 6724</td>
<td>HPA-NURS</td>
<td>5(2,3)</td>
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<td>Nursing Administration II: PR: NGR 6723, NGR 6722. Continuation of Nursing Administration I.</td>
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<td>NGR 6813</td>
<td>HPA-NURS</td>
<td>Variable</td>
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<td>Research Utilization Project: Development of a project which evaluates nursing research findings for applicability to practice.</td>
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<td>PAD 5041</td>
<td>HPA-PUB</td>
<td>3(3,0)</td>
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<td>Ethics and Values in Public Administration: Examination of ethics in the public sector. Public concerns, past patterns, and individual/social aspects of ethical behavior are explored.</td>
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<td>PAD 5336</td>
<td>HPA-PUB</td>
<td>3(3,0)</td>
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<td>Introduction to Urban Planning: Issues of urbanization, regional development, land use and comprehensive planning, environmental planning, and social planning.</td>
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<td>PAD 5337</td>
<td>HPA-PUB</td>
<td>3(3,0)</td>
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<td>Urban Design: Planning techniques such as planned unit developments, capital improvements planning, and growth management, and planning methods, including needs assessment and graphic design.</td>
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<td>PAD 5338</td>
<td>HPA-PUB</td>
<td>3(3,0)</td>
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<td></td>
<td>Land Use and Planning Law: Review of national and local aspects of the legal underpinnings of urban planning aspects such as zoning, growth management, and environmental regulation.</td>
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Dispute Resolution in the Public Sector: An examination of the skills needed to resolve disputes in the public sector through facilitation, mediation, and other alternative methods.

Labor Relations in the Public Sector: Current trends and developments in employment relations in the public sector, especially employee organization, negotiations, and the collective bargaining process.

Local Government Operations: Operational Functions of municipal and county governments and the role of the chief executive officer.

Administrative Practice in the Public Sector: The application of various theoretical concepts to the "real world" of public administration. Policy formulation and execution are examined through the case study mode.

Grant and Contract Management: PR: PAD 3003 or C.I. Study of government or public nonprofit agency grant and contract administration and management responding to funding assistance solicitations and grant and contract preparation, evaluation, and presentation.

Public Administration in the Policy Process: Analysis of the role of the public administrator in the analysis, formulation, implementation, and evaluation of public policies, especially at the state and local levels.

Public Organization Management: Structure, functioning, performance of public organizations; behavior of individuals and groups; application for public management, includes both macro and micro approaches to organizational behavior.

Public Administrators in the Governance Process: An examination of the political, social, economic, and moral context of modern public administration, with special attention to the ethical dimensions of the administrator's role.

Advanced Concepts and Applications in Public Administration: PR: Completion of all core requirements. An integrative course applying the skills, knowledge, and values considered in the program to selected public problems.

Public Financial Management: PR: Graduate standing or C.I. Survey of financial management functions in local government, such as accounting, fund structures, debt and case management, and financial reporting.

Public Budgeting: PR: Graduate standing or C.I. Budgets as planning programming documents, stressing the relationships of policy and budgetary decisions, problems in grantmanship and revenue decision making, program budgeting, PPBS, and incrementalism.

Policy Implementation: Program analysis and organization structure as policy tools, examining the implementation of differential policy and the administrator as policy maker and change agent.
PAF 7110 HPA-PUB 3(3,0)
Ethics and Public Affairs: PR: Admission to Ph.D. Program or C.I. Basic philosophical principles of ethical theories as they impact practitioner-level ethical demands for public managers.

PAF 7230 HPA-PUB 3(3,0)
Strategic Change and Management in Public Affairs: PR: Admission to Ph.D. Program or C.I. Traditional organizational behavior in public affairs within the context of public agency interests and the demand for organizational change.

PAF 7250 HPA-PUB 3(3,0)

PAF 7300 HPA-PUB 3(3,0)
Policy Analysis in Public Affairs: PR: Admission to Ph.D. Program or C.I. Public policy development and impact analysis in criminal justice, health administration, public administration, and social work.

PAF 7510 HPA-PUB 3(3,0)

PAF 7802 HPA-PUB 3(3,0)
Advanced Research Methods in Public Affairs: PR: Admission to Ph.D. Program or C.I. Advanced social science methodology. Critical evaluation of research; the design and conduct of research. A solid background in research methodology is required.

PAF 7804 HPA-PUB 3(3,0)
Advanced Quantitative Research Methods in Public Affairs: PR: Admission to Ph.D. Program or C.I. An investigation of data analysis strategies, including presentation of results, building upon knowledge of hypothesis testing and multivariate statistics.

PAF 7810 HPA-PUB 3(3,0)
Seminar in Survey Research in Public Affairs: PR: Admission to Ph.D. Program or C.I. In-depth analysis of research survey methods and their application. Focus on interviews and questionnaires.

PAF 7820 HPA-PUB 3(3,0)
Seminar in Qualitative Methods in Public Affairs: PR: Admission to Ph.D. Program or C.I. Qualitative research methods and their application to the study of public affairs. Methods examined include case studies, focus groups, ethnographic studies, qualitative interviews, and content analysis.

PAF 7840 HPA-PUB 3(3,0)

PAF 7982 HPA-PUB 2(2,0)
Dissertation Seminar in Public Affairs: PR: Admission to Ph.D. Program or C.I. To provide guidance during the initial stages of dissertation preparation.

PCB 5026 HPA-M&M 3(3,0)
Signal Transduction Mechanics: PR: PCB 3523 and PCB 4524. A course emphasizing various signal transduction cascades used in mammalian cells to control growth and differentiation. Discussion of original research papers will occur.

PCB 5045C AS-BIOL 4(3,2)
Conservation Biology: 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 5107C AS-BIOL 3(3,0)
Advanced Cell Biology: PR: PCB 3063 and PCB 3023 or C.I. Review of selected topics in cell biology with emphasis on current research in areas of membrane structure, protein targeting, cytoskeleton, signalling and cell cycle.

PCB 5235 HPA-M&M 3(3,0)
Immunopathology: PR: PCB 3233. In-depth overview of diseases due to deficiencies or over-reactivity of the immune system.

PCB 5239 HPA-M&M 3(3,0)
Tumor Biology: PR: PCB 4524. A course designed to provide an introduction and broad overview of the current knowledge and research in the field of cancer biology.

PCB 5256C AS-BIOL 4(3,2)
Advanced Developmental Biology: PR: PCB 3063 and ZOO 4603 or equivalent. Lecture and literature review of emerging areas in plant and animal developmental biology.

PCB 5325C AS-BIOL 4(2,4)
Landscape Ecology: PR: PCB 3043, STA 2023 or C.I. Influence of spatial heterogeneity on ecological processes. Emphasizes quantitative methods (e.g., GIS, remote sensing and modeling) to characterize landscape patterns and dynamics.

PCB 5326C AS-BIOL 5(3,2)
Ecosystems of Florida: PR: PCB 3043, PCB 3043L or equivalent. Ecosystems of Florida will be discussed to include geography, geology, climate, energetics, nutrient cycling, community structure and conservation.

PCB 5485 AS-BIOL 3(3,0)
Models in Ecology: PR: PCB 3043, MAC 2311 (or equivalent). A survey of how simulation models are applied to ecological questions of both a theoretical and managerial nature.

PCB 5565C AS-BIOL 4(3,2)
Human Genetics: PR: PCB 3063, graduate standing or C.I. Human Genetics provides a theoretical framework for understanding the biology of the human species.

PCB 5806 HPA-M&M 3(3,0)
Endocrinology: PR: PCB 4723 and BCH 4053 or C.I. Mechanisms of action of hormones; interrelationship between the nervous and endocrine systems.

PCB 6016C AS-BIOL 5(3,4)

PCB 6049 AS-BIOL 2(2,0)
Contemporary Studies in Biology: 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 6365 AS-BIOL 3(3,0)
Environmental Physiology: PR: Physiology and ecology or C.I. The effects of major environmental factors on the physiology of plants and animals.
PCB 6585C  AS-BIOL  5(3,6)
Advanced Genetics: PR: PCB 3063 or C.I. Recent advances in genetics, stressing molecular and developmental trends.

PCB 6675C  AS-BIOL  4(3,2)
Evolutionary Biology: PR: PCB 3043 and PCB 3063 or C.I. Review of modern concepts and theories in evolutionary biology with emphasis on readings in the primary literature.

PCB 6721  AS-BIOL  3(3,0)
Comparative Animal Physiology: PR: An undergraduate course in animal physiology or equivalent. Comparison of structural and functional adaptations of animal organ systems. Emphasis upon maximization of fitness under given environmental conditions.

PET 5355  HPA-H&PT  3(3,0)
Exercise Physiology and Health: In-depth study of adaptations of cardiovascular and respiratory systems during varying degrees of exercise.

PET 6086  ED-E PE  3(3,0)
Exercise Intervention and Risk Hazards: Prevention of select major risk hazards through exercise intervention.

PET 6088  ED-E PE  3(3,0)
Wellness Development in Children: An analysis of wellness characteristics and concepts as they affect the wellness of children.

PET 6089  ED-E PE  3(3,0)
Personal and Organizational Wellness: Professional implications of the U.S. Wellness Movement and assessment of the nature and quality of corporate and other instructional programming.

PET 6238C  ED-E PE  3(2,1)
Perceptual Motor Development: Theoretical and laboratory study of the relationship between perceptual motor development and learning. Special attention is given to identifying and remediating motor deficit.

PET 6357C  ED-E PE  3(3,2)
Environmental Exercise Physiology: A study of physiological adaptation resulting from prescribed physical activity programs.

PET 6357  ED-E PE  3(3,0)

PET 6381  ED-E PE  3(3,0)
Physiology of Neuromuscular Mechanisms: Human body morphology and function critical in producing motion, strength, power, and endurance.

PET 6388  ED-E PE  3(3,0)
Exercise Physiology and Cardiovascular Disease Prevention: The physiology of exercise as it affects the onset of cardiovascular diseases.

PET 6389  ED-E PE  3(3,0)
Exercise Physiology Instrumentation: Instrumentation management and assessment protocols related to select exercise physiological parameters: anthropometric, bioenergetic, blood lactate, joint flexibility, and muscle rheology, strength and fatigue curve measurements.

PET 6416  ED-E PE  3(3,0)
Administration of Corporate Wellness Programs: Administrative implications for the development of a corporate wellness program.

PET 6515C  ED-E PE  3(3,0)
Measurement in Kinesiology and Physical Education: Techniques of measurement and evaluation of human performance and their applications to physical education.

PET 6615  AS-PSYCH  2(2,1)
Psychomotor Assessment of Exceptional Children: PR: PET 6655 or C.I. Presents assessment techniques and methodology for determining psychomotor needs of exceptional children. Application of competencies is required.

PET 6645  ED-E PE  3(3,1)
Advanced Studies in Adapted Physical Education: PR: EEX 5080. Survey course that addresses the development, educational, and socialization needs of exceptional children. A minimum of 15 observation hours are required.

PET 6646  ED-E PE  4(3,1)
Methods and Curriculum in Adapted Physical Education: PR: PET 6645, PET 6655, PET 6615. Individualized educational and developmental programming for exceptional children. Presents models of service delivery and instruction. Practicum required.

PET 6647  ED-E PE  3(3,1)
Program Development in Adapted Physical Education: PR: C.I. Development of appropriate physical education programs for exceptional children. Course includes teacher-consultant, collaboration, in-service training, legislative issues, resource utilization.

PET 6655  ED-E PE  3(3,1)

PET 6910  ED-E PE  3(3,0)
Problem Analysis - Review of Literature: 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.)

PET 6946  ED-E PE  3(3,0)
Practicum, Clinical Practice:

PHC 6000  HPA-H&PT  3(3,0)
Epidemiology: PR: HSC 6911 or equivalent. A study of the distribution and determination of diseases and injuries in human populations.

PHC 6010  HPA-H&PT  3(3,0)
Quantitative Methods in Epidemiology: PR: Admission to MSHS graduate program and PHC 6000. Principles of managerial epidemiology, quantitative methods, application of prostatistics, use of personal computers to handle data and solve problems.

PHC 6146  HPA-H&PT  3(3,0)
Health Planning and Policy: Review of the determinants of the revolution of the health care system in the United States; 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.

PHC 6160  HPA-H&PT  3(3,0)
Health Care Finance: The identification of resources available to health care institutions, allocation of resources, and control of resource expenditures.
Health and Society: Understanding health and illness as defined by patients, providers, and other persons in the social system.

Case Studies in Health Law: Health law including patient care, liability, malpractice, workmen's compensation, and legal responsibilities of health personnel.


Advanced Clinical Applications I: PR: PHT 3821. Full-time supervised clinical education in a physical therapy setting. All previous education objectives apply and are cumulative.

Advanced Clinical Applications II: PR: PHT 5816. Full-time internship under the supervision of a physical therapist where the student practices and integrates evaluation skills and treatment knowledge from previous course work.


Topics in Contemporary Physics for Teachers: PR: C.I. The study of recent findings in a selected area such as particle physics, surface physics, planetary atmospheres, lasers, geophysics, etc. May be repeated for credit.

Newtonian Mechanics for Teachers: PR: C.I. A lab, lecture, demonstration course studying selected topics in classical mechanics.

Electricity for Teachers: PR: C.I. Circuits, multimeters, oscilloscopes, circuit elements.


Optics for Teachers: PR: C.I. Geometrical and physical optics, spectrometers and lasers.

Optical Properties of Materials: PR: PHY 4324, MAP 2302, PHY 4424. Normal modes (dipole and Raman active); microscopic theory of absorption, dispersion, and refraction; wave propagation, crystal optics; scattering mechanisms; optical activity.

Laser Principles: PR: PHY 3101, MAP 2302, PHY 4424. Classical introduction to the basic principles of laser gain media, properties of resonators and modes, description of specific laser systems.

Modern X-Ray Science: An introduction to the science and applications of modern x-ray optics, x-ray lasers, etc., with a review of basic properties of x-rays.

Wave Motion for Teachers: PR: C.I. Water waves, waves on strings, sound and vibrations.

Thermal Physics for Teachers: PR: C.I. Engines, heat pumps, kinetic theory, phase changes, radiation, weather.


Quantum Mechanics I: PR: PHY 4605 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 time independent perturbation theory.

Selected Topics in Biophysics of Macromolecules: PR: PHY 3101, CHM 2046, or C.I. Physical concepts and techniques used in the spectroscopic study of dynamic structure and function of biological macromolecules such as proteins; connections with other complex systems. May be repeated for credit.

Electrodynamics II: PR: PHY 5346 or C.I. Dynamics of charged particles in electromagnetic fields. Antennas; radiation by moving charges; magnetohydrodynamics; multipole radiation and electro-dynamics of materials.

Accelerator Physics: PR: PHY 6347. Dynamics of charged particles in electromagnetic fields, electron optics, details of the electrostatic accelerator, the linear accelerator, and cyclic accelerators; properties of cavities and orbiting electrons; new accelerator schemes, including the free electron laser.

Physics of Free Electrons: PR: PHY 6347. Interaction between electrons and fields, transmission lines, microwave tubes and waveguides, synchrotron radiation and undulators, the free electron laser in both the Compton and Raman regimes.

Nonlinear Optics: PR: PHY 5346. Maxwell's equations in nonlinear media, frequency conversion techniques (SHG, SFG, OPO), stimulated scattering, phase conjugation, wave-guided optics, nonlinear crystals.
Advanced Computational methods applied to the solution of advanced problems in many branches of physics.


Specific Laser Systems: PR: PHY 5446 or C.I. Review of laser principles, specifics of gas, ion, solid state, dye, metal vapor, free electron, and semiconductor lasers and power supplies.

Quantum Mechanics II: PR: PHY 5606 or C.I. Time dependent perturbation theory, exchange symmetry, Dirac Equation, second quantization, and scattering theory.

Advanced Quantum Mechanics: PR: PHY 6624 or PHY 6447. Introduces advanced graduate students to the methods of Quantum field theory, essential for the understanding of many branches of physics.

Physics of Nanostructures: PR: PHY 6425 or C.I. Electronic properties of mesoscopic nanostructures, conduction as transmission, s-matrix and Green’s functions, localization, universal conductance fluctuations, single electron tunneling, chaos, nonequilibrium transport.

Nuclear Physics for Teachers: PR: C.I. The interaction of ionizing radiation with matter, alpha, beta, gamma decay, fission, fusion, neutron activation, half lives, and equilibrium.

Nuclear and Particle Physics: PR: PHY 4604 or equivalent. Particles and nuclei, symmetries and conservation laws, interactions, models.

Condensed Matter Physics: PR: PHY 4604, PHY 3101, or C.I. Crystal lattice cell structure, phonons, free electron model, band theory of solids, Fermi surface, solid state applications, and polymers.

Plasma Physics: PR: PHY 4324 or C.I. Introduction to theory and experimental basis of both weakly and highly ionized plasmas. Instabilities, plasma waves, nonlinear effects, controlled thermonuclear fusion.

Special Relativity for Teachers: PR: C.I. Length contraction, time dilation, simultaneity, conservation of mass-energy, conservation of momentum, Compton scattering.

Advanced Computational Physics: PR: PHZ 3151 or C.I. Computational methods applied to the solution of advanced problems in many branches of physics.
PSY 5604 AS-PSYCH 3(3,0)
History and Systems of Psychology: PR: Acceptance to Clinical Psychology Ph.D. program or C.I. An examination of modern American psychology from its origins in the late 19th century to the present time. This course is intended for the Ph.D. in Clinical Psychology; in certain instances graduate students in other programs may enroll.

PSY 6216 AS-PSYCH 4(3,2)
Advanced Research Methodology I: 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 AS-PSYCH 4(3,2)
Advanced Research Methodology II: 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 AS-PSYCH 4(3,2)
Psychological Testing I: PR: PSY 6216. Theory of test construction, including test reliability and validity.

PSY 6318 AS-PSYCH 3(3,0)
Applied Testing and Selection: PR: PSY 6308, graduate admission, and C.I. Issues in selecting employees and an examination of currently used tests in industry.

PSY 6908 AS-PSYCH 3(3,0)
Directed Independent Studies: PR: C.I. Conduction of a selected research study under the supervision of a faculty member in the field of Human Factors Psychology. May be repeated for credit.

PSY 6918 AS-PSYCH 3(3,0)
Directed Research: PR: PSY 6217, EXP 6257, PSY 6938, ten additional graduate hours in PSY, and C.I. Directed Research involves supervised research activity in an agency setting. The student will devote 15 hours per week in the assigned setting to work on an applied research problem with joint supervision by faculty and agency staff. May be repeated for credit.

PSY 6919 AS-PSYCH 3(3,0)
Research Report: PR: PSY 6918. Preparation of a written report of the project completed in PSY 6918. This report will be in the form of a research publication of technical report.

PSY 6933 AS-PSYCH 3(3,0)
Administration Seminar/Practicum: PR: Acceptance to Clinical Psychology Ph.D. program or C.I. The theories, issues, and techniques of administration in a mental health care delivery system. This course is intended for the Ph.D. in Clinical Psychology; in certain instances graduate students in other programs may enroll.

PSY 6938 AS-PSYCH 3(3,0)
Research Planning Seminar I: Clinical graduate student initiation of thesis proposal formulation under faculty supervision.

PSY 6939 AS-PSYCH 1(1,0)

PUP 6007 AS-POLS 3(3,0)
Public Policy Analysis: Examination of the role of the state and the policy process (agenda-setting, formulation, implementation), and case studies in environmental, economic, education, or welfare or other policy.

PUP 6938 AS-POLS 3(3,0)
Special Topics/Public Policy: This course title covers all public policy special topics courses which are not listed in the catalog with a course number. May be repeated for credit when content is different.

QMB 7565 BA-ECON 3(3,0)
Applied Statistical Business Decision Models: PR: Admission to Business doctoral program; ECO 6416 or equivalent; or C.I. Logic and procedures used in research and data evaluation in the business sciences applying advanced statistical models to decision-making problems.

RED 5147 ED-IP 3(3,0)

RED 5514 ED-IP 3(3,1)
Classroom Diagnosis and Development of Reading Proficiencies: PR: RED 5147 or equivalent. Classroom diagnosis and corrective teaching in reading; instructional materials. Case study required.

RED 6116 ED-IP 3(3,0)
Trends in Reading Education: PR: Basic Teacher Certificate or C.I. Analysis of historical development and current trends; management systems; instructional strategies and investigation of research.

RED 6336 ED-IP 3(3,0)
Reading in the Content Areas: 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 6337 ED-IP 3(3,0)
Reading in the Secondary School: PR: RED 6336, Basic Teacher Certification, or C.I. Nature of the adolescent reader; organizational patterns, principles, and procedures; diagnostic and remediation materials.

RED 6746 ED-IP 3(3,0)
Management of Reading Programs: Overview of K-12 reading instruction goals and program management models; role of reading supervisor and in-service needs assessment and delivery.

RED 6845 ED-IP 3(3,0)
Advanced Evaluation and Instruction in Reading: PR: RED 5514 or C.I. Administration and interpretation of formal and informal evaluation strategies. Factors and instructional techniques contributing to reading achievement. Case studies, parent involvement.

RED 6846 ED-IP 6(0,6)
Reading Practicum: PR: RED 6845 or C.I. Evaluation and instructional practices for individualization of reading instruction in a laboratory setting. Parent interview and case report.

RED 6946 ED-IP 3(3,0)
Practicum, Clinical Practice:

REE 6306 BA-FIN 3(3,0)
Corporate Real Estate Investment Decision-Making: PR: Acceptance into the graduate program and FIN 5405 or equivalent. Study of the theory and practice of location, acquisition, management, and disposition of corporate real estate assets.
RET 5910 HPA-H&PT 3(3,0)
Research Methods in Cardiopulmonary Physiology: Introduction to methods used in scientific and medical research in cardiopulmonary physiology. Literature review; experimentation, and data analysis.

RET 6555 HPA-H&PT 3(3,0)
Cardiac Rehabilitation: PR: HSC 6566. Lecture course emphasizing the principles underlying the formulation and implementation of a comprehensive cardiac rehabilitation and prevention program.

SCE 5716 ED-IP 3(3,0)

SCE 5825 ED-IP 3(3,0)
Space Science for Educators: PR: Senior standing or C.I. Introduction to space science, manned space flight, and space education curriculum.

SCE 6146 ED-IP 3(2,1)
Environmental Education for Educators: PR: Graduate standing and a valid Florida Teaching Certificate or C.I. Emphasizes the importance of environmental education in the school curriculum. Includes facilitator training in national environmental education programs.

SCE 6237 ED-IP 3(3,0)

SCE 6238 ED-IP 3(3,1)
Inquiry in the Sciences: PR: Graduate standing or science certification. Teaching science by inquiry in the secondary school and development of inquiry lessons.

SCE 6616 ED-IP 3(3,0)
Trends in Elementary School Science Education: PR: Basic Teacher Certification or C.I. Study of historical development and current trends; analysis of science curricula, materials.

SDS 6040 ED-ED S 3(3,0)
Student Personnel Services in Higher Education: PR: Completion of Phase II of Education Professional Preparation or C.I. A basic introduction to student personnel services which covers philosophy, history, functions, theory, and issues.

SDS 6200 ED-ED S 3(2,1)
Procedures for Group Testing: PR: EGC 5005 or EGC 6426, EDF 6481 or EDF 6482. Survey of various educational and psychological objective instruments used in schools to measure achievement, aptitude, interests, ability. Emphasis on administration and score interpretation.

SDS 6330 ED-ED S 3(3,0)
Career Development: PR: EGC 5005, 6426, or 6055; EDG 6481, or C.I. A study of career development theories, occupational and educational information, approaches to career decision-making, life-style, and leisure in the development of the whole person.

SDS 6411 ED-ED S 3(3,0)
Counseling with Children and Adolescents: PR: EGC 6436 and EDF 6155 or C.I. Study of counseling theory, process, and techniques as applied to children and adolescents. Course will contain an experiential component.

SDS 6426 ED-ED S 3(3,0)
Guidance and Counseling of Gifted/Talented Individuals: Guidance and counseling procedures and strategies for gifted/talented students; self-assessment; group dynamics; communication with parents; career goals; alternate educational opportunities.

SDS 6620 ED-ED S 3(3,0)
Organization and Administration of School Counseling and Guidance Programs: PR: EGC 5005. In-depth analysis of counseling and guidance programs in schools, including the development and management of comprehensive programs.

SOP 5059 AS-PSYCH 3(3,0)
Advanced Social Psychology: PR: SOP 3004 and graduate status, or C.I. The major findings and theories in social psychology including an in-depth review of relevant research.

SOW 5105 HPA-SOWK 3(3,0)
Human Behavior and Social Environment I: Individual: PR: Admission to MSW program. Study of human development and psychosocial functioning of individuals at various life stages with particular attention to implications of human diversity.

SOW 5106 HPA-SOWK 3(3,0)
Human Behavior and Social Environment II: Social Systems: Study of the patterns and dynamics of families, groups, organizations, and communities from a social work and a systems perspective.

SOW 5132 HPA-SOWK 3(3,0)
Diverse Client Populations: Study of human diversity, focusing on the needs, resources, problems, and service issues of several identified minority client populations.

SOW 5235 HPA-SOWK 3(3,0)
Social Welfare Policies and Services: Study of societal responses to human needs; forces shaping social welfare systems; introduces frameworks for analyzing social policies and services.

SOW 5305 HPA-SOWK 3(3,0)
Social Work Practice I: Generalist Practice: Study of social work functions, knowledge, values, roles and skills; the use of a generalist model of practice.

SOW 5306 HPA-SOWK 3(3,0)
Social Work Practice II: Intervention Approaches: Study of selected social work theories, strategies, and techniques for helping people and improving system responsiveness to human needs.

SOW 5355 HPA-SOWK 3(3,0)
Studies in Urban Social Work Practice: Analysis of one or more urban practice issues and approaches. May be repeated for credit.

SOW 5373 HPA-SOWK 3(3,0)
Clinical Supervision: Supervisory theory and practice in clinical settings.

SOW 5404 HPA-SOWK 3(3,0)
Social Work Research: Study of group research designs in social work; quantitative analyses; and related ethical issues.
SOW 5432  HPA-SOWK  3(3,0)
Evaluating Social Work: Study of single case designs in social work: recording methods; behavioral and standardized measures; applications to individuals, families, groups, programs, communities.

SOW 5532  HPA-SOWK  3(3,0)
Field Education I: Generalist Practice: CR: SOW 5305. Supervised practice of social work in an agency for 224 clock hours.

SOW 5533  HPA-SOWK  3(0,3)
Generalist Field Education II: PR: SOW 5532. CR: SOW 5306. Continuation of SOW 5532 Generalist Field Education I in the same field agency for 224 clock hours.

SOW 5624  HPA-SOWK  3(3,0)
Social Work Practice in Mexican Culture: CR: C.I. The practice of social work in Mexican culture through cultural immersion, seminars, field visits and language instruction.

SOW 5625  HPA-SOWK  3(3,0)
Social Work with Women: Alternative approaches to the treatment of women in the urban setting.

SOW 5655  HPA-SOWK  3(3,0)
Child Abuse: Treatment and Prevention: The social worker's role and interventions with victims of child abuse and their family members.

SOW 5662  HPA-SOWK  3(3,0)
Strategies in Employee Assistance Programs: Techniques for establishing, providing, and evaluating services to people with problems which affect job performance.

SOW 5712  HPA-SOWK  3(3,0)
Interventions with Substance Abusers: Strategies for working with persons who abuse drugs, alcohol, and other substances.

SOW 6123  HPA-SOWK  3(3,0)
Psychosocial Pathology: PR: All first-year courses in the MSW Program SOW 5305, 5105, 5404, 5325, 5306, 5106, 5432, 5532, 5132, 5533. Study of psychosocial dynamics of dysfunctional behavior in individuals.

SOW 6246  HPA-SOWK  2(2,0)
Policy Analysis and Social Change: PR: All first-year courses in the MSW Program SOW 5305, 5105, 5404, 5235, 5105, 5404, 5235, 5532, 5106, 5432, 5132, 5533. Study of urban problems, policies, and planning from the perspective of their impact on individuals and families.

SOW 6324  HPA-SOWK  3(3,0)
Clinical Practice with Groups: PR: Advanced standing in MSW program. Group work theories, interventions and techniques applied to persons with emotional, social and psychological problems.

SOW 6348  HPA-SOWK  3(3,0)
Clinical Practice with Individuals: PR: Advanced standing in MSW program. Behavioral, crisis, and psychosocial theories applied to persons with emotional, social, and psychological problems.

SOW 6386  HPA-SOWK  3(3,0)
Seminar in Social Welfare Planning and Implementation: PR: Admission to the Ph.D. program in Public Affairs or C.I. Social welfare planning, implementation, and evaluation at the community and organizational levels. Emphasizes planning needs of oppressed groups.

SOW 6399  HPA-SOWK  3(3,0)
Advanced Administration in Social Welfare: PR: Admission to the Ph.D. program in Public Affairs or C.I. Attributes, skills, behaviors, and problems with executive roles in public human service organizations. Emphasizes the mission of the organization as well as mobilization of resources.

SOW 6492  HPA-SOWK  3(3,0)

SOW 6535  HPA-SOWK  4(0,4)
Clinical Field Education I: PR: SOW 5532 and SOW 5533. Supervised specialist practice in a field agency for 304 clock hours.

SOW 6536  HPA-SOWK  4(0,4)
Clinical Field Education II: PR: SOW 6535. Continuation of SOW 6535, Clinical Field Education I, in the same field agency for 304 additional clock hours.

SOW 6612  HPA-SOWK  3(3,0)
Clinical Practice with Families: PR: Advanced standing in MSW program. Family-focused models of intervention applied to families in transition and to problems such as divorce, single parenting, and blended families.

SOW 6656  HPA-SOWK  3(3,0)

SOW 6699  HPA-SOWK  3(3,0)
Sex Therapy: Intervention approaches for sex-related problems.

SOW 6695  HPA-SOWK  3(3,0)
Advanced Interviewing and Documentation in Clinical Social Work Practice: PR: SOW 5305, SOW 5306, and SOW 5432. Study of advanced interviewing and clinical documentation skills in clinical social work practice.

SOW 6914  HPA-SOWK  2(2,0)
Interactive Research Project in Clinical Practice: PR: All first-year courses in the MSW Program SOW 5305, 5105, 5404, 5235, 5532, 5306, 5106, 5432, 5132, 5533, 6348, 6612, 6123, 5246, 6555. Student-selected research in an issue of clinical practice in urban settings.

SPA 5120  HPA-COMD  4(4,3)
Physiological Acoustics: PR: SPA 4032: Graduate status or C.I. Lectures, readings, and experiments pertaining to the subjective reception of sound.

SPA 5225  HPA-COMD  3(3,0)
Fluency Disorders: 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  HPA-COMD  1(0,2)
Fluency Disorders Laboratory: PR: Graduate status or C.I. Practical application of clinical skills in fluency disorders.

SPA 5236  HPA-COMD  3(3,0)
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>SPA 5307</td>
<td>HPA-COMD Differential Diagnosis of Auditory Disorders: PR: SPA 4032</td>
<td>3(3,0)</td>
<td>Graduate status or C.I. Clinical techniques in pure tone speech, acoustic impedance, and electrophysiologic response audiometry.</td>
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<tr>
<td>SPA 5327</td>
<td>HPA-COMD Aural Habilitation/Rehabilitation: PR: Graduate status or C.I.</td>
<td>4(4,0)</td>
<td>Principles and procedures involved in speech and language acquisition management, utilization of residual hearing, speech reading, and the use of hearing aids.</td>
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<tr>
<td>SPA 5404</td>
<td>HPA-COMD Language Disorders: Preschool: PR: Graduate status or C.I.,</td>
<td>3(3,0)</td>
<td>SPA 4710C, SPA 4400C. Graduate students will apply their knowledge of the normal processes of language development to the diagnosis and intervention of communicative impairments of infants and toddlers.</td>
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<tr>
<td>SPA 5553L</td>
<td>HPA-COMD Differential Diagnosis in Speech and Language Laboratory: PR:</td>
<td>1(0,4)</td>
<td>SPA 6204, SPA 6403, SPA 6211, SPA 5805. 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 presentations with stagings.</td>
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<tr>
<td>SPA 5570</td>
<td>HPA-COMD Administration and Management of Communicative Disorders Programs: PR: SPA 3002. Methods and techniques for organization and administration of speech-language and hearing disorders in public school, hospital, rehabilitation center, and private practice facilities.</td>
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<tr>
<td>SPA 5805</td>
<td>HPA-COMD Research in Communicative Disorders: PR: STA 4163, graduate status or C.I. Introduces the student to empirical research in the area of communicative disorders. Emphasis is on hypothesis testing, methodology, analysis, and interpretation of results.</td>
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<tr>
<td>SPA 6132</td>
<td>HPA-COMD Measurements in Speech Science: 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.</td>
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<tr>
<td>SPA 6204</td>
<td>HPA-COMD Advanced Studies in Communicative Disorders: PR: Graduate status or C.I. Articulation: PR: SPA 3112C, SPA 4201C. Advanced theory, diagnostic techniques, and therapeutic procedures for articulation disorders. May be repeated for credit.</td>
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<tr>
<td>SPA 6204L</td>
<td>HPA-COMD Advanced Studies in Communicative Disorders: Articulation Laboratory: PR: SPA 3112C, SPA 3112L, SPA 4201C. Practical application of clinical skills in articulation disorders. May be repeated for credit.</td>
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<tr>
<td>SPA 6211</td>
<td>HPA-COMD Voice Disorders: PR: SPA 310L. Basic principles and practices in the treatment of organic voice pathologies including laryngectomy, cleft palate, and other disorders of the vocal mechanisms.</td>
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<tr>
<td>SPA 6211L</td>
<td>HPA-COMD Voice Disorders Laboratory: PR: Graduate status or C.I. Practical application of clinical skills in voice disorders.</td>
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<tr>
<td>SPA 6308</td>
<td>HPA-COMD Auditory Evaluation and Assessment Procedures for Special Populations: PR: Graduate status or C.I. Audiometric testing and functional communicative assessment procedures for geriatric, pediatric, and other special populations.</td>
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<td>SPA 6345</td>
<td>HPA-COMD Amplification: PR: Graduate status or C.I. Hearing aids, selective evaluation procedures, electroacoustic measurements, coupling techniques, and orientation and counseling.</td>
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<tr>
<td>SPA 6403</td>
<td>HPA-COMD Language Disorders: School Age: PR: LIN 4710C, SPA 4400C, and 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 school-age children.</td>
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<td>SPA 6407</td>
<td>HPA-COMD Seminar in Language: PR: Graduate status or C.I. Examines innovative and disorder-specific evaluation and treatment in adult and pediatric language disorders.</td>
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<td>SPA 6410</td>
<td>HPA-COMD Language Problems in Adults: Aphasia and Other Symbolic Disorders: PR: SPA 4251, graduate status, or C.I. A study of the symbolic disorders in adults associated with neurological problems, brain injury, systemic disease, and aging.</td>
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<td>SPA 6505</td>
<td>HPA-COMD Clinical Practicum in Speech Pathology-Language: PR: Graduate status or C.I. Advanced clinical practice in communicative disorders. May be repeated for credit when content is different.</td>
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<tr>
<td>SPA 6506</td>
<td>HPA-COMD Clinical Practicum in Audiology: PR: SPA 4032. Advanced clinical practice in communicative disorders. May be repeated for credit when content is different.</td>
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<tr>
<td>SPA 6526</td>
<td>HPA-COMD Seminar in Speech Pathology: PR: Graduate status or C.I. Examines innovative and disorder-specific evaluation and treatment procedures. Topics will be in the area of adult and pediatric speech disorders.</td>
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<tr>
<td>SPA 6553C</td>
<td>HPA-COMD Differential Diagnosis in Speech and Language: PR: SPA 6204, SPA 6403, SPA 6211, SPA 5805. Students are assigned to diagnostic teams and will demonstrate test administration, interviewing, report writing. Oral presentations with stagings required.</td>
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<tr>
<td>SPA 6826</td>
<td>HPA-COMD Seminar in Research: PR: Graduate status or C.I. Examination of major issues in research of clinical or theoretical importance.</td>
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<tr>
<td>SPA 6938</td>
<td>HPA-COMD Special Topics/Seminars: May be repeated for credit.</td>
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<tr>
<td>SPC 5200</td>
<td>AS-COMM Evolution of Communication Theory: 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.</td>
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<tr>
<td>SPC 6219</td>
<td>AS-COMM Modern Communication Theory: Comparative analysis of theories and models of human communication, behavior systems, encoding and decoding processes, interaction variables, and social context.</td>
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</table>
SPC 6442 AS-COMM 3(3,0)
Small Group Communication: A study of communication and its effect on small group behavior.

SPN 5502 AS-LANG 3(3,0)
Hispanic Culture of the United States: PR: Graduate Standing or C.I. An analysis of the Hispanic culture of the United States, past and present.

SPN 5505 AS-LANG 3(3,0)
Spanish Peninsular Culture and Civilization: PR: Graduate Standing or C.I. An analysis of the salient characteristics of Spanish culture and civilization.

SPN 5506 AS-LANG 3(3,0)
Spanish American Culture and Civilization: PR: Graduate Standing or C.I. An analysis of the salient characteristics of Spanish American culture and civilization.

SPN 5705 AS-LANG 3(3,0)
Introduction to Spanish Linguistics: PR: Graduate Standing or C.I. An introduction to main concepts and methods of analyses focusing on Spanish morphology, syntax, semantics, and phonology as well as dialectology and sociolinguistics.

SPN 5825 AS-LANG 3(3,0)
Spanish Dialectology: PR: Graduate Standing or C.I. This course is a survey of the diversity found within the Spanish language with respect to phonological constraints, morphosyntax, second language influences, and historical development.

SPN 5845 AS-LANG 3(3,0)
History of the Spanish Language: PR: Graduate Standing or C.I. An overview of linguistic characteristics of Latin and its evolution into Spanish with historical development of phonetic, morphological, and syntactic properties.

SPN 5920 AS-LANG 3(3,0)
AP Spanish Language: Participants will enhance their knowledge of the language and culture of Spanish-speaking peoples and develop further proficiency in listening, comprehension, speaking, reading, and writing.

SPN 6805 AS-LANG 3(3,0)
Spanish Morphosyntax: A study of Spanish morphology and syntax from different perspectives.

SPS 6125 ED-ED S 3(2,1)
Infant Development Assessment: PR: Graduate admission and C.I. Analysis of test theory and practice in administration, scoring, and interpretation of instruments assessing cognitive, visual-motor ability and adaptive behavior to pre- and primary school children.

SPS 6175 ED-ED S 3(3,0)
Cultural Diversity and Nonbiased Assessment: An investigation of some of the major multicultural issues with emphasis on administration, scoring, and interpretation of instruments related to this population.

SPS 6191 ED-ED S 4(4,0)

SPS 6192 ED-ED S 4(4,0)

SPS 6194 ED-ED S 3(3,0)

SPS 6206 ED-ED S 3(3,0)
Psychoeducational Interventions: PR: SPS 6191. This course will enable school psychology students to link psychoeducational assessment results to appropriate prescriptive interventions.

SPS 6225 ED-ED S 3(3,0)
Behavioral and Observational Analysis of Classroom Interactions in Schools: PR: Graduate admission. An intensive review of the principles and procedures of applied behavioral and observational analysis and assessment as they relate to changing behavior in schools.

SPS 6601 ED-ED S 3(3,1)
Introduction to Psychological Services in Schools: PR: Graduate admission and C.I. A course presenting an overview of the philosophy, organization, programs, and operation of school psychological services.

SPS 6606 ED-ED S 3(3,0)
School Consultation Techniques: PR: C.I. Theories and models of school consultation and clinical practice in the consultative role.

SPS 6608 ED-ED S 3(3,0)

SPS 6703 ED-ED S 3(3,0)
Child and Adolescent Deviant Behavior and Treatment: PR: Graduate admission and C.I. Behavior disorders in school-age children and adolescents as classified in current terminology, and a review of treatment options such as therapy and medication.

SPS 6801 ED-ED S 3(3,0)
Developmental Bases of Diverse Behaviors: PR: Graduate admission and C.I. The major social and educational policy concerns posed by developmental and cultural diversity in our society, with implications for teaching, learning and intervention.

SPS 6931 ED-ED S 3(3,0)
Ethical and Legal Issues in School Psychological Services: PR: Graduate admission. Introduction to ethical codes, professional standards, ethical-legal decision-making models and case studies impacting the delivery of school psychological services.

SPS 6946 ED-ED S 3(3,0)
Practicum in School Psychology: PR: SPS 6661, SPS 6192. Provides each student with an orientation to public schools and experiences which broadly sample the spectrum of psychoeducational assessment and interventions for practicing school psychologists.

SPS 6949 ED-ED S 6(0,6)
School Psychology Internship: PR: Graduate admission and C.I. Supervised placement in school setting.

SPW 5805 AS-LANG 3(3,0)
Spanish Graduate Studies Research: PR: Graduate student in Spanish M.A. program. The tools needed for research in Spanish linguistics, literary criticism, and culture are taught along with historical and contemporary literary criticism.
SPW 5825  AS-LANG  3(3,0)  
Literary Theory Pro-Seminar: PR: Graduate Standing or C.I. A study of the concepts and methods of literary criticism as they apply to Spanish and Spanish American literature. May be repeated for credit.

SPW 6216  AS-LANG  3(3,0)  
Golden Age Prose: A study of the major prose works of the Spanish Golden Age.

SPW 6217  AS-LANG  3(3,0)  
Spanish American Prose I: A study of the principal characteristics of Spanish American prose from Colonial times to post-independence.

SPW 6218  AS-LANG  3(3,0)  
Spanish American Prose II: A study of the principal characteristics of Spanish American prose from modernism to the present.

SPW 6269  AS-LANG  3(3,0)  
Nineteenth Century Spanish Novel: A study of the major writers and literary movements of the 19th century with emphasis on the novels of Valera, Perez Galdos, Clarin and Pardo Bazan.

SPW 6306  AS-LANG  3(3,0)  
Spanish American Drama I: An analysis of dramatic texts from Pre-Columbian times to the end of the nineteenth century.

SPW 6307  AS-LANG  3(3,0)  
Spanish American Drama II: An analysis of Spanish American Drama from modernism to the present.

SPW 6315  AS-LANG  3(3,0)  
Golden Age Drama: An analysis of the meaning and artistic values of selected theatrical works of the Spanish Golden Age.

SPW 6356  AS-LANG  3(3,0)  

SPW 6405  AS-LANG  3(3,0)  
Medieval Spanish Literature: An intensive study of the major genres of the period. Emphasis on selected works by major writers.

SPW 6585  AS-LANG  3(3,0)  
Contemporary Peninsular Literature: A study of the major writers and literary movements from the Generation of 1927 to the present.

SPW 6725  AS-LANG  3(3,0)  
The Generation of 98: An analysis of the major works of writers of the Generation of 98 such as Gaminet, Unamuno, Baroja, Azorin, and Machado.

STA 5156  EN-IEMS  3(3,0)  
Probability and Statistics for Engineers: PR: STA 3032 or equivalent. Theory and applications of discrete and continuous random variables, hypothesis tests, confidence intervals, regression analysis and correlation.

STA 5205  AS-STAT  3(3,0)  
Experimental Design: PR: STA 4164, STA 5206 or STA 5156. Construction and analysis of designs for experimental investigations. Blocking, randomization, replication; incomplete block designs; factorial and fractional designs; design resolution.

STA 5206  AS-STAT  3(3,0)  
Statistical Analysis: PR: STA 2023; not open to students who have completed STA 4164. Data analysis; statistical models; estimation; tests or hypotheses; analysis of variance, covariance, and multiple comparisons; regression and nonparametric methods.

STA 5505  AS-STAT  3(3,0)  
Categorical Data Methods: PR: STA 4163 or STA 5206. Considers discrete probability distributions, contingency tables, measures of association, and advanced methods, including loglinear modeling, logistic regression, McNemar's Test, Mantel-Haenszel test.

STA 5825  AS-STAT  3(3,0)  

STA 5940  AS-STAT  1(1,0)  
Statistical Advice for Researchers: PR: C.I. Discussion of student-supplied statistical problem, data sources, sampling techniques, computer package usage, analysis, interpretation. May be repeated for credit.

STA 6106  AS-STAT  3(3,0)  
Statistical Computing I: Computer systems, approximating probabilities/percentiles, random number generation, linear model computations, density estimation.

STA 6107  AS-STAT  3(3,0)  
Statistical Computing II: PR: STA 6329 (or knowledge of matrix algebra), STA 6236 (or knowledge of linear regression), and familiarity with a higher level programming language (e.g., FORTRAN, C++, MATLAB). Linear regression: stepwise regression, Gauss-Jordan pivots, stand-up regression, residual analysis. Nonlinear regression; Gauss-Newton algorithm, derivative-free methods, constraints, iteratively reweighted least squares. General maximum likelihood methods: Newton-Raphson and Fisher-scoring, conjugate gradient and quasi-Newton methods, EM algorithm.

STA 6207  AS-STAT  3(3,0)  
Response Surface and Mixture Experiments: PR: STA 5205. Approximating response functions; first-order and second-order response surfaces; ridge systems; mixture problems, component proportions, and the analysis of mixture data.

STA 6226  AS-STAT  3(3,0)  
Sampling Theory and Applications: PR: STA 4321. Different techniques of sampling, sampling for proportions, choosing sample size, ratio estimates, effects of sampling and non-sampling errors.

STA 6236  AS-STAT  3(3,0)  
Regression Analysis: PR: MAS 3105 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 AS-STAT 3(3,0)
Linear Models: PR: STA 6329, STA 4164, and STA 4322. Theoretical development of full rank linear statistical models, least squares and maximum likelihood estimation, interval estimation, hypothesis testing, and introduction to less than full rank models.

STA 6326 AS-STAT 3(3,0)

STA 6327 AS-STAT 3(3,0)

STA 6329 AS-STAT 3(3,0)
Statistical Applications of Matrix Algebra: PR: MAC 3313 and STA 4164 or STA 5206. Basic theory of determinants, inverses, generalized inverses, eigenvalues and eigenvectors, partitioned matrices. Diagonalization and decomposition theorems, least squares and statistical applications.

STA 6507 AS-STAT 3(3,0)
Nonparametric Statistics: PR: STA 4321. Theory and methods for one and two sample problems; one and two way layouts; independence problems; regression problems.

STA 6662 AS-STAT 3(3,0)
Statistical Methods for Industrial Practice: Variance components, PCs, autocorrelation structures, charting, EVOP, design strategies, calibration, standards, and associated awards.

STA 6707 AS-STAT 3(3,0)

STA 6857 AS-STAT 3(3,0)

SYA 5625 AS-SOC/AN 3(3,0)
ProSeminar: Survey of conceptual issues, methodological concerns, and findings in substantive sociological areas that currently dominate scholarly inquiry, including such topics as crime, deviance, community, alcoholism, education.

SYA 5937 AS-SOC/AN 3(3,0)
Advanced Population: Examines the theories, methods, and information utilized by demographers and focuses on techniques of application of those skills.

SYA 6126 AS-SOC/AN 3(3,0)
Social Theory: PR: Regular graduate standing or C.I. The study of selected sociological theories in terms of relevance, usefulness, and adequacy for applied sociology.

SYA 6305 AS-SOC/AN 3(3,0)
Social Research: PR: Regular graduate standing or C.I. Research methodology including problem conceptualization, sampling designs, research proposals, data collection, and evaluation techniques for applied settings.

SYA 6455 AS-SOC/AN 3(2,2)
Research Analysis: PR: SYA 6305, undergraduate statistics, regular graduate standing, or C.I. Data management, selection of statistics, data analysis, evaluation, data presentation, and computer skills.

SYA 6656 AS-SOC/AN 3(3,0)
Social Organization and Human Resources: PR: C.I. Complex organization theory, social systems analysis, competence in group dynamic skills, and use of human resources in agencies, businesses, and industries.

SYA 6657 AS-SOC/AN 3(3,0)

SYO 6515 AS-SOC/AN 3(3,0)
Issues in Social Disorganization: PR: C.I. Sociological study and analysis of the manner in which American society is organized and the consequences of the way in which its cultural premises are arranged.

SYP 5526 AS-SOC/AN 3(3,0)
Sociological Criminology: PR: Graduate Standing or C.I. To examine current sociological knowledge and research on various issues in Criminology, and to further students’ skills in developing/conducting research projects.

SYP 5562 AS-SOC/AN 3(3,0)
Seminar on Domestic Violence: Theory, Research and Social Policy: PR: Graduate status or C.I. A sociological examination and evaluation of theories, empirical research and social policy related to the study of domestic violence.

SYP 6515 AS-SOC/AN 3(3,0)
Deviant Behavior Issues: PR: C.I. An examination and evaluation of the forms of social deviance, and the organizations designed to respond to them.

SYP 6546 AS-SOC/AN 3(3,0)
Crime, Law, Inequality: PR: Graduate standing. The consequences of social stratification on criminality and treatment/protection by the legal system. This course examines literature concerning inequality and the sociology of law.

SYP 6561 AS-SOC/AN 3(3,0)
Child Abuse in Society: PR: C.I. A sociological examination of literature and current research pertaining to child abuse and neglect.

SYP 6563 AS-SOC/AN 3(3,0)
Reactions to Domestic Violence: PR: C.I. The reactions by communities, victims, and professionals to domestic violence. Topics include examination of policies on domestic violence, and issues relating to race, class, and gender.

SYP 6565 AS-SOC/AN 3(3,0)
Elder Abuse and Neglect: PR: C.I. A sociological examination of elder abuse and neglect in the family and other social settings.

TAX 5015 BA-ACCT 3(3,0)
Federal Income Tax II: PR: ACG 3111, TAX 4001, and meet graduate school admission requirements. Concepts and methods of determining taxable income for partnerships and corporations, and selected topics.

TAX 6065 BA-ACCT 3(3,0)
Seminar in Tax Research: PR: Graduate standing and all foundation courses for the accounting program or equivalents. Advanced study of and research in tax law. Procedures governing tax controversies and tax compliance.
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Research in Second Language: PR: EDF 6481. This course focuses on research into language learning processes which serve as a knowledge base for effective teaching of language-minority students.

Pavement Design: PR: CEG 4101C. Pavement types, wheel loads, stresses in pavement components; design factors such as traffic configurations, environment, and economy.

Traffic Operations: PR: EIN 2032; TTE 4004 and TTE 5204 or C.I. Fundamental theories and applications of traffic movements on streets and highways.

Intelligent Transportation Systems: PR: TTE 4004 and TTE 5204 and C.I. Theories and applications of intelligent vehicle highway systems in transportation engineering.


Planning and Design of Airports: 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.

Mass Transportation Systems: PR: C.I. Planning, design, construction, operation, and administration of mass transportation systems.

Ichthyology: PR: ZOO 2303C or C.I. Introduction to the biology of the fishes, their classification, evolution, and life histories.

Herpetology: 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  AS-BIOL  4(2,6)
Ornithology: PR: 6 hours of zoology or C.I. Introduction to the biology of birds, their classification, evolution, and life histories.

ZOO 5486C  AS-BIOL  4(2,6)
Mammalogy: PR: 6 hours of zoology or C.I. Introduction to the biology of mammals, their classification, evolution, and life histories.

ZOO 5745C  HPA-M&M  4(3,3)
Essentials of Neuroanatomy: 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  AS-BIOL  4(4,0)
Zoogeography: PR: 8 hours of zoology or C.I. Principles and concepts concerning regional patterns of animal distributions of the world, both past and present.
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Directions to the University of Central Florida Campuses

UCF Brevard Campus
Clark Maxwell, Jr. Lifelong Learning Center
1519 Clearlake Road, Cocoa, FL 32922
Phone: (407) 632-1111, ext. 65567

UCF Daytona Beach Campus
1200 International Speedway Boulevard
Daytona Beach, FL 32120-2811
Phone: (904) 255-7423, ext. 4010

UCF Downtown Academic Center
36 West Pine Street, Orlando, FL 32801 – Phone: (407) 317-7700

Parking: Closest parking is available along Garland Avenue underneath I-4 or in the Market Garage on Pine Street next to the Center.

From East Orlando: Take the E-W Expressway west to the Rosalind exit. Travel west on South Street to Garland Avenue. Turn right, go to Pine Street, and turn right. The Center is just beyond the railroad tracks, next to the Market Garage.

From Colonial Drive (Hwy. 50): At I-4 overpass, take Hughey Avenue south to Bob Snow Lane. Turn left, go to Garland Avenue, and turn left. Make an immediate right turn onto Pine Street.

From West or Southwest Orlando: Take the E-W Expressway East to the Orange Avenue exit. Turn left on Magnolia, bear right, following the downtown signs. Go to South Street, turn left, go to Garland Avenue, turn right, and continue as directed above.

From West I-4: Take Anderson Street exit, turn left at Boone Street, go to South Street, turn left, go to Garland Avenue, turn right, continue as directed above.

From East I-4: Take South Street Exit (exit from the left lane), bear right, turn right onto Hughey Avenue, go one block to Church Street, turn right, go one block to Garland Avenue and turn left, turn right onto Pine Street (less than 1/2 block), continue as directed above.
University of Central Florida, Main Campus
Phone: (407) 823-2000

From Orlando International Airport (20 Miles):
Go east on BeeLine Expressway (528) to 417 North.
Take 417 North to University Blvd.
Exit east onto University Blvd. to UCF.

From Tampa on I-4:
Exit 28 onto BeeLine Expressway East (528).
Go past Orlando International Airport to 417 North.
Take 417 North to University Blvd.
Exit east onto University Boulevard to UCF.

From Daytona on I-4:
Exit 49 onto Route 434.
Go through Longwood and Oviedo on 434 to UCF.

From South on Florida Turnpike:
Exit 254 (Orlando South - 441).
Take first right onto BeeLine Expressway East (528).
Go east past Orlando International Airport to 417 North.
Take 417 North to University Blvd.
Exit east onto University Blvd. to UCF.

From North on Florida Turnpike:
Exit 265 (Holland East-West) onto East-West Expressway East (408).
Go east through Orlando to merge with 417 North to University Blvd.
Exit east onto University Blvd. to UCF.