Degree Programs at the University of Central Florida

College of Arts and Sciences
Master of Arts
  Communication
  English, Creative Writing Track
  English, Literature Track
  English, Technical Writing Track
  History
  Political Science, Political Analysis Track
  Political Science, Public Policy Track
  Psychology, Clinical
  Sociology, Applied
  Spanish
  Teaching English to Speakers of Other Languages (TESOL)
Master of Science
  Biology
  Chemistry, Industrial
  Chemistry, Forensic Science Track
  Computer Science
  Mathematical Science
  Physics
  Psychology, Clinical
  Psychology, Industrial/Organizational
  Statistical Computing
Doctor of Philosophy
  Computer Science
  Mathematics
  Physics
  Psychology, Clinical Track
  Psychology, Human Factors Track

College of Business Administration
Master of Business Administration (M.B.A.)
Master of Arts in Applied Economics (M.A.A.E.)
Master of Science in Accounting (M.S.A.)
Master of Science in Taxation (M.S.T.)
Doctor of Philosophy in Business Administration
  Majors: Accounting, Finance, Hospitality Management, Management, and Marketing

College of Education
Master of Education and/or Master of Arts
  Art Education
  Counselor Education, School Counseling
  Counselor Education, Mental Health Counseling
  Educational Leadership
  Educational Leadership, Student Personnel Administration in Higher Education
  Educational Leadership, Curriculum and Instruction
  Elementary Education
  Elementary Education, Primary
  Elementary Education, Mathematics Education
  English Language Arts Education
  Exceptional Student Education: Varying Exceptionalities
  Instructional Technology, Educational Media
  Instructional Technology, Educational Technology
  Instructional Technology, Instructional Systems
  Mathematics Education
  Music Education
  Physical Education, Exercise Physiology/Wellness Track
  Reading Education

  Science Education
  Science Education, Biology
  Science Education, Chemistry
  Science Education, Physics
  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
Master of Science in Civil Engineering (M.S.C.E.)
Master of Science in Computer Engineering (M.S.Cp.E.)
Master of Science in Electrical Engineering (M.S.E.E.)
  Specializations: Communication, Controls/Power, Digital Signal Processing, Electrical Engineering, Electromagnetics, Electronics, Electro-Optics, Microelectronics
Master of Science in Environmental Engineering (M.S.Env.E.)
  Environmental Engineering
  Environmental Engineering Sciences
Master of Science in Industrial Engineering (M.S.I.E.)
Master of Science in Mechanical Engineering (M.S.M.E.)
  Options: Aerospace Systems, Computer-Aided Mechanical Engineering, Materials Science and Engineering, Mechanical Systems, Professional, Thermo-fluids
Master of Science in Optical Science and Engineering (M.S.O.S.E.)
Master of Science
Doctor of Philosophy
  Civil Engineering
  Computer Engineering
  Electrical Engineering
  Environmental Engineering
  Industrial Engineering
  Mechanical Engineering
  Optical Science and Engineering

College of Health and Public Affairs
Master of Arts in Communicative Disorders
Master of Science
  Criminal Justice
  Health Services Administration
  Molecular Biology and Microbiology
  Physical Therapy
Master of Science in Nursing (M.S.N.)
Master of Public Administration (M.P.A.)
Master of Social Work (M.S.W.)
Doctor of Philosophy in Public Affairs
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-1111.

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 Division of Student Affairs (AD 282).

For directions to the University of Central Florida main campus and area campuses, see the directions and maps on pages 311-12 and the inside back cover.
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**Fall Semester 1998**
- Thanksgiving: Nov. 26-28
- M. L. King Day: Jan. 18
- Veterans' Day: Nov. 11
- Thesis/dissertation defense: Week prior to defense
- Homecoming Week: November
- Graduation registration: Aug. 19-28, Jan. 5-8, May 16-24

**Spring Semester 1999**
- Thanksgiving: Nov. 26-28
- M. L. King Day: Jan. 18
- Veterans' Day: Nov. 11
- Thesis/dissertation defense: Week prior to defense
- Homecoming Week: November
- Graduation registration: Aug. 19-28, Jan. 5-8, May 16-24

**Summer Term A 1999**
- Memorial Day: May 23
- June 1
- Independence Day: July 4

**Summer Term B 1999**
- Memorial Day: May 23
- June 1
- Independence Day: July 4

**Summer Term C 1999**
- Memorial Day: May 23
- June 1
- Independence Day: July 4

**Summer Term D 1999**
- Memorial Day: May 23
- June 1
- Independence Day: July 4

---

**Graduate Studies Deadlines**
- Fall 1998: Oct. 23
- Spring 1999: Mar. 19
- Summer 1999: June 18

**Registration**
- Registration by appointment: Aug. 17-19
- Classes begin: Aug. 20
- Late registration, Add/Drop*: Aug. 24-28
- Last day for refund of fees: Aug. 28
- Audit registration: Aug. 19-28
- Last day to apply for graduation**: Aug. 4
- Deadline for withdrawal: Oct. 16
- Last day to remove an "I" (Incomplete): Oct. 16
- Classes end: Dec. 19
- Final exams and special exams: Dec. 7-12
- Grades due: Dec. 15
- Commencement: May 8

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**Holidays**
- Labor Day: Sept. 7
- Homecoming Week: Nov. 10-15
- Veterans' Day: Nov. 11
- Thanksgiving: Nov. 26-28
- M. L. King Day: Jan. 18
- Spring Holidays: March 15-20
- Founders' Day: Apr. 7 (No class 10:30-12:30)
- Memorial Day: May 24
- Independence Day: July 5

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**Academic Calendar 1998-1999**

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**1998**

**1999**

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* 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.**
Application for Admission

The Graduate Studies Office is happy to 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) your 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 550 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
- Post-Baccalaureate Application—For nondegree-seeking applicants who have completed at least a baccalaureate degree from a regionally accredited institution
- Readmission Application—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
- Reactivation 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
- Transient Application—For students who are enrolled in a graduate program at another university and want to take course work at UCF and transfer it to their home institution

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 UCF, 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
- Self-addressed, stamped postcards (included in the application)
- Application for Financial Assistance (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
- Patent and Invention Agreement
- 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 your parents, government, etc.) to financially support your education
- Transcript Evaluation from an approved agency

Post-Baccalaureate Application

Post-baccalaureate applicants must submit:

- Post-Baccalaureate 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)
- Official transcript showing an earned bachelor’s degree

Readmission Application

When a student applies for readmission, the program will determine if the student will be continued in graduate status or be reverted to post-baccalaureate status. See “Continuous Attendance” on page 35 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

Transient Application

Transient applicants must submit:

- Transient Application
- $20 application fee, if you have not attended UCF previously or you are not a State University System (SUS) transient student
- Residency Classification Form
- Student Health Services - Health Form (required if you are not a State University System (SUS) transient student
- Official transcript showing an earned bachelor’s degree or a letter from your home institution showing transient status
Application Deadlines

U.S. and Resident Alien Applications
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>FALL</th>
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<th>SUMMER</th>
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<tr>
<td>College of Arts and Sciences</td>
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<tr>
<td>Biology (priority)¹</td>
<td>March 1</td>
<td>Oct. 15</td>
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<tr>
<td>Computer Science (priority)¹</td>
<td>March 1</td>
<td>Dec. 15 April 15</td>
</tr>
<tr>
<td>English</td>
<td>June 15</td>
<td>Dec. 1 May 1</td>
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<tr>
<td>Physics</td>
<td>Feb. 15</td>
<td>—</td>
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<tr>
<td>Psychology¹</td>
<td>Feb. 1</td>
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<tr>
<td>Psychology, Clinical (M.A.)</td>
<td>Feb. 15</td>
<td>—</td>
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<tr>
<td>Spanish</td>
<td>June 1</td>
<td>Dec. 1 March 1</td>
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<td>TESOL</td>
<td>June 15</td>
<td>Nov. 1 March 15</td>
</tr>
<tr>
<td>All other programs in this college</td>
<td>July 15</td>
<td>Dec. 15 April 15</td>
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</tbody>
</table>

| College of Business Administration |       |              |
| All Master's programs | June 15 | Nov. 1 March 15 |
| Doctoral (PhD) program² | June 15 | —            |

| College of Education |               |              |
| Curriculum and Instruction (Specialist, EdD, and PhD) | Feb. 20 | Sept. 20 — |
| Counselor Education (Master) | Feb. 1 | Sept. 1 — |
| Educational Leadership (Specialist and EdD) | Feb. 20 | Sept. 20 — |
| Educational Technology (Master)³ | March 30 | — — |
| School Psychology (Specialist) | March 1 | — — |
| All other programs in this college | July 15 | Dec. 15 April 15 |

| College of Engineering |               |              |
| Optical Science and Engineering (priority)¹ | Feb. 1 | Dec. 15 April 15 |
| All other programs in this college | July 15 | Dec. 15 April 15 |

| College of Health and Public Affairs |       |              |
| Communicative Disorders | June 15 | Nov. 1 April 1 |
| Criminal Justice | May 1 | Nov. 15 March 15 |
| Health Services Administration | July 15 | Dec. 15 April 15 |
| Molecular Biology/Microbiology (priority)¹ | March 15 | Dec. 15 April 15 |
| Nursing | Feb. 15 | — — |
| Nursing (Daytona Bch campus only) | Feb. 15 | Sept. 15 — |
| Nursing (Post-baccalaureate) | June 1 | Oct. 15 — |
| Physical Therapy | See program description |
| Public Administration (Master) | July 1 | Dec. 1 April 1 |
| Public Affairs (PhD) | March 1 | — — |
| Public Affairs (PhD) (priority)² | Feb. 7 | — — |
| Social Work | March 1 | — — |

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 Instructional/organizational (M.S.), Clinical (MS and PhD), and Human Factors (PhD) programs.
3. This deadline applies to the Industrial/Organizational (MS), Clinical (MS and PhD), and Human Factors (PhD) programs.

International Applications
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>FALL</th>
<th>SPRING</th>
<th>SUMMER</th>
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<tbody>
<tr>
<td>International applicants</td>
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<tr>
<td>Curriculum and Instruction (Specialist, EdD, and PhD)</td>
<td>Feb. 15</td>
<td>— —</td>
</tr>
<tr>
<td>Counselor Education (Master)</td>
<td>Feb. 1</td>
<td>— —</td>
</tr>
<tr>
<td>Educational Leadership (Specialist and EdD)</td>
<td>Feb. 15</td>
<td>— —</td>
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<tr>
<td>Molecular Biology and Microbiology (priority)¹</td>
<td>March 15</td>
<td>April 15²</td>
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<tr>
<td>Nursing</td>
<td>Feb. 15</td>
<td>— —</td>
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<tr>
<td>Physics</td>
<td>Feb. 15</td>
<td>— —</td>
</tr>
<tr>
<td>Psychology²</td>
<td>Feb. 1</td>
<td>— —</td>
</tr>
<tr>
<td>Psychology, Clinical (M.A.)</td>
<td>Feb. 15</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 PhD), and Human Factors (PhD) programs.

NOTE: Applicants for the PhD program in Business Administration should contact the Office of Student Support, College of Business Administration (407-823-2184).

Post-Baccalaureate, Readmission, Reactivation, and Transient Applications
Complete applications (all required documents) must be received by the date listed below to be considered for admission.

Reactivation Applications—The program deadline. See the U.S./Resident Alien Application or International Application Deadlines listed above.

Post-Baccalaureate, Readmission, and Transient Applications
Fall Admission | July 15
Spring Admission | December 15
Summer Admission | April 15

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

Graduate Studies website: www.graduate.ucf.edu
Send e-mail to: graduate@mail.ucf.edu
Telephone: (407) 823-2766
Fax: (407) 823-6442

7
Administration and Staff

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Director, Florida-Canada Linkage Institute .................. Warren McHone
Director, Florida-Eastern European Linkage Institute .......... Jean Kijek
Director, Institutional Research and Planning .............. Daniel R. Coleman
Director, Downtown Academic Center ........ Cecelia Rivers
Director, Teaching and Learning Center .......... Karen L. Smith
Director, University Honors Program ........ Allyn M. Stearman
Director, Cooperative Education .................. Sheri Dressler
Vice Provost, Information Technologies and Resources .... Joel L. Hartman
Director, Computer Services ........................ William H. Branch
Director, University Libraries ..................... Barry B. Baker
Director, Instructional Resources .................. Ruth Marshall
Associate Vice President, Academic Administrative Systems .................. J. Edward Neighbor
Vice Provost, Enrollment and Academic Services ......... Thomas Huddleston, Jr.
Director, Student Financial Assistance ...... Mary McKinney
University Registrar ................................ John F. Bush

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Assistant Vice President for University Relations and Director, Public Relations .... Dean McFall
Assistant Vice President for University Relations and Director, Alumni Relations .... Thomas Messina
Director, Community Relations ........................ Helen Donegan
Director, Federal Relations .......................... Marilyn Cobb Croach
Director, Defense Transition Services ........................ Alzo J. Reddick

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Technology Transfer Manager ..................... Michael Herforth
Director, Sponsored Research ........................ Barbara Pifel
Security Clearance Officer .......................... Kay Mullally
Director of Graduate Studies ........................ Patricia J. Bishop
Coordinator, Admissions and Registration ........ Patricia J. Bishop
Assistant Director, Thesis and Publications Editor ......................... Debra Winter
Assistant Director, Fellowships Coordinator .......................... Michael Bell
Academic Coordinator ............................. Joanne Muratori
Specialist, Computer Applications .................. Solan Ngan
Director, Center for Research and Education in Optics and Lasers ................. M. J. Soileau
Director, Florida Solar Energy Center ........ David L. Block
Director, Institute for Simulation and Training .................. A. Louis Medin
## College of Arts and Sciences

- **Dean**: Kathryn L. Seidel
- **Associate Dean**: Jennifer M. Platt
- **Chair, Biochemistry**: David H. Vickers
- **Chair, Mathematics**: John R. Cannon
- **Chair, Physics**: Brian P. Tonner
- **Chair, Political Science**: Robert L. Bledsoe
- **Chair, Sociology and Anthropology**: Jay Corzine
- **Interim Chair, Art**: Joyce Lillie
- **Interim Chair, History**: Edmund Kallina
- **Interim Chair, Music**: Lee E. Eubank
- **Interim Chair, Political Science**: Robert L. Bledsoe
- **Interim Chair, Sociology and Anthropology**: Jay Corzine

## College of Business Administration

- **Dean**: Thomas L. Keon
- **Interim Associate Dean**: Ronald E. Michaels
- **Associate Dean**: Robert L. Pennington
- **Chair, Accounting**: Andrew J. Judd
- **Chair, Economics**: Richard A. Hofler
- **Chair, Finance**: John M. McGuire
- **Chair, Hospitality Management**: Robert C. Ford
- **Interim Chair, Management**: Halsey R. Jones
- **Chair, Marketing**: Ronald E. Michaels

## College of Education

- **Dean**: Sandra L. Robinson
- **Associate Dean**: Jennifer M. Platt
- **Associate Dean**: Michael C. Hynes
- **Assistant Dean**: Margaret G. Miller
- **Chair, Educational Foundations**: Karen L. Biraimah
- **Interim Chair, Educational Services**: Gary W. Orwig
- **Interim Chair, Instructional Programs**: John H. Armstrong
- **Interim Chair, Exceptional Education**: Lee Cross

## College of Engineering

- **Dean**: Martin P. Wanielista
- **Associate Dean for Research and Graduate Studies**: Debra R. Reinhart
- **Director of Graduate Affairs**: José A. Sepúlveda
- **Chair, Civil and Environmental Engineering**: A. Essam Radwan
- **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
- **Chair, Communicative Disorders**: Chad Nye
- **Chair, Criminal Justice and Legal Studies**: Bernard J. McCarthy
- **Chair, Health Professions and Physical Therapy**: Gregory H. Frazer
- **Chair, Molecular Biology and Microbiology**: Robert N. Gennaro
- **Director, School of Nursing**: Elizabeth Stullenbarger
- **Chair, Public Administration**: TBA
- **Director, School of Social Work**: TBA

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- List of Program Coordinators: 65 with telephone numbers, e-mail addresses, and campus addresses
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Students take a break from studying at one of UCF's scenic spots, the Reflecting Pond.
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

UCF is a growing metropolitan University with the responsibility to deliver a comprehensive program of teaching, research, and service. Its primary mission is to provide intellectual leadership through quality undergraduate and graduate programs.

UCF offers an 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 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.

Service to its community is an important extension of the teaching and research 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 nontraditional 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
- 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 in the Orlando suburbs, 13 miles northeast of downtown. Seventy-four permanent buildings—valued at more than $159 million—radiate outward from an academic core, where UCF's colleges, classrooms, and library are located. More than $85 million in new construction is underway, including a $15.6 million communications building and a new $14.7 million Health and Public Affairs building. New facilities recently completed include an $17.4 million student union and a $7.6 million computer science building. UCF recreational facilities include lighted tennis and racquetball courts, an outdoor swimming pool, golf driving range, volleyball and basketball courts, and ball 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 Professional Development Center at South Orlando. Times and dates for all courses are listed in the regularly published Schedule of Classes.
The 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 a clearinghouse for logistic processes in support of distributed learning credit courses and degree programs offered by UCF. Assistance is provided in the areas of 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.
UCF Brevard Area Campus

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

For directions to the UCF Brevard campus, see the map on page 311.

UCF Daytona Beach Campus

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.)

For directions to the UCF Daytona campus, see the map on page 311.
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.

Professional Development Center at South Orlando
John Duryea, Director
Orlando Central Park • (407) 856-6585

The Professional Development 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 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 five interactive television courses. There is a small 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) 823-0088
Myrna Creasman, Assistant Director
TR 547 • (407) 823-5515

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

For directions to the Downtown Academic Center, see the map on page 311.

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 centralized 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
Roger D. Simmons, Interim Associate Director
LR 512 • (407) 823-2564


The University Library, housed in a facility of 200,000 square feet, has a collection of over 1,000,000 volumes (books, journals, government documents) with approximately 5,000 subscriptions (journals, newspapers, and other serials) and over 11,000 media titles. The Library is a partial depository for U.S. and Florida documents, and U.S. Patents. LUIS, the Library’s on-line catalog, may be accessed through terminals in the Library, at other campus locations, or from off-campus computers. Through LUIS, Library users are able to determine whether the UCF Library owns a particular item, and the location and availability of the item. LUIS also provides on-line access to catalogs of all state University libraries in Florida, and to ERIC, IAC, and other indexes. On-line access is also provided to numerous electronic full-text journals and databases.

Education and training for effective use of information technology and resources is made available in a state-of-the-art facility, where students have opportunities for immediate hands-on experience with presented techniques. The Library is open approximately 95 hours each week, including evenings and weekends. A shortened schedule is maintained during vacation periods, and hours are extended during the last few weeks of each semester. A staff of librarians and paraprofessionals is available to assist and advise those using the Library. Arrangements may also be made for class or small group instruction. Materials not in the
Library's collections are available through the Interlibrary Loan Service. The Library also provides customized computer-produced bibliographies from any of approximately 500 different commercially available databases.

Special services are provided for the disabled. By using a computer terminal, disabled students can determine the availability of the books they need and telephone the Library to request that books be brought to them at a convenient location on campus. A Kurzweil reading machine is available in the Library for the visually impaired; students or faculty 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.

A Curriculum Materials Center, located in the College of Education, provides a variety of K-12 curriculum materials in various formats for student and faculty use. The collection numbers over 20,000 books and 3,500 units of all types of media.

Students enrolled in the University's area campuses in Daytona Beach and Brevard County receive a full range of services from the Daytona Beach Community College Library and the Brevard Community College Library. The UCF Library purchases library materials for addition to these libraries in support of UCF academic programs taught there. On-line access to the catalog of the main Library collection is available from all branch campus locations and materials are delivered through a regular courier service. On-line access to many electronic full-text journals and databases is also provided.

UCF's campus is arranged on concentric circles, Pegasus Circle, Apollo Circle, and Gemini Boulevard, which makes access to buildings and classes more convenient.
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 file servers, IBM RS/6000 model 580, IBM ES/9000 model 170 and other Internet and campus facilities. There are three 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. 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 re-seller for Dell, Apple, IBM, Microsoft, Lotus, and many other products. Maintenance and training support is also available from the store.

Office of Instructional Resources (OIR)

LIB 107 • (407) 823-2571

Instructional Resources 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.
UCF offers students convenient opportunities to take credit courses through a variety of interactive distributed technologies. Interactive (ITV) courses are broadcast in real-time using two-way video and two-way audio between the main campus, Brevard and Daytona campuses, and Downtown Academic 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 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 replace some class meetings. Fully on-line courses have minimal class meetings and involve additional media such as audio and video tapes. UCF's virtual campus puts the home back in homework by bringing the University to students with on-line courses and services. See http://pegasus.cc.ucf.edu/~ucfdist/ for more information. Courses are listed each semester in the Schedule of Classes.

**Instructional Television**

**ENGR 387** • (407) 823-2481

The University offers a variety of courses by way of television. They are available either live or on tape at various locations both on and off campus. Live courses may be viewed at the Brevard and Daytona Beach campuses, as well as at selected sites around the Greater Orlando area. Live courses may also be viewed on a cable channel in the dorms and at several fraternity and sorority houses. Some courses are also broadcast to individual homes through local cable companies in Brevard and Orange counties. Courses on tape are available in the learning centers or libraries at all of the University's campuses. Courses available on tape or live television are listed each semester in the Schedule of Classes.
The UCF Library provides a variety of services and resources to serve graduate students' research needs.
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 the transmittal 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.

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 well-equipped 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
Donald C. Hoke, Director
BA 237 • (407) 823-2446 • Fax (407) 823-3153 • E-mail: execdev@bus.ucf.edu

The Center for Executive Development (CED) of the College of Business Administration at UCF is committed to providing contemporary and relevant management and executive development programs. Utilizing the resources of the school faculty, visiting executives, leading educators, and other distinguished guests, the Center provides training and seminars in topics covering the spectrum of business topics and issues. Over 5,000 participants are served by the Center annually. Programs last from one day to over two weeks in duration, as well as several longer term certificate and degree programs. Examples of current programs include: Management Development Series 2000 ("mini MBA" certificate program), Human Resource Development Training, Annual Accounting Conference, Lessons in Leadership Speaker Series, TEAM-Net® (a computerized decision-making system), and customized international programs.
Academic Program
The Center coordinates the Executive MBA Program. This program has been designed to meet the needs of individuals who seek an advanced-level learning experience and value the opportunity of learning with colleagues facing similar leadership and managerial challenges. Qualified applicants complete eleven courses in "lock-step" fashion over a seventeen-month period, meeting every other Friday and Saturday from 8 to 5. Two off-campus residencies are included. Admission to the EMBA Program requires at least five years of full-time, progressive managerial experience in addition to University academic requirements. Professional or senior public service work is considered the equivalent of managerial experience.

Center for Research and Education in Optics and Lasers (CREOL)
Dr. M. J. Soileau, Director
Dr. M. G. Moharam, Associate Director
CREOL/UCF, P.O. Box 162700, Orlando, FL 32826-2700 • (407) 658-6800
CREOL is the State University System of Florida's Center of Excellence for research and education in optical and laser sciences and engineering. CREOL was established in 1986 to bring together diverse disciplines into a cohesive program in optics and lasers. Research activities at the Center are integrated with the academic programs to ensure involvement of both students and faculty. CREOL has 28 faculty positions devoted to lasers and optical sciences and engineering, of which 21 have been filled by scholars from around the world. CREOL faculty are among the best in the laser/optics fields—half hold the rank of Fellow in major national and international societies associated with optics (e.g., Optical Society of America [OSA], the International Optical Engineering Society [SPIE]). The faculty serve in major leadership positions in these societies, including service on the boards of directors and as officers of the societies. In a typical year approximately 50 percent of the faculty are asked to chair, co-chair, or serve on organizing committees of major national and international conferences dealing with their research specialties. The faculty and students of CREOL typically produce over 150 scholarly works per year. CREOL is located in a modern 82,000-square-foot research facility.

Research Program
CREOL research projects reflect the interdisciplinary nature of the faculty and their diverse interests, and is supported by federal, state, and industrial research grants. Faculty and students pursue joint research projects with industry and government laboratories. Current research activities include: laser propagation, laser/material interactions, nonlinear optics, integrated and guided-wave optics, infrared systems, optical signal processing, laser development, detector technology, ultra-fast phenomena, modern x-ray optics and lithography, laser plasma, nonlinear optical spectroscopy, diffractive optics, thin film optics, free electron lasers, photonics, optoelectronics, semiconductor optical device integration, growth of nonlinear and laser host materials, solid state and diode pumped lasers, laser-aided material processing and manufacturing, glass processing and characterization, optics manufacturing, and much more. The research facilities include ninety laboratories equipped with over $25 million of state-of-the-art optics equipment.

Academic Program
The academic program involves students from various science and engineering departments and reflects the diverse interests of the faculty and students. Degrees in Optical Science and Engineering, Optical Physics, Electrical Engineering, Mechanical Engineering, and Physics are available at the master's and doctoral levels. More than 25 specialized courses in electro-optics and lasers as well as advanced electrical engineering and physics courses are taught regularly. Graduate assistantships are available with stipends ranging from $13,500 to $16,500 for twelve months. Exceptional students will be considered for assistantship enhancements of up to $4,000 through the Litton Foundation. Prestigious National Science Foundation (NSF) Graduate Traineeships are available for exceptional Ph.D. students for up to $22,500 per year including tuition. NSF programs require that applicants be a U.S. citizen or permanent resident.
Industrial Affiliates Program
CREOL has established an industrial affiliate program to facilitate strong cooperative relationships with industry. The program provides businesses and manufacturers with the 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 in laser and electro-optical technology.

Research Experience for Undergraduate Students
Summer undergraduate fellowships are available through the Research Experience for Undergraduates Program in Optics and Lasers. Students receive a $3,300 stipend and a housing allowance, with funds provided jointly by the National Science Foundation and CREOL. Ten students per year are selected from around the United States to participate in an 11-week research project. The program encourages talented students, particularly minorities and persons with disabilities, to pursue graduate studies in optics and lasers.

Dick Pope, Sr., Institute for Tourism Studies
Dr. Abe Pizam, Interim 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) 823-2629

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 and eastern Europe 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 linkage 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.

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 $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 1996 exceeds $70 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

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.

Institute for Simulation and Training (IST)
Dr. A. Louis Medin, Executive Director
3280 Progress Drive, Orlando, FL 32826-0544  •  (407) 658-5000  •  FAX (407) 658-5059
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

IST's research staff encompasses a broad spectrum of academic disciplines including computer science, computer engineering, human factors psychology, instructional design, and a variety of engineering disciplines. Additionally, many of IST's researchers and program managers have extensive experience in commercial and military organizations. Integrating this experience with the academic environment provides a unique perspective on simulation and training research with a thorough understanding of application requirements.

Augmenting the professional staff are nearly 100 graduate and undergraduate students who work in almost every research and support area of IST. Since its inception, more than 550 students have worked at IST, many completing advanced degrees in simulation-related disciplines while contributing to institute research efforts.

Major research domains at the institute include:
- Simulator networking
- Virtual world visualization and interaction
- 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.
RESEARCH OPPORTUNITIES

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 Space Institute (FSI)
Dr. Ron Phillips, Director
12424 Research Parkway, Suite 400, Orlando, FL 32826
(407) 858-5599 • FAX (407) 858-5595

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, 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); VO₂ 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
UCF has high expectations for the achievements of all graduate students.
Admission to Graduate Programs and to the University

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

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 post-baccalaureate students. Please note that post-baccalaureate admission to UCF does not guarantee admission to graduate status in a degree program.

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.

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
- Application for Financial Assistance (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
- Patent and Invention Agreement*
- 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 these completed forms with the rest of your application. These forms are not used in making an admission decision. However, you will not be allowed to enroll at UCF without completing these forms.
Application for International Admission to a Graduate Program

To apply for international admission to a graduate program, you must 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@pegasus.cc.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
- 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.
- Application for Financial Assistance (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
- Patent and Invention Agreement**
- 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 these completed forms with the rest of your application. These forms are not used in making an admission decision. However, you will not be allowed to enroll at UCF without completing these forms.

Application for Admission as a Post-Baccalaureate 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 Post-Baccalaureate application. The following materials should be returned:

- Post-Baccalaureate 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):

- Post-Baccalaureate 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
- Student Health Services - Health Form (not required if you are currently attending a State University System institution)
- A letter from the home university stating academic standing and courses to be taken at UCF.

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. Due to Florida Board of Regents rules and accreditation, this policy will not be waived. 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 (post-baccalaureate) study may be obtained from Graduate Studies - Admissions (AD 144) or by downloading from our web site at http://www.orgs.ucf.edu/graduate. Completed applications must be submitted to the same office.

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

Official Transcripts

To be granted admission to UCF in either graduate or post-baccalaureate status, all applicants must submit official transcripts showing a baccalaureate degree and the grades for the last 60 semester (90 quarter) hours of attempted undergraduate work 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 sent. 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). The GMAT exam is computerized and is available only at Sylvan Learning Centers.
admission to graduate programs and to the university

(407-671-2332). The GRE is also available in a computerized format at Sylvan. For registration dates and procedures, contact the UCF Counseling and Testing Center (407-823-2811). 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 post-baccalaureate 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), assuming 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**

All supporting admission documents must be received directly from the issuing institution or testing agency. 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 Office of Student Affairs 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 will be mailed with the application for admission. 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@pegasus.cc.ucf.edu) Graduate Studies indicating your name, Social Security Number, and date desired for readmission.
Admission to the University

Admission as a post-baccalaureate 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 post-baccalaureate applicants will receive notice of acceptance to the university and registration information from Graduate Studies.

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.

- A student may not be guaranteed continuing graduate status if he or she does not enroll in the University for a period of two major semesters (spring/fall). When a student applies for readmission, after having been out two or more semesters, the program will review the student's record to determine if he or she will be continued in graduate status or be reverted to post-baccalaureate 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, or provisional) 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.
ADMISSION TO GRADUATE PROGRAMS AND TO THE UNIVERSITY

Admission Classifications

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 Director of Graduate Studies indicating the desire to appeal further and the reasons why an appeal is sought. The Director may ask the Graduate Council to examine the necessary information and recommend a response to the appeal. The Director will recommend an admission action to the Vice President for Research and Graduate Studies.

Admission to graduate status can be in one of three categories: regular, conditional, or provisional status. (Post-baccalaureate status is considered non-degree-seeking.)

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 attempted semester hours); OR, a total score of 1,000 or higher on the General Test (quantitative-verbal sections) of the Graduate Record Examination (or a GMAT score of 450 or higher as needed) or an equivalent score on an equivalent measure approved by the Board of Regents; OR, a previous graduate degree and official GRE or GMAT score. Even though an applicant may qualify for minimum admission on the basis of the undergraduate grade point average or having a previous graduate degree, an official GRE or GMAT score must be on file before admission to Graduate Status.

- A student must be accepted by the program coordinator and the dean of the college offering the particular degree program sought.

- International students must demonstrate their proficiency in the English 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. A TOEFL score of 550 is required unless otherwise specified by the program.

Graduate Status—Conditional
Often programs have more stringent requirements than the minimums set by the Board of Regents. Even though BOR minimum requirements are met, a program may attach conditions 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 in this status are termed conditional and may be denied admission to regular graduate status if the conditions are not met.

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 at no time exceed 10 percent of the graduate students admitted for any academic year in any single degree program. PROVISIONAL students may be admitted to REGULAR status following satisfactory completion of 9 semester hours and upon recommendation by the program coordinator and college dean.

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 post-baccalaureate 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 post-baccalaureate status. (See “Appeals” in the “University Graduate Regulations” chapter.)
Post-Baccalaureate Status
Post-baccalaureate status is considered to be non-degree-seeking. Students are generally placed in this category at their request. International students are not eligible for post-baccalaureate status unless they hold an eligible visa status.

A student may elect to remain in post-baccalaureate 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 post-baccalaureate status, students are allowed to take graduate courses, in some departments, on a space-available basis. Post-baccalaureate students register the last day of registration. Not all departments accept post-baccalaureate 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 post-baccalaureate 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.

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. Post-baccalaureate 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
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
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). 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 early in the application process.

UCF accepts transcript evaluations from the following agencies:

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

- Josef Silny and Assocs., 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. 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></td>
<td>March 1</td>
<td>August 1</td>
<td>December 1</td>
</tr>
</tbody>
</table>

The following programs have other deadlines for international applicants:

- **Curriculum and Instruction**  
  (Specialist and EdD)  
  February 15  
  —  
  —

- **Counselor Education (Master)**  
  February 1  
  —  
  —

- **Educational Leadership**  
  (Specialist and EdD)  
  February 15  
  —  
  —

- **Molecular Biology/Microbiology**  
  (priority deadline)  
  March 15  
  —  
  April 15**

- **Nursing**  
  February 15  
  —  
  —

- **Physics**  
  February 15  
  —  
  —

- **Psychology**  
  February 1  
  —  
  —

- **Psychology, Clinical (M.A.)**  
  February 15  
  —  
  —

*This program admits students all three semesters, but students applying for fellowships or assistantships must apply for the fall semester by the priority date.

**The application deadline for this program is April 15 of the year following the December 1 deadline.

**NOTE:** Applicants for the Ph.D. program in Business Administration should contact the Office of Student Support, College of Business Administration (407-823-2184), before completing this application.
ADMISSION TO GRADUATE PROGRAMS AND TO THE UNIVERSITY

Test of English as a Foreign Language (TOEFL)
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 score of 550 is required unless otherwise specified by the program. The list below includes programs that have determined a minimum required TOEFL score different from the University requirement.

<table>
<thead>
<tr>
<th>PROGRAM</th>
<th>TOEFL</th>
</tr>
</thead>
<tbody>
<tr>
<td>College of Arts and Sciences</td>
<td></td>
</tr>
<tr>
<td>Chemistry, Industrial</td>
<td>500</td>
</tr>
<tr>
<td>English</td>
<td>575</td>
</tr>
<tr>
<td>History</td>
<td>575</td>
</tr>
<tr>
<td>Political Science</td>
<td>500</td>
</tr>
<tr>
<td>Psychology, Clinical (M.A.)</td>
<td>500</td>
</tr>
<tr>
<td>Psychology, Industrial/Organizational (M.S.)</td>
<td>500</td>
</tr>
<tr>
<td>Sociology, Applied</td>
<td>500</td>
</tr>
<tr>
<td>Statistical Computing</td>
<td>500</td>
</tr>
<tr>
<td>College of Business Administration</td>
<td>575</td>
</tr>
<tr>
<td>College of Education</td>
<td>550</td>
</tr>
<tr>
<td>College of Engineering</td>
<td>550</td>
</tr>
<tr>
<td>College of Health and Public Affairs</td>
<td></td>
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<tr>
<td>Communicative Disorders</td>
<td>500</td>
</tr>
<tr>
<td>Health Services Administration</td>
<td>500</td>
</tr>
<tr>
<td>Nursing</td>
<td>500</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.
Students take advantage of the restaurants and outdoor tables at the Student Union.
Registration Information

Registration Periods
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 midpoint 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.

Post-Baccalaureate Students
All post-baccalaureate 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, post-baccalaureate students can ONLY register for 5000- and 6000-level classes. In the College of Business Administration, post-baccalaureate students cannot register for graduate courses. The College of Engineering will only allow post-baccalaureate students to register with special approval from the program coordinator. Post-baccalaureate 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.

Post-baccalaureate students must be registered for 12 hours to be considered full-time. Post-baccalaureate 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, post-baccalaureate 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.

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 post-baccalaureate status.

Those students who are placed on nine-hour holds must see their advisor or they may sign a form provided by Graduate Studies stating they are not taking courses toward a graduate degree.
Florida’s weather provides students with an excellent opportunity for studying outdoors as well as for year-round sports and other recreational activities.
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: FA202
- Business Administration: BA240
- Education: ED 109
- Engineering: ENGR 281
- Health and Public Affairs: HPB 201

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.

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, gradfaid@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.
UCF is located in the metropolitan Orlando area, one of the fastest growing high-tech centers in the United States.
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. Student's 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.

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.

1997-98 Fee Schedule
(1998-99 fees were not available at the time of publication.)

<table>
<thead>
<tr>
<th>Category</th>
<th>Florida Resident Undergraduate (0000-4999)</th>
<th>Florida Resident Graduate (5000-7999)</th>
<th>Non-Florida Resident Undergraduate (0000-4999)</th>
<th>Non-Florida Resident Graduate (5000-7999)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fees per Credit Hour:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Matriculation</td>
<td>$43.92</td>
<td>$105.64</td>
<td>$43.92</td>
<td>$105.64</td>
</tr>
<tr>
<td>Non-Resident Fee</td>
<td>-0-</td>
<td>-0-</td>
<td>187.83</td>
<td>290.85</td>
</tr>
<tr>
<td>Building Fee</td>
<td>2.32</td>
<td>2.32</td>
<td>2.32</td>
<td>2.32</td>
</tr>
<tr>
<td>Capital Improvement Fee</td>
<td>2.44</td>
<td>2.44</td>
<td>2.44</td>
<td>2.44</td>
</tr>
<tr>
<td>Undergraduate Financial Aid Fee</td>
<td>2.19</td>
<td>5.28</td>
<td>2.19</td>
<td>5.28</td>
</tr>
<tr>
<td>Non-Resident Financial Aid Fee</td>
<td>-0-</td>
<td>-0-</td>
<td>9.39</td>
<td>14.54</td>
</tr>
<tr>
<td>Activity and Service Fee</td>
<td>6.95</td>
<td>6.95</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>
<td>6.50</td>
<td>6.50</td>
</tr>
<tr>
<td>Total per Hour</td>
<td>$64.32</td>
<td>$129.13</td>
<td>$261.54</td>
<td>$434.52</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.

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, or regularly, although it will apply to post-baccalaureate students who began their baccalaureate work in Fall 1996 or thereafter. It will not apply to those hours required for teacher certification or to maintain other professional state certification or license.

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.

### Other Fees: Resident and Non-Resident Students

<table>
<thead>
<tr>
<th>Fee Description</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>UCF Health Fee (fall and spring terms - main campus course offerings)</td>
<td>$47.30</td>
</tr>
<tr>
<td>UCF Health Fee (summer term - main campus course offerings)</td>
<td>$35.20</td>
</tr>
<tr>
<td>UCF Materials and Supplies Fee (approved courses only - varies per course)</td>
<td>$2.00-15.00</td>
</tr>
<tr>
<td>Campus Card Fee</td>
<td>$10.00</td>
</tr>
<tr>
<td>Campus Card Replacement Fee</td>
<td>$15.00</td>
</tr>
<tr>
<td>Late Registration Fee (see &quot;E&quot; below)</td>
<td>$50.00</td>
</tr>
<tr>
<td>Late Payment Fee (see &quot;E&quot; below)</td>
<td>$50.00</td>
</tr>
</tbody>
</table>

#### Returned Check Fees:

- Check amounts up to $50.00: $25.00
- Check amounts over $50.00 and less than $300.00: $30.00
- Check amounts over $300.00: $40.00 or 5%, whichever is greater

### C. Room and Board (estimated)

- Residence Hall Rooms (per semester): $1,005.00-1,535.00
- Charge for late housing payment: $50.00
- Board plans: Contact Food Service, (407) 823-2651: $825.00-950.00

University housing for graduate students is scarce, and graduate students should search for inexpensive off-campus apartments. Most apartments charge from $400 to $500 per month for a one-bedroom unit.

### D. Books and Supplies per semester (estimated)

- $300.00

### 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)

- $68.00

### 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 that 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).

☐ Documentation establishing bona fide domicile in Florida which is not temporary or merely incidental to enrollment in a Florida institution of higher education. The following 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 reliance 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 resident, including the age and general circumstances of the individual.

☐ No contrary evidence establishing residence elsewhere.

☐ Documentation of dependent/independent status (notarized 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,

OR

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

OR

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

OR

Be a dependent and have lived five years with an adult relative 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.
FINANCIAL INFORMATION

Appeals of Late Fees

Students who wish to appeal a late registration or late payment fee may make their appeal to the Fee Appeals Committee by initiating a student petition (Form 41-561). This form can be obtained from Enrollment and Academic Services, Student Affairs, the University Cashier, or the Student Accounts Section of Finance and Accounting. Students must submit their petitions to Student Accounts, Room 112, Administration Building, and may appear (not mandatory) before the committee. To avoid complications, students should pay all fees, including late fees, and if the appeal is granted, they will receive 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 Tuesday, 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 guidelines for off-campus registration are contained on the off-campus registration form.

Mailed 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, Orlando, 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 following conditions upon presentation at the Student Accounts Office of a Certification of Withdrawal issued by the Registrar. Any debts to the University will be deducted up to the full amount of the refund.

A. 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 for 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:

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

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.orgs.ucf.edu/graduate

Tuition Waivers

Full-time 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. Instate 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 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 $3,250 or higher for the academic year.
2. If more than one 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 Affairs, 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 toward 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.
FINANCIAL INFORMATION

Tuition Waivers for State of Florida Employees

State employees, faculty, and staff who use a tuition fee waiver for course work (up to 6 credit hours) 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 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, 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, 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.

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 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 selection.

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 8 fellowships available each year.
FINANCIAL INFORMATION

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

Eligibility:
- Students must have applied to graduate school at the time of selection, and they must be fully admitted to the graduate program in order to receive the award.
- Students must be enrolled for at least six hours of graduate course work or one hour of thesis or dissertation during each fall and spring term of the award.
- To retain eligibility to receive this fellowship, award recipients must maintain continuing academic progress (with a graduate GPA of greater than or equal to 3.0 each term of the award).

Deadline for applications: Early April for fall/spring

Incentive Graduate Fellowship
This fellowship seeks to reach 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 six 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, 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 accepted and enrolled in a graduate degree program.
- Students must maintain enrollment for two consecutive terms of at least six 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: End of May for fall/spring
Graduate Enhancement Fellowship
This merit-based fellowship for outstanding graduate students is provided through funding made available to individual programs. Graduate programs that qualify for this funding will select several students to receive this fellowship. Students must be enrolled for six graduate hours each term of the award. Students must be first-time graduate students who are recruited into the program. Only U.S. citizens or permanent resident aliens are eligible.

The fellowship award period is one year for master's programs and two years for doctoral programs. Awards are limited to no more than four students with fellowships limited to no more than $5,000 per student per academic year.

The fellowship is not awarded in conjunction with other fellowships, and the student is eligible to receive the fellowship only once. Evaluation of program proposals and recommendation will be made by the University Graduate Fellowship Committee and the Office of Research and Graduate Studies. This award is funded by differential tuition funds. Approximately 4 awards are available for 6-7 programs each year.

Students do not apply for this award but are selected by their programs for these awards. Outstanding graduate students should inquire within their department of study regarding availability of funds.

A complete application includes:
- Departmental selection
- Departmental eligibility for funding
- A proposal from the program is required according to the proposal guidelines provided to each graduate coordinator.

Eligibility:
- Students must be U.S. citizens or permanent resident aliens.
- Students must be accepted and enrolled in a graduate degree program.
- Students must maintain enrollment for two consecutive terms of at least six 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 Program Proposals: Mid-December for fall

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 six 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 Graduate Studies. This award is funded by federal college work study and departmental funds. There are approximately 20 fellowships available each year.

A complete application includes:
- Students must have established an unmet financial need through the FAFSA (Free Application for Federal Student Aid) process. The FAFSA, completed and mailed to the appropriate agency 4-6 weeks prior to the selection 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.
- Departmental commitment of funding
- Departmental recommendation
Eligibility:
- 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 accepted and enrolled in a graduate degree program.
- Students must maintain enrollment for two consecutive terms of at least six 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-April 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 terms) and includes a tuition waiver for up to six 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. This award is funded by differential tuition funds. Approximately 4 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 not 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

Eligibility:
- Students must be U.S. citizens and American Indian, Alaskan Native, Hispanic, Black, Pacific Islander (not Asian).
- Students must be accepted and enrolled in a graduate degree program.
- Students must maintain enrollment for the fall and spring semesters of at least six graduate credit hours or one hour of thesis or dissertation during the fellowship.
- To retain eligibility to receive this award, 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 program is to allow minority graduate students an opportunity to work closely with a faculty member in a mentoring relationship. Both provisional 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 6 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. Evalu-
ation 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

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.
- 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 Research and 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

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 Graduate Studies selects the recipients of the award.

This fellowship includes an award of $10,000 per year for a master’s program and $15,000 per year for a doctoral program. The award is for two years and includes an in-state tuition waiver of up to nine hours of graduate course work per semester.

This fellowship is not awarded in conjunction with other fellowships, and the student is eligible to receive the fellowship only once. Continuing academic progress (graduate GPA of at least 3.0 for each term of the award) is required to maintain the eligibility to receive this fellowship. This award is funded by differential tuition funds. Approximately 2 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 6 hours of graduate course work per semester) provided by the graduate program. Students must be U.S. citizens.

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. Approximately 4 fellowships are available each year.

A complete application includes:
- Fellowship Application
- A departmental nomination, from the graduate program coordinator
- Two letters of recommendation, from the graduate program coordinator or faculty

Eligibility:
- Recipients must be U.S. citizens and American Indian, Alaskan Native, Hispanic, Black, Pacific Islander (not Asian).
- Recipients must be accepted and enrolled in a graduate degree program.
- Students must maintain enrollment for the fall and spring semesters of at least six 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: Mid-March for fall 1998 and spring 1999
McKnight Doctoral Fellowship Program
Funded by the Florida Education Fund, the McKnight Doctoral Fellowship program is designed to address the under-representation 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.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 3 years. A full tuition waiver (up to 9 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 Research and Graduate Studies. Applications must be mailed to the Florida Education Fund and postmarked no later than January 15th of each year.

Request application from:  Mail completed application to:
The Office of Research and Graduate Studies, AD 144  The Florida Education Fund
Fellowships Coordinator 201 E. Kennedy Blvd., Suite 1525
P.O. Box 160112 Tampa, FL 33602
Orlando, FL 32816-0112 Phone: (813) 272-2772
Phone: (407) 823-6497 Fax: (407) 823-6442
E-mail: gradfad@pegasus.cc.ucf.edu

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 Financial Assistance form in the Graduate Application for Admission packet if desiring an assistantship and include on the form any special abilities, particularly computing or teaching experiences. All graduate assistants must be employed at more than minimum wage ($5.50 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 post-baccalaureate 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 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 coursework 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. Post-baccalaureate 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.

**Employment of International Students**

According to INS regulations, graduate students who are on an F-1 or J-1 visa may accept employment at UCF (either on or off campus) without prior INS approval as long as the student is enrolled full-time and employment does not displace a U.S. resident. Off-campus locations must be affiliated with the University either through contractually funded projects or associated with the University's curricula.

Offers of employment to work on campus should be sent with the admission letter so the student can include the funding on the Confidential Financial Statement. 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. On-campus employment is not permitted after completion of the study program, unless the student is issued a Form I-20A-B to begin a new program and intends to enroll for the next regular academic year, term, or session.

Students who received a bachelor's degree at one school and will start a master's degree at UCF are eligible to work during the summer at either the original school or UCF as long as a Form I-20A-B was issued for the new master's program.

International (F-1) students may extend their stay in the United States for one year for practical training after their graduation. Students should contact the International Student Services Office for details.

**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 yearly in the fall, 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.

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 3 hours at UCF, and maintain academic progress. The maximum subsidized loan amount for graduate students is $8500. 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 post-baccalaureate students are not eligible for student loans. However, "SB" students are eligible.

**College Work Study Program**

The College 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 College Work Study Program (FCWS) as well as OPS employment.

Federal College Work Study is available to graduate students who demonstrate financial need. Graduate students must be enrolled at least half-time (3 credits), be U.S. citizens, and maintain satisfactory academic progress to be eligible for the College Work Study Program. All students desiring to work on campus as student assistants must meet the following qualifications, which are intended to protect their academic progress and comply with state and federal requirements.

**Scholarships**


- Students have the right to full information about the financial aid programs available at UCF, our 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.
Students talk outside the Visual Arts Building, which is home to the UCF Art Gallery.
The Vice President for Research and Graduate Studies is responsible for overseeing all activities related to research and graduate studies at UCF. The Director of Graduate Studies oversees the admissions, records, policies, appeals, and graduation of graduate students.

Graduate Studies works in conjunction with the Faculty Senate Committees and the college and department graduate 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 enrollment 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, the Graduate Policy and Curriculum Committee, or the Graduate Council. Operational procedures should be directed to the Office of Graduate Studies (AD 243) or to the individual college or department coordinators.

The Coordinator, Admissions and Registration supervises the day-to-day workflow associated with processing graduate applications and making changes to student records. She works with the colleges and their staff, as well as with other UCF offices, concerning graduate applicants and students. In addition, the Coordinator is responsible for ensuring that residency requirements for tuition purposes and Board of Regents policies and practices are implemented in Graduate Studies. She reports to the Director of Graduate Studies.

The Thesis and Publications Editor is responsible for assisting graduate students in preparing theses and dissertations. The goal is to support students, faculty, and staff through the thesis/dissertation process and to facilitate effective scholarly communication. In support of these efforts, the editor holds workshops for graduate students to provide guidance and explain in detail the policies and procedures associated with writing a thesis or dissertation. The editor performs the final review and ensures that all theses and dissertations are acceptable to University Microfilms International (UMI) standards.

The Fellowships Coordinator is responsible for keeping the office up-to-date on changes in financial assistance for graduate students. The coordinator formulates and recommends policies and procedures to effectively administer programs for graduate students in areas of fellowships, assistantships, tuition waivers, and other forms of support for graduate students. In addition, the coordinator assists in resolving specific student financial assistance problems, and in disseminating information in regard to university rules.

The Academic Coordinator handles Course Action Requests and Special Topics for the Graduate Council, serves as a liaison for the Graduate Policy and Curriculum and Graduate Coordinators committees, and coordinates the graduation certification process for the university. The coordinator also records information, petitions, appeals and handles grade change requests and traveling scholar forms.

The Specialist, Computer Applications responds to external surveys concerning enrollment information, provides summary information for the programs concerning the inquiry, admissions, and registration processes, and designs and maintains database information important to the functioning of Graduate Studies.
College and Program Coordinators

College Graduate 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 Program Coordinators work with the College Graduate 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 College Graduate Coordinators on their activities.

Graduate Policy and Curriculum Committee

The Graduate Policy and Curriculum Committee is a standing committee of the Faculty Senate and reports to the Senate on Graduate Policy and Curriculum matters. The Committee consists of 14 members, at least five of whom are current Faculty Senate members. The composition of the committee consists of a nonvoting library representative, two members from each college, except Arts and Sciences which has four. The Vice President for Research and Graduate Studies and the Director of Graduate Studies are ex-officio members of this committee.

The Graduate Policy and Curriculum Committee deals with policy issues and standards for the university. New graduate program requests are reviewed by the Graduate Policy and Curriculum Committee. The program proposals will be sent to the Office of Research and 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 Policy and Curriculum Committee for final approval. The Graduate Policy and Curriculum Committee will then transmit its recommendations to the Vice President for Research and Graduate Studies for submittal to the Office of Academic Affairs, and the Board of Regents.

Duties of the Graduate Policy and Curriculum Committee:

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.
4. Transmits its recommendations to the Faculty Senate Steering Committee, which normally submits these recommendations to Graduate Studies on behalf of the Provost.

Graduate Council

A subcommittee, the Graduate Council, hears petitions for variances from graduate policies and procedures, reviews graduate course action requests, and monitors the maintenance of graduate program quality. The Graduate Council consists of six faculty members, one representative from each College except for Arts and Sciences, which has two members, and the Director of Graduate Studies who serves as an ex-officio member.

Recommendations concerning petitions and course action requests will normally be forwarded from the Graduate Council to Graduate Studies for action. Course action requests will then be forwarded to the Board of Regents for common course numbering. A student petition will be considered in the Graduate Council when the department and college have reviewed the request and denied the petition or when the student is requesting exception to university policies or regulations. Results of student petitions will be forwarded from the Graduate Council to the Graduate Studies Office, which will notify the student and department of the action taken and return the file to the department.

Duties of the Graduate Council (Subcommittee):

1. Reviews annual reports from all the colleges on the status of the graduate programs and makes necessary recommendations to the Graduate Policy and Curriculum Committee.
2. Reviews graduate course additions, revisions, and deletions.
3. Reviews new tracks, options, or specialty areas proposed within an existing degree-granting program.
4. Hears academic exceptions to graduate policy and procedures from students or coordinators after consideration by the department and college.
5. Reviews all graduate programs on a periodic basis, including the five-year SUS Program Review.
6. Recommends the Excellence in Graduate Teaching Award Recipient each year.
7. Recommends to the Graduate Policy and Curriculum Committee policies and procedures which it deems appropriate.
# College Graduate Coordinators

**Arts and Sciences:**  Ben Morgan  •  CAS 190  •  823-0218  •  morgan@mail.ucf.edu
**Business Administration:** Robert Pennington  •  BA 241  •  823-2184  •  robertp@pegasus.cc.ucf.edu
**Education:** Mike Hynes  •  ED 146  •  823-6076  •  hynes@pegasus.cc.ucf.edu
**Engineering:** José Sepúlveda • ENGR 281 • 823-5307 • sepulveda@pegasus.cc.ucf.edu
**Health and Public Affairs:** Joyce Dormer  •  HPB 219  •  823-5233  •  jdomer@pegasus.cc.ucf.edu

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Walkways link nearby parking lots with the Student Union.
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).

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 degree program with no conditions or provisions and is seeking a graduate degree.

Provisional Graduate Student—a 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 before the student is made a Regular Graduate Student. Only 10 percent of all new students in any degree program may be Provisional.

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

Non-degree-seeking or Post-Baccalaureate—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 9 credit hours into a 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 a student pleads ignorance of the regulations or claims failure of the advisor to keep him or her 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, GRAs, and GAs) must work at least 10 hours per week, but not more than 20 hours per week. Students who want to work hours in excess of 20 hours per week must complete an Multiple Employment/Excess Hours Form. If approved by the Graduate Council and Graduate Studies for compelling reasons, students will be subject to withholding (FICA and FUTA) taxes, and their employing entities will also be subject to withholding (FICA and FUTA) taxes (see "FICA and FUTA Exemption Guidelines" in this catalog).

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 department program coordinator. A Graduate Petition Form should be used for this request. The program coordinator may ask the department or program graduate committee to examine the necessary information and recommend a response to the petition. The 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
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 college graduate
coordinator may ask the college graduate committee to examine the petition at the request of
the department or student once the department has made its recommendations. The col­
lege graduate coordinator will recommend to the college dean whether to grant the excep­
tion 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 recon­
sider 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 Director of 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 Director of Graduate Studies
will recommend to the Vice President for Research and Graduate Studies whether or not the
exception should be granted.

General Requirements for All Graduate Programs

Program of Study and Academic Performance

A program of study is in essence a contract between the student and the degree program
specifying all degree requirements. It must be established prior to enrollment in the second
term 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 department program coordinator or college graduate coordinator, pre­
pared and given to the 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 main­
tain graduate student status and for graduation. In any term where the GPA drops below 3.0
in a program of study, a student will be changed to ACADEMIC PROVISIONAL status for a
maximum of 9 semester hours. If students have not attained an overall graduate GPA of 3.0
in the program of study at the end of the 9 semester hours, they will be reverted to POST­
BACCALAUREATE 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 department 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 post-baccalaure­
ate 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 post-baccalaureate 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 "R" 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 6 credit hours each semester, with 12 semester hours being the maximum load. During the summer term, full-time is 3 credit hours and half-time is 2 credit hours. In order to meet residency requirements, doctoral and specialist students must register for 6 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. 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, and seniors with permission.

Other. Under special circumstances 4000-level courses may be applied toward a graduate degree, but not in excess of 6 semester hours. Courses at the 3000 level or below shall not be utilized in a graduate program of study unless permission is obtained from the 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 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 final 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 Degree
An Intent to Graduate form must be filed with the 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.

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 purchase the manual in the UCF Bookstore, 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.orgs.ucf.edu/graduate/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 Graduate Catalog.
Certification for Degree

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 Post-Baccalaureate/Readmission/Reactivation/Transient form, or fax (407-823-6442) or e-mail (graduate@pegasus.cc.ucf.edu) Graduate Studies stating a desire for readmission for a particular term. Graduate Studies will consult with the program about readmission.

Certificate Programs

Graduate certificate programs in focused areas offer graduate-level education in highly specialized areas of knowledge. Within the metropolitan area UCF serves, such programs provide working professionals updated or new skills. Many of our area employees have advanced graduate degrees and can enhance their education with specialized courses. Frequently a package of specialized courses that form 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 nontraditional 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 can be used as a way to round out a graduate degree program, providing a special area of 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 a graduate program.

Specific certificate programs are currently being planned, and University policies and guidelines are being developed. For further information, please contact the program or Graduate Studies.

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 6 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 (Cocoa, Daytona Beach, South Orlando); or at geographical locations where UCF courses are being taught by regular UCF faculty members.

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

No more than 9 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, program coordinator, and college graduate 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 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. There is no need to transfer Traveling Scholar credits to 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 (prerequisite, 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 Advisor
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 advisor will be used and (2) approve the necessary appointments.

Research and Graduate Studies reserves the right to review appointments to advisory committees, place a representative on any advisory committee, or to appoint a co-advisor. There may be two advisors appointed by the program, the Academic Advisor who oversees the satisfaction of University requirements, and in thesis degree programs, a Thesis Advisor who may oversee the thesis research. The Academic Advisor must be a UCF faculty member in the program granting the degree.

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

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 purchase the manual in the UCF Bookstore, 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.orgs.edu.ucf/graduate/editor.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 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 Research and 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 those 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 3-hour examination in their major area and one 3-hour examination in an area of specialization. Curriculum and Instruction majors must successfully complete one 3-hour examination in their teaching specialty and one 3-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

In the Educational Leadership program:

Total transfer credit can never exceed 9 semester hours. All credit must be earned after the master's degree with the maximum being 9 semester hours from accredited institutions.

In the 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 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.
Doctoral Programs

University Admission Standards

Eligibility for admission to a doctoral program should be limited to superior students who have demonstrated intellectual ability, high achievement, and adequate preparation for advanced study and research in a chosen field.

Minimum University standards for admission to a doctoral program require 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 combined verbal-quantitative score of at least 450 on the GMAT, or a master's degree from an accredited institution and GRE or GMAT scores. A GRE or GMAT (Business Administration) score is required of all applicants. However, meeting minimum University admission standards may not satisfy doctoral program admission requirements. Additional or higher criteria may be required by the college or department.

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) on 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 advisor 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, program coordinator, and college graduate 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 Post-Baccalaureate/Readmission/Reactivation/Transient form, or fax (407-823-6442) or e-mail (graduate@pegasus.cc.ucf.edu) Graduate Studies stating 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. The time limitation is measured from the original program entry date, when the student first enrolled in the program.

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 college graduate 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. Research and Graduate Studies reserves the right to review appointments to advisory committees, place a representative on any advisory committee, or appoint a co-advisor.

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 purchase the manual in the UCF Bookstore, 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.orgs.ucf.edu/graduate/editor.

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 Research and Graduate Studies before final acceptance of the dissertation in fulfilling degree requirements.
UNIVERSITY GRADUATE REGULATIONS

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 on the home campus: for example, special course offerings, research opportunities, unique laboratories, and library collections. A traveling scholar is a graduate 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 advisor, who will initiate a visiting arrangement with the appropriate faculty member of the host institution. After agreement by the student's advisor and the faculty member at the host institution, graduate deans at both institutions will be fully informed by the advisor 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 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 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.

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 Graduate/Post-Baccalaureate 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 and Graduate Studies 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 and Graduate Studies 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, with copies of this correspondence sent to the International Student Services Office and the Vice President for Research and Graduate Studies. 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.

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

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-Israel 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. Gollermann, 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 Vice President for Research and 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 has been patented, it may be placed in the Office of the Vice President for Research and 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 Graduate Studies, 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.

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 to (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 and Graduate Studies, 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 and Graduate Studies, 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 and Graduate Studies, 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 and Graduate Studies, 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 and Graduate Studies, 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 and Graduate Studies, 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 Division 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) Graduate students will be required to sign a Patent and Invention Agreement before they are permitted to enroll in courses at the University.

(c) 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.

(d) The Graduate Studies Procedures Manual 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.)
The center of student life on campus, the Student Union houses a variety of services, stores, restaurants, and meeting facilities.
Student Services and Organizations

Student Affairs collectively refers to the Student Affairs Division and its many functional departments responsible for the administration and management of programs, services, facilities, and activities designed to support the educational mission of the University. The Division, headed by the Vice President for Student Affairs, administers programs involving personal counseling, testing, housing, health services, international student services, student disability services, recreational services, career planning and placement, student organizations, veterans' affairs, and other special activities. Students are invited to consult the staff of Student Affairs concerning any aspect of campus life.

Through the Student Affairs Division, the University sponsors a variety of cultural and entertainment programs which contribute to the student's social, cultural, recreational, and academic development. Students can become better acquainted with fellow students and faculty members through participation in student activities. The University provides ample opportunity to become a member of occupational, professional, social, and honorary organizations.

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 Student Affairs Division annually publishes the student handbook, The Golden Rule, which contains more detailed information on student life. Copies may be obtained in the Student Affairs 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 Affairs.

Student Government

Visit our website at 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 Government 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

Visit GSC's website at http://pegasus.cc.ucf.edu/~gsa

Graduate students, regular and post-bacs, 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 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 Center, Building 7F • (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
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 50 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
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 (SHS)
Recognizing the importance of life-style in health and the prevention of disease, Student Health Services 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 in the Student Affairs Suite 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 Student Affairs Division 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 use the "Hot Line" phones at the front and back doors of the building to obtain Police Department 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
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 and Student Center are partially funded through Activity and Service fees allocated by the Student Government.

Reservations for space in the Student Union or Student Center 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
Website: 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, 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 CFRP 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 Information and Evening/Weekend Student Services
Office: (407) 823-3111
Student Information "Buzzline": (407) 823-5479

The Office of Student Information and Evening/Weekend Student Services is a one-stop communication center committed to gathering and disseminating information to students. In addition, the office provides student services to students taking classes in the evenings and on weekends. The office also administers a Student Information "Buzzline," which can be called 24 hours a day.

Information Booth and Evening Student Services
8:00 a.m. to 9:00 p.m. Monday through Thursday
Second-floor Administration Building, Education Building Lobby, and College of Business Lobby
8:00 a.m. to 5:00 p.m. Friday (same locations as above)

Weekend Student Services
10:00 a.m. to 2:00 p.m. Saturday at SG Kiosk • (407) 823-6328
2:00 p.m. to 5:00 p.m. Sunday at SG Kiosk • (407) 823-6328

International Student Services
Ying Center Building • (407) 823-2337

The International Student Office provides services for all international students and resident aliens. Its central role is to assist international students and scholars, attending UCF, to adjust to the changing life-style in order to achieve their educational goals and gain a meaningful living experience in the United States. The office provides a wide range of special services including issuance of immigration forms 1-20 A/B and IAP-66, assistance in locating off-campus apartments, counseling on personal, financial, academic, and cross-cultural communication matters, advisement in immigration and tax matters, promotion of social activities, and home visits in Central Florida. More information may be obtained from the International Student Services Office, Ying Center Building, or by calling (407) 823-2337.

Multicultural Student Services
A. J. Range, Director • AD 145 • (407) 823-2716

A part of the Division of Enrollment and Academic Services, 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 (phone (407) 823-2116 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 faculty and graduate students.

A Flex Time program is provided for children three through five years of age. This program provides educational activities for children who need part-time schedules.

The school conducts a recreational camp for elementary school children during summer semester.

Office of Veterans’ Affairs
Student Center, Room 132 • (407) 823-2707

The Office of Veterans’ Affairs (OVA) is a center for all veterans, 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 OVA 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.
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 three-quarter time benefits; and 3 semester hours in courses numbered 5000 and above for half-time benefits. Students pursuing course work while 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 a 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)
STUDENT SERVICES AND ORGANIZATIONS

- 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 162444, 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) 823-2429

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.

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 Crime Prevention Unit also supervises the Community-Oriented Policing program (COP), which consists of five officers that are 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 Crime Prevention Unit also hires and trains students for the Student Escort Patrol Service (SEPS), which 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) 823-2425 or (407) 823-6069
Departments such as Chemistry offer challenging research opportunities for their students.
College of Arts and 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
B. A. Whisler .............................................. Associate Dean
H. Sweet .................................................... Associate Dean
L. Brodie .................................................... Assistant Dean

Advisement

Graduate Studies in the College of Arts and Sciences

Graduate Studies assists students in the College of Arts and Sciences 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 SASS Coordinator in CAS 190 or by calling (407) 823-5167.

Programs

Doctor of Philosophy
- Computer Science
- Mathematics
- Physics
- Psychology (Clinical and Human Factors)

Master of Science
- Biology
- Chemistry, Industrial
- Computer Science
- Mathematical Science
- Physics
- Psychology (Clinical and Industrial/Organizational)
- Statistics (Statistical Computing)

Master of Arts
- Communication
- English
- Foreign Languages and Literatures
- (Spanish and Teaching English to Speakers of Other Languages [TESOL])
- History
- Political Science
- Psychology (Clinical)
- Sociology (Applied)

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 chairperson who reports to the dean of the college. A 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, including the abbreviations and codes used in the course descriptions. Graduate courses in directed/individual research, special topics, and thesis/dissertation preparation are listed under "Special Courses" on page 255. Other graduate courses are listed alphabetically by course prefix beginning on page 259.
Biology Department

D. T. Kuhn ............................................................ Program Coordinator
Office: BIO 110, Phone: (407) 823-2141, e-mail: dkuhn@pegasus.cc.ucf.edu

Biology Faculty
L. M. Ehrhart, Ph.D. .............................................. Professor
L. L. Ellis, Ph.D. ................................................... Professor Emeritus
J. L. Koevenig, Ph.D. .............................................. Professor Emeritus
D. T. Kuhn, Ph.D. ................................................... Professor
J. A. Osborne, Ph.D. ............................................. Professor
F. F. Snelson, Jr., Ph.D. ......................................... Professor
I. J. Stout, Ph.D. ................................................... Professor
H. C. Sweet, Ph.D. ................................................ Professor
W. K. Taylor, Ph.D. .............................................. Professor
H. O. Whittier, Ph.D. ............................................ Professor
D. H. Vickers, Ph.D. ............................................. Chair and Associate Professor
C. A. Bayer, Ph.D. ............................................... Research Assistant Professor
G. A. Lindbeck, Ph.D. .......................................... Assistant Professor
L. D. Rea, Ph.D. ................................................... Assistant Professor
L. H. von Kalm, Ph.D. .......................................... Assistant Professor
L. J. Walters, Ph.D. ............................................. Assistant Professor
J. F. Weishampel, Ph.D. ....................................... Assistant Professor

Master of Science in Biology

Admission
The deadline for application material for fall semester is March 1st with notification in April.
The application deadline for spring semester is November 1st.

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 TOEFL score of 550.

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

Applicants need not have an undergraduate degree in a biological science but are expected to have the equivalent of a minor in the biological sciences, which includes biology, biodiversity, ecology, genetics, and molecular-cell biology; plus organic chemistry with laboratory; and a course in calculus and statistics. After acceptance, minor deficiencies can be remedied by enrollment at the first opportunity in an appropriate course. 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, 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** (one course in any three of the four areas)  
1. PCB 6046C Advanced Ecology  
2. PCB 6675C Evolutionary Biology  
3. PCB 6585C Advanced Genetics  
4. PCB 6721 Comparative Animal Physiology OR PCB 6365 Environmental Physiology

**Group B** (both courses)  
BSC 6938 Biology Seminar  
BSC 6971 Thesis

**Group C**  
Restricted electives acceptable to the student's graduate committee.

Minimum Hours Required for M.S.  
12-14 Semester Hours

Non-Thesis Option

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

**Group A** (one course in any three of the four areas)  
1. PCB 6046C Advanced Ecology  
2. PCB 6675C Evolutionary Biology  
3. PCB 6585C Advanced Genetics  
4. PCB 6721 Comparative Animal Physiology OR PCB 6365 Environmental Physiology

**Group B** (both courses)  
BSC 6909 Research Report  
BSC 6938 Biology Seminar

**Group C**  
Restricted electives acceptable to the student's graduate advisor.

Minimum Hours Required for Non-Thesis M.S.  
22-24 Semester Hours

95
Chemistry Department

Application Deadlines
- Fall admission: July 15
- Spring admission: December 15
- Summer admission: April 15

D. Howard Miles, Ph.D. ........................................ Industrial Chemistry Program Coordinator
Office: CH 117, Phone: (407) 823-2246, e-mail: hmiles@pegasus.cc.ucf.edu

William Tilstone, Ph.D. ......................................... Forensic Science Program Coordinator
Office: CH 117, Phone: (407) 823-2246, e-mail: wtston@pegasus.cc.ucf.edu

Chemistry Faculty
- C. A. Clausen, Ph.D. ........................................... Professor
- G. N. Cunningham, Ph.D. .................................... Chair and Professor
- F. E. Juge, Ph.D. .............................................. Associate Vice President and Professor
- B. C. Madsen, Ph.D. ........................................... Professor
- W. W. McGee, Ph.D. ......................................... Professor
- D. H. Miles, Ph.D. ............................................. Professor
- S. R. Elsheimer, Ph.D. ....................................... Associate Professor
- M. D. Hampton, Ph.D. ...................................... Associate Professor
- C. L. Geiger, Ph.D. ........................................... Assistant Professor
- O. Phansiel IV, Ph.D. ........................................ Assistant Professor
- H. L. Price, Ph.D. ............................................ Assistant Professor
- K. A. Cerqua-Richardson, Ph.D. ......................... Assistant Professor
- B. I. Schweitzer, Ph.D. ...................................... Research Scientist

Master of Science in Industrial Chemistry

The Department of Chemistry offers a master's program in Industrial Chemistry and a track in Forensic Science.

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. 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.

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

<table>
<thead>
<tr>
<th>Required Core Courses</th>
<th>12 Semester Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHM 6440 Kinetics and Catalysis</td>
<td>2 hours</td>
</tr>
<tr>
<td>CHM 6710 Applied Analytical Chemistry</td>
<td>2 hours</td>
</tr>
<tr>
<td>CHM 6938 Graduate Seminar</td>
<td>2 hours</td>
</tr>
<tr>
<td>CHS 6240 Chemical Thermodynamics</td>
<td>2 hours</td>
</tr>
<tr>
<td>CHS 6251 Applied Organic Synthesis</td>
<td>2 hours</td>
</tr>
<tr>
<td>CHS 6260 Chemical Unit Operations and Separations</td>
<td>2 hours</td>
</tr>
</tbody>
</table>

Electives for Industrial Chemistry
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):

<table>
<thead>
<tr>
<th>Elective</th>
<th>3 hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHM 5225 Advanced Organic Chemistry</td>
<td>3 hours</td>
</tr>
<tr>
<td>CHM 5235 Applied Molecular Spectroscopy</td>
<td>3 hours</td>
</tr>
</tbody>
</table>

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**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. Recently, the prestigious DNA Advisory Board has mandated that such personnel have advanced degrees. During the initial offering, registration is limited to students working in off-campus forensic science laboratories.

The forensic science core courses are unique and were designed by practicing professionals for presentation as distributed learning courses using the World Wide Web.

**Degree Requirements for Forensic Science Track**

**Required Core Courses**

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.

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHS 6513</td>
<td>Quality Assurance and Bioinformation</td>
<td>3</td>
</tr>
<tr>
<td>CHS 6535</td>
<td>Forensic Analysis of Biological Materials</td>
<td>3</td>
</tr>
<tr>
<td>CHS 6535L</td>
<td>Forensic Analysis of Biological Materials Lab</td>
<td>2</td>
</tr>
<tr>
<td>CHS 6536</td>
<td>Forensic Analysis of DNA Data</td>
<td>2</td>
</tr>
<tr>
<td>CHM 6938</td>
<td>Graduate Seminar</td>
<td>2</td>
</tr>
</tbody>
</table>

**Required Foundation Core Courses**

These courses are offered at UCF. Working professionals taking the program part-time may, after checking with a program advisor, take these courses at a nearby university.

<table>
<thead>
<tr>
<th>Category</th>
<th>Course</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Crime - Criminal Justice Courses**</td>
<td>3</td>
</tr>
<tr>
<td>2</td>
<td>Forensic Data Analysis - Statistics/Experimental Design**</td>
<td>3</td>
</tr>
<tr>
<td>3</td>
<td>Biological Chemistry - Biochemistry/Laboratory**</td>
<td>3</td>
</tr>
<tr>
<td>4</td>
<td>Chemistry - Molecular Spectroscopy/Applied Biological Chemistry/Polymer Chemistry**</td>
<td>3</td>
</tr>
</tbody>
</table>

* 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.

** Directed Research (CHS 6918)**

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

Application Deadlines

<table>
<thead>
<tr>
<th>Type</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fall admission</td>
<td>July 15</td>
</tr>
<tr>
<td>Spring admission</td>
<td>December 15</td>
</tr>
<tr>
<td>Summer admission</td>
<td>April 15</td>
</tr>
</tbody>
</table>

Master of Arts in Communication

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. Students interested in applying for financial assistance must supply three letters of recommendation.

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.

Degree Requirements
Students must select either the thesis or the comprehensive exam track. The thesis track requires 10 courses (30 hours) and the thesis (4 hours), for a total of 34 credits. The comprehensive exam track 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 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 track.

Required Courses

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MMC 6402</td>
<td>Mass Communication Theory</td>
<td>3 hours</td>
</tr>
<tr>
<td>MMC 6445</td>
<td>Mass Media Research I</td>
<td>3 hours</td>
</tr>
<tr>
<td>MMC 6446</td>
<td>Mass Media Research II</td>
<td>3 hours</td>
</tr>
<tr>
<td>EDF 6401</td>
<td>Statistics for Educational Data</td>
<td>3 hours</td>
</tr>
</tbody>
</table>
School of Computer Science

Ronald D. Dutton ........................................... Program Coordinator
Office: CSB 263, Phone: (407) 823-2341, e-mail: dutton@cs.ucf.edu

Computer Science Faculty

M. A. Bassiouni, Ph.D. ........................................... Professor
R. C. Brigham, Ph.D. ........................................... Professor
N. Deo, Ph.D. .................................................. Millican Endowed Chair in Computer Science and Professor
R. D. Dutton, Ph.D. ........................................... Associate Chair and Professor
T. J. Frederick, Ph.D. ........................................... Chair and Professor
F. Gomez, Ph.D. .................................................. Professor
R. K. Guha, Ph.D. .................................................. Professor
C. E. Hughes, Ph.D. ........................................... Professor
J. M. Moshell, Ph.D. ........................................... Professor
A. Mukherjee, Ph.D. ........................................... Professor
M. A. Shah, Ph.D. .................................................. Professor
H. C. Gerber, Ph.D. ........................................... Associate Professor
K. Hua, Ph.D. .................................................... Associate Professor
S. D. Lang, Ph.D. .................................................. Associate Professor
J. Leeson, Ph.D. .................................................. Associate Professor
A. Orooji, Ph.D. ................................................... Associate Professor
D. A. Workman, Ph.D. .......................................... Associate Professor
N. da Vitoria Lobo, Ph.D. ....................................... Assistant Professor
M. Goudreau, Ph.D. ........................................... Assistant Professor
R. Parsons, Ph.D. .................................................. Assistant Professor
J. Rogers, Ph.D. ................................................. Assistant Professor
U. Vemulapati, Ph.D. ........................................... Lecturer

Programs in Computer Science

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 84 processor machine and a DECnpp 12000.

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
  - COT 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 550 on the TOEFL exam.
- 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

<table>
<thead>
<tr>
<th>Required Courses</th>
<th>9 Semester Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>(Students must receive an &quot;A&quot; or &quot;B&quot; grade in these courses.)</td>
<td></td>
</tr>
<tr>
<td>CDA 5106 Advanced Computer Architecture I</td>
<td>3 hours</td>
</tr>
<tr>
<td>COT 5405 Design and Analysis of Algorithms</td>
<td>3 hours</td>
</tr>
<tr>
<td>Select One:</td>
<td></td>
</tr>
<tr>
<td>COP 6811 Operating Systems Design Principles</td>
<td>3 hours</td>
</tr>
<tr>
<td>COP 5021 Program Analysis</td>
<td>3 hours</td>
</tr>
<tr>
<td>COT 5310 Formal Languages and Automata Theory</td>
<td>3 hours</td>
</tr>
</tbody>
</table>

Restricted Electives

- 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 Survey option is a 36-semester-hour program that allows at most 6 hours of independent study and requires the student write a comprehensive literature survey paper, while enrolled in 3 hours (XXX 6918) on a current topic of interest in Computer Science. 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 Survey option and none in the Thesis option
□ Two 6000-level courses, with grades of "B" or better, taught by the School of Computer Science
□ A research survey (3 credits) or a thesis (6 credits)

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 and find a qualified faculty member in Computer Science willing to chair the student's advisory committee. Any transfer credits toward requirements for the Ph.D. program must be approved by the university and the department. Normally, these credits must correspond to equivalent requirements and performance levels expected for the program.

Ph.D. Qualifying Examination
Outstanding students with a bachelor's degree are encouraged to apply directly into the doctoral program. The Phase I Qualifying Examination determines whether a student will be allowed to continue for the Ph.D.

The Qualifying Examination is taken after the student has obtained regular graduate status in Computer Science. The purpose of Phase I of this examination is to determine the student’s knowledge in important areas of computer science architecture, languages, theory—and in Phase II, to assess the student's potential to pursue an area of specialization and research.

Phase I is a stringent exam requiring synthesis of first-year core courses in computer science. For students entering the program with an undergraduate degree, this exam is usually taken by the end of the second year of study; for students with a master's degree, the exam is usually taken by the end of the first year.

Phase I (Written Exam)
Phase I of the Qualifying Examination consists of three written examinations over areas of algorithms, architecture, and theory. The coverage includes material prerequisite to and including some of the material taught in graduate-level courses in computer architecture, formal languages and automata theory, and design and analysis of algorithms.

This phase will be offered twice per year in September and January. Students are allowed at most two attempts, in two consecutive offerings, to pass this phase. Upon successful completion of Phase I, the student will be admitted to the Ph.D. program.

Research Committee
The formation of a research committee should occur as soon as the student has identified a potential research area and before sitting for the Phase II examination. 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.

Phase II (Committee Exam)
Upon successful completion of Phase I, the student must identify an area of research and a research committee chaired by a Computer Science graduate faculty member. A tentative plan of study approved by the student's committee should be filed. The committee will then examine the student to ascertain the student’s ability to conduct independent research. This examination will be a narrowly focused examination in and around the area of the student’s specialty. The format and length of the examination will be determined by the student’s committee (e.g., may be oral and/or written and may involve surveying literature and submitting critical reviews of selected research articles). Each student will be allowed at most two attempts to pass Phase II. However, the student is expected to pass the Phase II exam within one year of passing the Phase I exam.
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 will consist of two parts: (1) a four-hour written examination in the specialty area as defined by the plan of study, to be designed by the 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.

The Candidacy Examination should be taken long before completion of the dissertation and certainly in time to take 15 hours of dissertation course work.

Residence Requirement
Students in the Ph.D. program are normally expected to be full-time students. Students must spend 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 Department

Pat Rushin (Summer and Fall 1998) ................................................................. Program Coordinator
Office: HFA 307H, Phone: (407) 823-2254, e-mail: rushin@pegasus.cc.ucf.edu

John Schell (beginning Spring 1999) ................................................................. Program Coordinator
Office: HFA 307A, Phone: (407) 823-2286, e-mail: schell@pegasus.cc.ucf.edu

English Faculty
R. R. Adicks, Ph.D. ...................................................................................................... Professor
S. E. Omans, Ph.D. ...................................................................................................... Professor
J. F. Schell, Ph.D. ...................................................................................................... Professor
G. J. Schiffhorst, Ph.D. ................................................................................................. Professor
K. L. Seidel, Ph.D. ...................................................................................................... Dean and Professor
D. Trouard, Ph.D. ...................................................................................................... Chair and Professor
B. Barnes, Ph.D. ........................................................................................................ Associate Professor
K. L. Bell, Ph.D. ....................................................................................................... Associate Professor
P. Dombrowski, Ph.D. ................................................................................................. Associate Professor
J. J. Donnelly, Ph.D. .................................................................................................. Associate Professor
J. Hemschemeyer ...................................................................................................... Associate Professor
D. R. Jones, Ph.D. ...................................................................................................... Associate Professor
A. Lillios, Ph.D. .......................................................................................................... Associate Professor
P. J. Rushin ................................................................................................................ Associate Professor
M. E. Sommer, Ed.D. ............................................................................................... Associate Professor
D. L. Stap, Ph.D. ....................................................................................................... Associate Professor
M. Flamment, Ph.D. .................................................................................................. Associate Professor
E. Smith, Ph.D. .......................................................................................................... Associate Professor
J. D. Applen, Ph.D. .................................................................................................. Assistant Professor
J. Bartkevicius, Ph.D. ................................................................................................. Assistant Professor
J. Campbell, Ph.D. .................................................................................................... Assistant Professor
L. Casnier-Paz, Ph.D. ................................................................................................. Assistant Professor
N. Greenberg, Ph.D. ................................................................................................. Assistant Professor
D. Gillette, Ph.D. ....................................................................................................... Assistant Professor
S. Hubbard ................................................................................................................. Assistant Professor
M. Kannrath, Ph.D. ................................................................................................. Assistant Professor
J. Leiby ...................................................................................................................... Assistant Professor
L. Logan, Ph.D. .......................................................................................................... Assistant Professor
K. Meehan, Ph.D. .................................................................................................... Assistant Professor
P. Puccio, Ph.D. ....................................................................................................... Assistant Professor

Master of Arts in English

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 575 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, or fiction that is 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**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENG 5009</td>
<td>Methods of Bibliography and Research</td>
<td>3</td>
</tr>
<tr>
<td>ENG 5018</td>
<td>Literary Criticism</td>
<td>3</td>
</tr>
<tr>
<td>LIN 5137</td>
<td>Linguistics (or an equivalent)*</td>
<td>3</td>
</tr>
<tr>
<td>LIT 6009</td>
<td>Literary Genres</td>
<td>3</td>
</tr>
<tr>
<td>LIT 6105</td>
<td>World Literature</td>
<td>3</td>
</tr>
<tr>
<td>LIT 6365</td>
<td>Movements in Literature</td>
<td>3</td>
</tr>
<tr>
<td>LIT 6506</td>
<td>Major Authors</td>
<td>3</td>
</tr>
</tbody>
</table>

* May be waived if student has completed a course in linguistics on the 4000 level or above with a grade of “A” or “B.”

**Electives**

6 Semester Hours

**Comprehensive Examination**

**Specialization — Choose A, B, or C**

**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 twice 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.

**C. Course Option**

The candidate will complete 6 additional hours in 6000-level literature courses in lieu of a thesis or project.

**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**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>CRW 5020</td>
<td>Graduate Writers' Workshop</td>
<td>3</td>
</tr>
<tr>
<td>CRW 6025</td>
<td>Graduate Writing Workshop</td>
<td>3</td>
</tr>
<tr>
<td>LIT 5039</td>
<td>Studies in Contemporary Poetry</td>
<td>3</td>
</tr>
<tr>
<td>LIT 5097</td>
<td>Studies in Contemporary Fiction</td>
<td>3</td>
</tr>
</tbody>
</table>

**Restricted Electives**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>LIT 6009</td>
<td>Literary Genres</td>
<td>3</td>
</tr>
<tr>
<td>LIT 6105</td>
<td>World Literature</td>
<td>3</td>
</tr>
<tr>
<td>LIT 6365</td>
<td>Movements in Literature</td>
<td>3</td>
</tr>
<tr>
<td>LIT 6506</td>
<td>Major Authors</td>
<td>3</td>
</tr>
</tbody>
</table>

**Open Electives**

(Selected with assistance of advisor)

6 Semester Hours

**Thesis**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>CRW 6971</td>
<td>Thesis</td>
<td>6</td>
</tr>
</tbody>
</table>
The candidate will complete a book-length manuscript (fiction, poetry, or other genre) of publishable quality, written and revised in CRW 6971, Thesis. The manuscript will be submitted for review and approval by the graduate creative writing faculty. There is no non-thesis option in creative writing.

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 6282 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 3 Semester Hours
Specialization—Choose A or B
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
Department of Foreign Languages and Literatures

Charles N. Micarelli ........................................ Program Coordinator, Spanish Program
Office: HFA 523, Phone: (407) 823-5935, e-mail: cmicare@pegasus.cc.ucf.edu

Consuelo E. Stebbins ................................ Program Coordinator, TESOL Program
Office: TR 547, Rm. 110, Phone: (407) 823-0088, e-mail: stebbins@ucf1vm.cc.ucf.edu

Foreign Languages and Literatures Faculty
A. V. Cervone, Ph.D. ........................................... Professor
J. B. Fernández, Ph.D. ........................................... Chair and Professor
C. N. Micarelli, Ph.D. ........................................... Professor
M. Del-Río, Ph.D. .................................................. Associate Professor
H. López-Cruz, Ph.D. .......................................... Assistant Professor
N. Maier, Ph.D. ..................................................... Assistant Professor
D. Martínez, Ph.D. .............................................. Assistant Professor
C. Stebbins, Ph.D. ................................................ Assistant Professor

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

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 550 on the Test of English as a Foreign Language (TOEFL).

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 subsequent 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.

<table>
<thead>
<tr>
<th>Category</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Research Methods</td>
<td>3</td>
</tr>
<tr>
<td>Spanish Language Study</td>
<td>6</td>
</tr>
<tr>
<td>Hispanic Culture and Civilization</td>
<td>6</td>
</tr>
<tr>
<td>Hispanic Literature (at least one seminar)</td>
<td>9</td>
</tr>
<tr>
<td>Total</td>
<td>24</td>
</tr>
</tbody>
</table>

The remaining elective hours of course work are 6 hours for the thesis option and 12 for the non-thesis option. The students must choose electives from the additional, available courses listed below in conjunction with their faculty advisor. The aim of the selections should be to complement the acquisition of knowledge in the particular area of Hispanic studies chosen.
### Course Requirements

<table>
<thead>
<tr>
<th>Part I</th>
<th>3 Semester Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>SPN 5937 Research Methods</td>
<td>3 hours</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Part II - Spanish Language Study</th>
<th>6 Semester Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>SPN 5705 Introduction to Spanish Linguistics</td>
<td>3 hours</td>
</tr>
<tr>
<td>SPN 5825 Spanish Dialectology</td>
<td>3 hours</td>
</tr>
<tr>
<td>SPN 5845 History of the Spanish Language</td>
<td>3 hours</td>
</tr>
<tr>
<td>SPN 6805 Spanish Morphosyntax</td>
<td>3 hours</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Part III - Hispanic Culture and Civilization</th>
<th>6 Semester Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>SPN 5502 Hispanic Culture of the United States</td>
<td>3 hours</td>
</tr>
<tr>
<td>SPN 5505 Spanish Peninsular Culture and Civilization</td>
<td>3 hours</td>
</tr>
<tr>
<td>SPN 5506 Spanish American Culture and Civilization</td>
<td>3 hours</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Part IV - Hispanic Literature</th>
<th>9 Semester Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>*SPW 5825 Seminar Series (May be repeated for credit with different topics)</td>
<td>3 hours</td>
</tr>
<tr>
<td>SPW 6405 Medieval Spanish Literature</td>
<td>3 hours</td>
</tr>
<tr>
<td>SPW 6217 Spanish American Prose I</td>
<td>3 hours</td>
</tr>
<tr>
<td>SPW 6218 Spanish American Prose II</td>
<td>3 hours</td>
</tr>
<tr>
<td>SPW 6269 Nineteenth Century Spanish Novel</td>
<td>3 hours</td>
</tr>
<tr>
<td>SPW 6306 Spanish American Drama I</td>
<td>3 hours</td>
</tr>
<tr>
<td>SPW 6307 Spanish American Drama II</td>
<td>3 hours</td>
</tr>
<tr>
<td>SPW 6315 Golden Age Drama</td>
<td>3 hours</td>
</tr>
<tr>
<td>SPW 6216 Golden Age Prose</td>
<td>3 hours</td>
</tr>
<tr>
<td>SPW 6356 Spanish American Poetry</td>
<td>3 hours</td>
</tr>
<tr>
<td>SPW 6585 Contemporary Peninsular Literature</td>
<td>3 hours</td>
</tr>
<tr>
<td>SPW 6725 The Generation of 98</td>
<td>3 hours</td>
</tr>
<tr>
<td>SPW 6971 Thesis</td>
<td>6 hours</td>
</tr>
</tbody>
</table>

* Examples of Seminar Series Topics: Don Quixote, Spanish American Literature Written by Women, Gabriel García Márquez

<table>
<thead>
<tr>
<th>Part V - Methodology (Electives)</th>
<th>6 Semester Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>FLE 5870 Methods of Teaching Spanish</td>
<td>3 hours</td>
</tr>
<tr>
<td>FLE 5875 Computer Application in Teaching the Spanish Language</td>
<td>3 hours</td>
</tr>
</tbody>
</table>

### 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 department will allow the student to choose between a reading list made up of the major Peninsular and Latin American works with which the student must be very familiar. The comprehensive exam will be based on the reading list and the courses which the student has taken. The exam will be a two-part, written exam in Spanish consisting of a two-hour exam based on the reading list and a two-hour exam based on the courses which the student has taken. Both of these exams will be given on the same day, one in the morning and one in the afternoon. A third exam, which will be a one-hour oral exam, will be given by a committee of three faculty members. This exam 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 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.

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 550 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

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Semester Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDF 6481</td>
<td>Fundamentals of Graduate Research in Education</td>
<td>3 hours</td>
</tr>
<tr>
<td>TSL 5345</td>
<td>Methods of ESOL Teaching</td>
<td>3 hours</td>
</tr>
<tr>
<td>TSL 5525</td>
<td>ESOL Cultural Diversity</td>
<td>3 hours</td>
</tr>
<tr>
<td>TSL 6142</td>
<td>Critical Approaches to ESOL</td>
<td>3 hours</td>
</tr>
<tr>
<td>TSL 6250</td>
<td>Applied Linguistics in ESOL</td>
<td>3 hours</td>
</tr>
<tr>
<td>TSL 6440</td>
<td>Problems in Evaluation in ESOL</td>
<td>3 hours</td>
</tr>
<tr>
<td>TSL 6540</td>
<td>Issues in Second Language Acquisition</td>
<td>3 hours</td>
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Electives

<table>
<thead>
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<th>Course Title</th>
<th>Semester Hours</th>
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<tr>
<td>LIN 5137</td>
<td>Linguistics</td>
<td>3 hours</td>
</tr>
<tr>
<td>LIN 6932</td>
<td>Problems in Linguistics</td>
<td>3 hours</td>
</tr>
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</table>

Multicultural Education:

<table>
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<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Semester Hours</th>
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</thead>
<tbody>
<tr>
<td>EDF 6155</td>
<td>Lifespan Human Development and Learning</td>
<td>3 hours</td>
</tr>
<tr>
<td>EDF 6886</td>
<td>Multicultural Education</td>
<td>3 hours</td>
</tr>
<tr>
<td>FLE 5875</td>
<td>Computer Application in Teaching the Spanish Language</td>
<td>3 hours</td>
</tr>
<tr>
<td>SPN 5502</td>
<td>Hispanic Culture of the United States</td>
<td>3 hours</td>
</tr>
<tr>
<td>TSL 5141</td>
<td>ESOL Strategies</td>
<td>3 hours</td>
</tr>
<tr>
<td>TSL 6940</td>
<td>ESOL Practicum</td>
<td>3 hours</td>
</tr>
</tbody>
</table>
History Department

Elmar B. Fetscher
Program Coordinator
Office: HFA 554, Phone: (407) 823-6467, e-mail: efetsche@pegasus.cc.ucf.edu

Program in History
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.

History Faculty
T. Colbourn, Ph.D. Professor
R. C. Crepeau, Ph.D. Professor
J. B. Fernandez, Ph.D. Professor
E. B. Fetscher, Ph.D. Professor
E. F. Kallina, Jr., Ph.D. Chair and Professor
S. A. Leckie, Ph.D. Professor
B. F. Pauley, Ph.D. Professor
C. E. Adams, Ph.D. Associate Professor
J. L. Evans, Ph.D. Associate Professor
C. Austin, Ph.D. Assistant Professor
R. J. Beiler, Ph.D. Assistant Professor
M. S. Doran, Ph.D. Assistant Professor
K. Frederickson, Ph.D. Assistant Professor
T. D. Greenhaw, Ph.D. Assistant Professor
D. Velez, Ph.D. Assistant Professor
H. Zhang, Ph.D. Assistant Professor
M. Woelk, M.A. Visiting Instructor

Master of Arts in History

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 verbal-quantitative sections of the Graduate Record Examination (GRE), with a score of 500 or higher on the verbal section of this test.

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.

Application Deadlines
- Fall admission: July 15
- Spring admission: December 15
- Summer admission: April 15

Research:
- EDF 6401: Statistics for Educational Data, 3 hours
- EDF 6486: Research Design in Education, 3 hours
- TSL 6640: Research in Second Language, 3 hours
- TSL 6971: Thesis, 3 hours
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 post-baccalaureate students. To be admitted into the graduate program, however, they must earn a GPA of 3.3 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, transfer students from outside the History Department must submit two letters of recommendation.

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 (Eastern or Western Hemisphere) 18 Semester Hours
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 course work. Each candidate will also be expected to conduct a thesis defense.

Minimum Hours Required for M.A. 36 Semester Hours
Mathematics Department

David Rollins ........................................ Program Coordinator
Office: PH 403D, Phone: (407) 823-5239, e-mail: drollins@pegasus.cc.ucf.edu

Mathematics Faculty
L. C. Andrews, Ph.D .................................. Professor
L. H. Armstrong, Ph.D ................................. Professor
R. C. Brigham, Ph.D ................................. Professor
J. R. Cannon, Ph.D ................................. Chair and Professor
L. Debnath, Ph.D ................................. Professor
P. Hilton, Ph.D ........................................ Distinguished Professor
P. Mikusinski, Ph.D ................................. Professor
R. N. Mohapatra, Ph.D ................................. Professor
G. D. Richardson, Ph.D ................................. Professor
H. Sherwood, Ph.D .................................. Professor
B. K. Shivamoggi, Ph.D ................................. Professor
M. D. Taylor, Ph.D .................................. Professor
K. Vajravelu, Ph.D .................................. Professor
A. I. Zayed, Ph.D .................................. Professor
J. M. Anthony, Ph.D ................................. Associate Professor
R. M. Caron, Ph.D ................................. Associate Professor
S. R. Choudhury, Ph.D ................................. Associate Professor
M. N. Heinzer, Ph.D ................................. Associate Professor
X. Li, Ph.D ........................................ Associate Professor
C. P. Rautenstrauch, Ph.D ................................. Associate Professor
R. S. Rodriguez, Ph.D ................................. Associate Professor
D. K. Rollins, Ph.D ................................. Associate Professor
R. C. Jones, Ph.D .................................. Assistant Professor
A. Katesvich, Ph.D .................................. Assistant Professor
H. M. Martin, Ph.D ................................ Assistant Professor
M. Y. Pensky, Ph.D ................................. Assistant Professor
F. L. Salzmann, Ph.D ................................. Assistant Professor
A. Tovbis, Ph.D .................................. Assistant Professor
C. Young, Ph.D .................................. Assistant Professor
R. Pyle, M.S .................................. Instructor

Joint Appointees
T. Clarke, Ph.D .................................. Associate Faculty
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

Graduate Program in Mathematics
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
Fall admission July 15
Spring admission December 15
Summer admission April 15

Admission
The Graduate Record Examination (GRE) is required of all graduate students. Admission requirements are the standard university criteria of either: (1) at least the equivalent of a 3.0 (out of 4.0) grade point average (GPA) for the last 60 attempted semester hours of credit earned toward the baccalaureate; or (2) a GRE score of at least 1000 for the combined verbal-quantitative sections of the General (Aptitude) Test; or (3) a prior graduate degree from an accredited institution. GRE results must be less than five years old. Transfer of credits from other programs will be considered on a course-by-course basis.
Additionally, students entering the graduate program with regular status are assumed to have a working knowledge of undergraduate calculus, differential equations, linear algebra (or matrix theory), boundary value problems, statistics, computer programming, and maturity in the language of advanced calculus (at the level of MAA 4226). Those students who find they are not adequately prepared in one or more of these areas can select appropriate courses from the undergraduate curriculum to make up such deficiencies. Such courses, unless specially approved, will not count toward the graduate degree. Applicants not qualified for regular status may be admitted initially to the university in a post-baccalaureate status, although only nine hours in this status can be transferred into a graduate program. Students whose native language is not English will be required to obtain a minimum score of 550 on the TOEFL.

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 advisor who participates in designing a program of study. A program of study is presented to either the Graduate Curriculum Committee or the Program Coordinator for approval.

Electives
Electives should be chosen in consultation with the Program Coordinator or the student's thesis advisor 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 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:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>MAA 5210</td>
<td>Topics in Advanced Calculus</td>
<td>4 hours</td>
</tr>
<tr>
<td>MAA 5405</td>
<td>Complex Variables</td>
<td>3 hours</td>
</tr>
<tr>
<td>MAP 5336</td>
<td>Ordinary Differential Equations and Applications</td>
<td>3 hours</td>
</tr>
<tr>
<td>MAP 5385</td>
<td>Applied Numerical Mathematics</td>
<td>3 hours</td>
</tr>
<tr>
<td>MAP 5407</td>
<td>Applied Mathematics I</td>
<td>3 hours</td>
</tr>
<tr>
<td>MAS 5145</td>
<td>Advanced Linear Algebra and Matrix Theory</td>
<td>3 hours</td>
</tr>
<tr>
<td></td>
<td>Electives</td>
<td>9 hours</td>
</tr>
<tr>
<td>MAP 6971</td>
<td>Thesis</td>
<td>3 hours</td>
</tr>
</tbody>
</table>

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 advisor 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
MATHEMATICS

will be supervised by a committee composed of the advisor 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:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>MAA 5210</td>
<td>Topics in Advanced Calculus</td>
<td>4</td>
</tr>
<tr>
<td>MAA 5405</td>
<td>Complex Variables</td>
<td>3</td>
</tr>
<tr>
<td>MAP 5336</td>
<td>Ordinary Differential Equations and Applications</td>
<td>3</td>
</tr>
<tr>
<td>MAP 5385</td>
<td>Applied Numerical Mathematics</td>
<td>3</td>
</tr>
<tr>
<td>MAP 5407</td>
<td>Applied Mathematics I</td>
<td>3</td>
</tr>
<tr>
<td>MAS 5145</td>
<td>Advanced Linear Algebra and Matrix Theory</td>
<td>3</td>
</tr>
<tr>
<td>Electives</td>
<td></td>
<td>18</td>
</tr>
</tbody>
</table>

Minimum Hours Required for M.S. 36-37 Semester Hours

Doctor of Philosophy in Mathematics

Degree Requirements

The Doctor of Philosophy (Ph.D.) program consists of at least 75 semester hours of coursework, of which a minimum of 15 hours is required for the dissertation. In addition to the dissertation hours, the program requirements include 18 hours of core courses, 6-12 hours of coursework 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 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 coursework 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 6 hours of an approved foreign language and a minimum of 3 hours of an approved computer language are required. The language and computer courses may be taken at any point in the student's post-secondary career.

Core Courses

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Hours</th>
</tr>
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<tbody>
<tr>
<td>MAA 5210</td>
<td>Topics in Advanced Calculus</td>
<td>4</td>
</tr>
<tr>
<td>MAA 5404</td>
<td>Complex Analysis</td>
<td>3</td>
</tr>
<tr>
<td>MAA 6306</td>
<td>Real Analysis</td>
<td>3</td>
</tr>
<tr>
<td>MAP 5336</td>
<td>Ordinary Differential Equations and Applications</td>
<td>3</td>
</tr>
<tr>
<td>MAP 5407</td>
<td>Applied Mathematics I</td>
<td>3</td>
</tr>
<tr>
<td>MAS 5145</td>
<td>Advanced Linear Algebra and Matrix Theory</td>
<td>3</td>
</tr>
<tr>
<td>Electives</td>
<td></td>
<td>18</td>
</tr>
</tbody>
</table>

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

Qualifying Examination

The qualifying examination is composed of six parts, with each part based on one of the six core courses. The student must pass all six parts. All six parts must be completed within three attempts with any number of parts being taken in each attempt. If a student cannot
complete these examinations in the three attempts, the student must leave the doctoral program.

The qualifying examination is a written examination that will be administered twice a year. Students normally start taking this exam at the end of the first year and are expected to have completed the exams by the end of the second year unless a written request for a postponement has been approved by the Graduate Committee at least two months prior to the examination date.

After passing the qualifying exam, the student must select a dissertation advisor. Finding a dissertation advisor is the responsibility of the student and should be done as soon as possible. In consultation with the dissertation advisor, the student should form an advisory committee. The dissertation advisor will be the chair of the student's advisory committee. This committee will approve a plan of study for the doctoral student and will recommend which courses outside the department should be taken.

**Candidacy Examination**

The candidacy examination will be administered by the student's committee and will be tailored to the student's individual program. It can be attempted anytime after passing the qualifying examination, and after the student has begun research but prior to the end of the third year following the qualifying examination. The candidacy examination can be taken no more than two times.

**Dissertation Defense**

Upon completion of a student's research, the student's committee will schedule an oral defense of the dissertation. The student has seven years from the date of admission to the doctoral program to complete the dissertation.

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**Music Department**

Dr. Lee E. Eubank .................................................. Interim Chair
Office: FA 105A, Phone (407) 823-2869

Currently the only master's program in music is in Music Education.

**Music Education**

Dr. Carol Scott-Kassner ........................................... Faculty Advisor
Office: COE 359, Phone: (407) 823-6493

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 Department

Michael Johnson .................................................. Program Coordinator
Office: HPB 310, Phone: (407) 823-5199, e-mail: graduate@physics.ucf.edu

Physics Faculty
M. Bass, Ph.D .................................................. Professor
S. K. Bose, Ph.D .................................................. Professor
J. J. Brennan, Ph.D .................................................. Professor
C. D. Caldwell, Ph.D .................................................. Professor
B. Chai, Ph.D .................................................. Professor
L. Elias, Ph.D .................................................. Professor
R. A. Llewellyn, Ph.D .................................................. Professor
J. E. Neighbor, Ph.D .................................................. Professor

Joint Appointees
M. C. Richardson, Ph.D .................................................. Professor
W. T. Silfvast, Ph.D .................................................. Professor
G. Stegeman, Ph.D .................................................. Professor

Graduate Programs in Physics
The Department of Physics offers a Master of Science degree and a Doctor of Philosophy degree. Research opportunities are available in optics and lasers, condensed matter physics, complex systems, biophysics, elementary particle theory, gravitation, and atomic and molecular physics. The graduate degree programs in physics have two tracks, a General Physics track and an Optical Physics track. Many of our faculty are also in the Center for Research and Education in Optics and Lasers (CREOL).

Application Deadline
Fall admission only February 15

Admission
The Graduate Record Examination (GRE) is required 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 sub-
ject test in physics is required for admission to the doctoral program. 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 February 15 of the preceding spring.

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 either a general physics track or a track in optical physics. In either track, there are a thesis and a non-thesis option for the master's degree. All master's students must take 18 semester hours of core courses, identical to the Ph.D. core courses for either track. 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

All students are required to take:

PHY 5606 Quantum Mechanics I
PHY 5346 Electrodynamics I
PHY 6347 Electrodynamics II

The remaining core courses depend on which track the student chooses:

General Physics

PHY 5524 Statistical Physics
PHY 6246 Classical Mechanics
PHY 6624 Quantum Mechanics II

Optical Physics

EEL 5441 Introduction to Wave Optics
PHY 5446 Laser Principles
PHY 6447 Quantum Optics

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 either a general physics track or a track in optical physics. Both tracks 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:

- PHY 5606 Quantum Mechanics I
- PHY 5346 Electrodynamics I
- PHY 6347 Electrodynamics II

The remaining core courses depend on which track the student chooses:

General Physics  
PHY 5524 Statistical Physics  
PHY 6246 Classical Mechanics  
PHY 6624 Quantum Mechanics II

Optical Physics
- 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  
- PHY 6353 Accelerator Physics  
- PHY 6355 Physics of Free Electrons  
- PHY 6434 Nonlinear Optics  
- PHY 6435 Nonlinear Guided Wave Optics  
- PHY 6448 Specific Laser Systems  
- PHY 6667 Advanced Quantum Mechanics  
- PHY 6918 Directed Research  
- PHY 6938 Special Topics/Seminars  
- PHZ 5304 Nuclear and Particle Physics  
- PHZ 5405 Condensed Matter Physics  
- PHZ 5505 Plasma Physics  
- PHZ 6115 Theoretical Methods  
- PHZ 6156 Advanced Computational Physics  
- PHZ 6204 Atomic and Molecular Spectroscopy  
- PHZ 6234 Atomic Physics  
- PHZ 6424 Optical Properties of Solids  
- PHZ 6425 Advanced Condensed Matter Physics

Courses from the other track's core 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

Dissertation 27 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 each of the above tracks, 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.
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.

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 Program Coordinator.
  AND
- An undergraduate grade point average of at least 3.0 overall.
  OR
- A combined (quantitative and verbal) GRE score of at least 1000.

NOTE: All applicants are required to take the GRE. Admission generally will be denied to any applicant whose GRE score is below 850 (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 advisors 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 5 hours of thesis), and both share the same core requirements.

Core Requirements

POS 6746 Quantitative Methods in Political Research
POS 6045 Seminar in American National Politics
POT 6007 Seminar in Political Theory AND
INR 6007 Seminar in International Politics OR
CPO 6091 Seminar in Comparative Politics

Political Analysis Track

30 Semester Hours
A program of study in the political analysis track consists of:

Core Requirements AND

Three special topics courses from:
POS 6938 American Politics
POS 6938 Political Theory
POS 6938 International Relations
POS 6938 Comparative Politics
POS 6938 Political Analysis
Elective
Thesis

12 Semester Hours
3 hours
3 hours
3 hours
3 hours
3 hours
3 hours
3 hours
3 hours
3 hours
3 hours
3 hours
3 hours
3 hours
3 hours
3 hours
9 Semester Hours
3 hours
3 hours
3 hours
3 hours
3 hours
3 hours
3 hours
3 hours
3 hours
3 hours
3 hours
3 hours
6 Semester Hours
Public Policy Track
30 Semester Hours
A program of study in the public policy track consists of:

Core Requirements AND Public Policy Analysis
PUP 6007 Public Policy Analysis
PUP 6938 Science Policy
PUP 6938 Social Policy
PUP 6938 Foreign and Defense Policy
Elective
Thesis

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 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 advisors 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 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 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.
Psychology Department

Bernard J. Jensen ......................... Clinical Psychology Program Director
Office: PH 311F, Phone: (407) 823-2974, e-mail: bjensen@pegasus.cc.ucf.edu

William Wooten ......................... Industrial/Organizational Psychology Program Director
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Edward J. Rinalducci .................... Human Factors Psychology Program Director
Office: PH 311D, Phone: (407) 823-5860, e-mail: erinaldu@pegasus.cc.ucf.edu

Psychology Faculty

D. W. Abbott, Ph.D. ........................ Professor
W. A. Burroughs, Ph.D. ...................... Professor
R. D. Gilson, Ph.D. ...................................... Professor
J. C. Hitt, Ph.D. ...................................... President and Professor
J. M. Koonce, Ph.D. .......................... Chair and Professor
J. M. McGuire, Ph.D. .......................... Professor
B. B. Morgan, Jr., Ph.D. ...................... Professor
E. J. Rinalducci, Ph.D. ....................... Professor
J. B. Rollins, Ph.D. .............................. Professor
M. H. Thomas, Ph.D. .............................. Professor
R. D. Tucker, Ph.D. .............................. Professor
B. I. Blau, Ph.D. ................................. Associate Professor
J. C. Brophy, Ph.D. ............................ Associate Professor
R. D. Fisher, Ph.D. ............................ Associate Professor
C. L. Hanson, Ph.D. ........................ Associate Professor
B. J. Jensen, Ph.D. .............................. Associate Professor
E. C. Shirkey, Ph.D. .......................... Associate Professor
J. A. Smither, Ph.D. ........................ Associate Professor
P. M. Tell, Ph.D. ................................. Associate Professor
A. Y. Wang, Ph.D. .............................. Associate Professor
W. Wooten, Ph.D. .............................. Associate Professor
C. A. Bowers, Ph.D. .......................... Assistant Professor
S. T. Dunn, Ph.D. .............................. Assistant Professor
B. A. Fritzsche, Ph.D. ........................ Assistant Professor
M. Mouloua, Ph.D. .......................... Assistant Professor
J. L. Weaver, Ph.D. .......................... Instructor
M. H. Newlin ................................. Instructor
M. J. Lavooy, Ph.D. .......................... Instructor
M. E. Dunn, Ph.D. .......................... Visiting Instructor

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.

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.

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, five-semester program for full-time students, with summer course work between the first and second year. The program consists of a minimum of 55 semester hours of work as follows:

**Academic Course Work**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>CLP 6441</td>
<td>Introduction to Individual Psychological Assessment</td>
<td>3</td>
</tr>
<tr>
<td>CLP 6445</td>
<td>Psychological Theory and Assessment</td>
<td>3</td>
</tr>
<tr>
<td>CLP 6456</td>
<td>Individual Counseling - Theory and Practice</td>
<td>3</td>
</tr>
<tr>
<td>CLP 6457</td>
<td>Group Psychotherapy</td>
<td>3</td>
</tr>
<tr>
<td>CLP 6459</td>
<td>Human Sexuality, Marriage, and Sex Therapies</td>
<td>3</td>
</tr>
<tr>
<td>CLP 6460</td>
<td>Introduction to Child, Adolescent, and Family Therapies</td>
<td>3</td>
</tr>
<tr>
<td>CLP 6XX</td>
<td>Treatment of Substance Abuse</td>
<td>3</td>
</tr>
<tr>
<td>CLP 6XX</td>
<td>Cross-Cultural Counseling</td>
<td>3</td>
</tr>
<tr>
<td>CLP 6XX</td>
<td>Counseling in Community Settings</td>
<td>3</td>
</tr>
<tr>
<td>CLP 6932</td>
<td>Ethical and Professional Issues in Mental Health Practice</td>
<td>3</td>
</tr>
<tr>
<td>DEP 5057</td>
<td>Developmental Psychology</td>
<td>3</td>
</tr>
<tr>
<td>PPE 5055</td>
<td>Personality Theories</td>
<td>3</td>
</tr>
<tr>
<td>PSB 6446</td>
<td>Advanced Abnormal and Clinical Psychopharmacology</td>
<td>3</td>
</tr>
<tr>
<td>PSY 6216</td>
<td>Advanced Research Methodology I</td>
<td>4</td>
</tr>
</tbody>
</table>

**Internship (See Description Below)**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>CYP 6948</td>
<td>Psychology Internship</td>
<td>12</td>
</tr>
</tbody>
</table>

Minimum Hours Required for M.A. 55 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 two consecutive academic semesters (20 hours per week). An additional commitment of 2 hours per week is required for the interns 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/counseling. 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 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.

Master of Science in Industrial/Organizational Psychology

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.

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.

**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.

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.

**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 40 semester hours of work. The required courses, which are scheduled primarily in the evenings to accommodate working students, are as follows:

### Academic Course Work

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Semester Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>INP 6215</td>
<td>Assessment Centers and Leadership</td>
<td>3 hours</td>
</tr>
<tr>
<td>INP 6317</td>
<td>Organizational Psychology and Motivation</td>
<td>3 hours</td>
</tr>
<tr>
<td>INP 6605</td>
<td>Training and Performance Appraisal</td>
<td>3 hours</td>
</tr>
<tr>
<td>INP 6937</td>
<td>Applied Problems in Industrial/Organizational Psychology</td>
<td>3 hours</td>
</tr>
<tr>
<td>INP 6938</td>
<td>Job/Task Analysis</td>
<td>3 hours</td>
</tr>
<tr>
<td>INP 6939</td>
<td>Current Topics and Applied Problems in I/O Psychology</td>
<td>3 hours</td>
</tr>
<tr>
<td>PSY 6216</td>
<td>Advanced Research Methodology I</td>
<td>4 hours</td>
</tr>
<tr>
<td>PSY 6308</td>
<td>Psychometric Theory</td>
<td>4 hours</td>
</tr>
<tr>
<td>PSY 6318</td>
<td>Applied Testing and Selection</td>
<td>3 hours</td>
</tr>
</tbody>
</table>

### Practicum

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Semester Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>INP 6946</td>
<td>Industrial Psychology Practicum I</td>
<td>3 hours</td>
</tr>
</tbody>
</table>

### Thesis

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Semester Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>PSY 6938</td>
<td>Research Planning Seminar I</td>
<td>1 hour</td>
</tr>
<tr>
<td>PSY 6939</td>
<td>Research Planning Seminar II</td>
<td>1 hour</td>
</tr>
<tr>
<td>PSY 6971</td>
<td>Thesis</td>
<td>6 hours</td>
</tr>
</tbody>
</table>

**Minimum Hours Required for M.S.**

- **29 Semester Hours**
- **3 Semester Hours**
- **8 Semester Hours**
- **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.

For each practicum a meeting is held between the student, the supervising faculty member, and a representative of the organization in which the work will be accomplished. Behavioral objectives are agreed upon, and it is expected that the student will carry out these objectives during the assigned time. Each practicum placement is supervised by a faculty member; the student is also responsible to the “contact” person in the organization where the work is occurring. 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 practica 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 1998, is not yet accredited. However, the Department of Psychology will move toward full accreditation of the Clinical Ph.D. as soon as possible.

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 550 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 course work 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 February 1. 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' 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 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 enroute 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.

<table>
<thead>
<tr>
<th>Psychology Foundation Courses</th>
<th>12 Semester Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>DEP 5057 Developmental Psychology</td>
<td>3 hours</td>
</tr>
<tr>
<td>SOP 5059 Advanced Social Psychology</td>
<td>3 hours</td>
</tr>
<tr>
<td>PSY 5XXX History and Systems of Psychology</td>
<td>3 hours</td>
</tr>
<tr>
<td>PSB 5005 Physiological Psychology</td>
<td>3 hours</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Research Courses</th>
<th>35 Semester Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>PSY 6216 Advanced Research Methodology I</td>
<td>4 hours</td>
</tr>
<tr>
<td>PSY 6217 Advanced Research Methodology II</td>
<td>4 hours</td>
</tr>
<tr>
<td>PSY 6946 Research Practicum (Taken 3 times @ 2 hours)</td>
<td>6 hours</td>
</tr>
<tr>
<td>PSY 6971 Thesis</td>
<td>6 hours</td>
</tr>
<tr>
<td>PSY 7980 Doctoral Dissertation</td>
<td>15 hours</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Clinical Courses</th>
<th>35 Semester Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>CLP 6441 Introduction to Individual Psychological Assessment</td>
<td>3 hours</td>
</tr>
<tr>
<td>CLP 6445 Psychological Theory and Assessment</td>
<td>3 hours</td>
</tr>
<tr>
<td>CLP 6456 Individual Counseling - Theory and Practice</td>
<td>3 hours</td>
</tr>
<tr>
<td>PSB 6446 Advanced Abnormal and Clinical Psychopharmacology</td>
<td>3 hours</td>
</tr>
</tbody>
</table>
PSYCHOLOGY

CLP 6932 Ethical and Professional Issues in Mental Health Practices 3 hours
CLP 6XXX Clinical Practicum (Taken 4 times @ 2 hours) 8 hours
CLP 6XXX 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 6XXX Treatment Development Seminar/Practicum 3 hours
CLP 6XXX Clinical Supervision Seminar/Practicum 3 hours
PSY 6XXX 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 advisor. 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 is designed to meet the accreditation requirements of the Education Committee of the Human Factors and Ergonomics Society and has received provisional accreditation. 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 advisor’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 550 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.

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 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 by 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)
- EXP 5256 Human Factors 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)
- EXP 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)
- EXP 6255 Human Performance 3 hours
- INP 6317 Organizational Psychology and Motivation 3 hours
- EIN 5248C Ergonomics 3 hours
- Elective* 3 hours

13 Semester Hours
13 Semester Hours
12 Semester Hours
<table>
<thead>
<tr>
<th>Semester</th>
<th>Course Code</th>
<th>Course Title / Description</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spring (Year 2)</td>
<td>Elective*</td>
<td>3 hours</td>
<td></td>
</tr>
<tr>
<td>Fall (Year 3)</td>
<td>EIN 6258</td>
<td>Human Computer Interaction</td>
<td>3 hours</td>
</tr>
<tr>
<td></td>
<td>EXP 5258</td>
<td>Human Factors III</td>
<td>3 hours</td>
</tr>
<tr>
<td></td>
<td>PSY 6218</td>
<td>Advanced Research Methodology III</td>
<td>4 hours</td>
</tr>
<tr>
<td>Spring (Year 3)</td>
<td>EXP 6938</td>
<td>Teaching Seminar</td>
<td>3 hours</td>
</tr>
<tr>
<td></td>
<td>EXP 6116</td>
<td>Visual Performance OR</td>
<td>3 hours</td>
</tr>
<tr>
<td></td>
<td>EXP 6126</td>
<td>Psychoacoustics</td>
<td>3 hours</td>
</tr>
<tr>
<td>Fall (Year 4)</td>
<td>PSY 7980</td>
<td>Doctoral Dissertation</td>
<td>6 hours</td>
</tr>
<tr>
<td></td>
<td>EXP 6XXX</td>
<td>Professional Issues Seminar</td>
<td>3 hours</td>
</tr>
<tr>
<td>Spring (Year 4)</td>
<td>PSY 7980</td>
<td>Doctoral Dissertation</td>
<td>9 hours</td>
</tr>
<tr>
<td>Internship</td>
<td></td>
<td></td>
<td>6 Semester Hours</td>
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</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title / Description</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>DEP 5007</td>
<td>Developmental Psychology</td>
<td>3 hours</td>
</tr>
<tr>
<td>EIN 6938</td>
<td>Human-Computer Interaction: Usability Evaluation</td>
<td>3 hours</td>
</tr>
<tr>
<td>EIN 6938</td>
<td>Ergonomics in Virtual Environments</td>
<td>3 hours</td>
</tr>
<tr>
<td>EXP 6XXX</td>
<td>Human Factors in an Aging Society</td>
<td>3 hours</td>
</tr>
<tr>
<td>EXP 6XXX</td>
<td>Aviation Psychology</td>
<td>3 hours</td>
</tr>
<tr>
<td>EXP 6541</td>
<td>Advanced Human-Computer Interaction</td>
<td>3 hours</td>
</tr>
<tr>
<td>EXP 6XXX</td>
<td>Team Training</td>
<td>3 hours</td>
</tr>
<tr>
<td>PPE 5055</td>
<td>Personality Theories</td>
<td>3 hours</td>
</tr>
<tr>
<td>PSY 5937</td>
<td>HCI Design: Team Approach</td>
<td>3 hours</td>
</tr>
</tbody>
</table>

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.
Sociology and Anthropology Department

David Gay ................................................................. Program Coordinator
Office: FA 417D, Phone: (407) 823-2227, e-mail: dgay@pegasus.cc.ucf.edu
http://pegasus.cc.ucf.edu/~appsocio/

Sociology and Anthropology Faculty
J. Corzine, Ph.D .................................................. Chair and Professor
I. J. Cook, Ph.D .................................................. Associate Professor
D. R. Dees, Ph.D .................................................. Associate Professor
D. A. Gay, Ph.D .................................................. Associate Professor
J. P. Lynxwiler, Ph.D ........................................... Associate Professor
L. Huff-Corzine, Ph.D .......................................... Associate Professor
K. Baird-Olson, Ph.D ........................................... Assistant Professor
A. D. Carey, Ph.D .............................................. Assistant Professor
T. Dietz, Ph.D .................................................. Assistant Professor
J. Morris, Ph.D .................................................. Assistant Professor
E. Mustaine, Ph.D .............................................. Assistant Professor
M. Winton, Ph.D .............................................. Assistant Professor

Program Description
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.

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

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.

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

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>SYA 5625</td>
<td>ProSeminar</td>
<td>3</td>
</tr>
<tr>
<td>SYA 6126</td>
<td>Social Theory</td>
<td>3</td>
</tr>
<tr>
<td>SYA 6305</td>
<td>Social Research</td>
<td>3</td>
</tr>
<tr>
<td>SYA 6455</td>
<td>Research Analysis</td>
<td>3</td>
</tr>
</tbody>
</table>

Electives

Students will select a minimum of 12 semester hours of (nonrestricted) electives in consultation with their faculty advisor. No more than 6 hours may be taken in UCF graduate programs outside the department.

Thesis Option

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

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.

<table>
<thead>
<tr>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>30</td>
</tr>
</tbody>
</table>
Statistics Department

James R. Schott ......................... Program Coordinator
Office: CCI 205, Phone: (407) 823-2797, e-mail: jschott@pegasus.cc.ucf.edu

Statistics Faculty
M. E. Johnson, Ph.D. ................... Professor
G. D. Richardson, Ph.D. ............... Professor
J. R. Schott, Ph.D. ..................... Professor
P. N. Somerville, Ph.D. ............... Professor
L. L. Hoffman, Ph.D. .................. Associate Professor
D. Nickerson, Ph.D. .................... Interim Chair and Associate Professor
M. Wang, Ph.D. ......................... Associate Professor
M. Jamshidian, Ph.D. .................. Assistant Professor
C. E. Cutchins, M.S. ................... Instructor
J. W. Pepe, M.S. ....................... Associate in Statistical Computing
S. C. Schott, M.S. ..................... Instructor

Application Deadlines
Fall admission ......................... July 15
Spring admission ................. December 15
Summer admission ................. April 15

Master of Science in Statistical Computing

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. 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 admitted to the university in post-baccalaureate status and later admitted to regular status once all deficiencies have been eliminated, although only nine hours as a post-baccalaureate will count toward a graduate degree.

Program in Statistical Computing
The 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.

Degree Requirements
The Statistical Computing degree requires a total of 36 semester hours, with a minimum of 30 hours of course work.

Required Courses
STA 5205 Experimental Design .......................... 3 hours
STA 6106 Statistical Computing I .......................... 3 hours
STA 6236 Regression Analysis .......................... 3 hours
STA 6326 Theoretical Statistics I .......................... 3 hours
STA 6327 Theoretical Statistics II .......................... 3 hours
STA 6329 Statistical Applications of Matrix Algebra .......................... 3 hours
Select One:
STA 6246 Linear Models .......................... 3 hours
STA 6707 Multivariate Statistical Methods .......................... 3 hours

21 Semester Hours
Restricted Electives

Other statistics courses will be selected by the student in consultation with the advisor. Certain graduate courses in computer science, mathematics, and engineering may be selected if approved by the Department of Statistics.

Examination

All students must take a comprehensive written examination covering the courses STA 6236, STA 5205, STA 6326, and STA 6327. For full-time students, this examination normally will be taken just prior to the start of the second year of graduate work.

Minimum Hours Required for M.S.

36 Semester Hours
The College of Business Administration prepares students to excel in their graduate programs and in the business community. 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.
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 on the Melbourne Campus of Brevard Community College. 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 approaches the twenty-first century, it has adopted "Driven by Excellence" as a motto and guiding force in achieving its goals and objectives.

**College Administration**

T. L. Keon ................................................................. Dean
R. E. Michaels ............................................................ Interim Associate Dean
R. L. Pennington ........................................................ Associate Dean
E. Odisho ................................................................. Brevard Campus Coordinator, Phone: (407) 632-0098
J. H. Potts .................................................. Daytona Campus Coordinator, Phone: (904) 255-7423, ext. 4071

**Faculty**

**School of Accounting**

C. D. Bailey, Ph.D. ...................................................... Professor
D. D. Bandy, Ph.D. ....................................................... C. G. Avery Professor
R. Roberts, Ph.D. ........................................................ Burnett Eminent Scholar Professor
T. G. Evans, Ph.D. ....................................................... Professor
J. H. Potts, Ph.D. ........................................................ Professor
J. H. Salter III, Ph.D. .................................................. Ernst & Young Professor
P. Dwyer, Ph.D. .......................................................... Associate Professor
P. M. Goldwater, Ph.D. ................................................. Associate Professor
W. L. Johnson, Ph.D. ..................................................... Associate Professor
A. J. Judd, Ph.D. .......................................................... Director and Associate Professor
C. F. Kelliher, Ph.D. .................................................... Associate Professor
T. E. Phillips, Ph.D. ..................................................... Associate Professor
P. B. Roush, Ph.D. ....................................................... Associate Professor
L. J. Savage, Ph.D. ..................................................... Associate Professor
J. K. Welch, Ph.D. ....................................................... Associate Professor
D. Bobek, Ph.D. .......................................................... Assistant Professor
L. Mahoney, Ph.D. ...................................................... Assistant Professor
M. K. Zarzeski, Ph.D. .................................................. Assistant Professor

**Economics**

R. A. Hofler, Ph.D. ..................................................... Chair and Professor
W. W. McHone, Ph.D. .................................................. Professor
B. Rungeling, Ph.D. ..................................................... Professor
B. M. Braun, Ph.D. ..................................................... Associate Professor
A. E. Day, Ph.D. ........................................................ Associate Professor
W. E. Gibbs, Ph.D. ..................................................... Associate Professor
D. A. Hosni, Ph.D. ..................................................... Associate Professor
### BUSINESS ADMINISTRATION

**Professor**
- W. Leigh, Jr., Ph.D.
- R. Purvis, Ph.D.
- D. L. West, Ph.D.
- S. T. L. Keon, Ph.D.
- F. F. Jones, Ph.D.
- D. L. K. Rainer, Ph.D.
- A. R. Y. L. W.
- M. Tomlin, Ph.D.
- R. S. J. M. Cheney, D.B.A.
- S. Michelson, J. List, Ph.D.
- N. K. Modani, Ph.D.
- H. Park, Ph.D.
- R. Ramanlal, Ph.D.
- W. C. Weaver, Ph.D.
- A. M. Whyte, Ph.D.
- D. Winters, Ph.D.
- S. F. Borde, Ph.D.
- A. K. Byrd, Ph.D.
- Y. Choi, Ph.D.
- J. H. Gilkeson, Ph.D.
- G. E. Porter, Ph.D.
- R. Upchurch, Ph.D.
- C. Gallett, M. B. K.
- R. L. Pennington, Ph.D.
- S. J. H. W.
- C. Callarman, Huseman, Ph.D.
- L. W. Fernald, Jr., D.B.A.
- J. S. Harrison, Ph.D.
- R. C. Huseman, Ph.D.
- H. R. Jones, Ph.D.
- T. L. Keon, Ph.D.
- W. Leigh, Jr., Ph.D.
- K. Rainer, Ph.D.
- D. L. Stone, Ph.D.
- W. A. Bogumil, Jr., Ph.D.
- W. G. Callarman, D.B.A.
- C. M. Ford, Ph.D.
- S. Goodman, Ph.D.
- M. A. Gowan, Ph.D.
- F. F. Jones, Ph.D.
- B. Barringer, Ph.D.
- D. O. Naubaum, Ph.D.
- R. Purvis, Ph.D.
- M. Uhl-Bien, Ph.D.
- L. West, Ph.D.

**Associate Professor**
- J. Lee, Ph.D.
- T. L. Martin, Ph.D.
- R. L. Pennington, Ph.D.
- M. Soskin, Ph.D.
- K. R. White, Ph.D.
- J. A. Xander, Ph.D.
- 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.
- S. T. L. Martin, Ph.D.
- S. J. H. W.
- R. A. Byrd, Ph.D.
- M. LeBruto, Ed.D.
- F. Choi, Ph.D.
- D. T. Scott, Jr., Ph.D.
- S. D. Smith, Ph.D.
- R. Ajayi, Ph.D.
- S. M. Atkinson, D.B.A.
- J. M. Cheney, D.B.A.
- R. Lamb, Ph.D.
- S. Michelson, Ph.D.
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- M. B. K.
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- D. Winters, Ph.D.
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- Y. Choi, Ph.D.
- J. H. Gilkeson, Ph.D.
- G. E. Porter, Ph.D.
- R. Upchurch, Ph.D.

**Chair and Professor**
- R. C. Ford, Ph.D.
- A. Pizam, Ph.D.
- E. T. Ellis, Ph.D.
- S. M. LeBruto, Ed.D.
- A. Milman, Ph.D.
- R. Upchurch, Ph.D.

**Chair in American Private Enterprise and Professor**
- R. C. Ford, Jr., Ph.D.

**SunTrust Banking Chair and Professor**
- S. D. Smith, Ph.D.

** Associate Professor**
- R. Ajayi, Ph.D.
- S. M. Atkinson, D.B.A.
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- A. M. Whyte, Ph.D.
- D. Winters, Ph.D.
- S. F. Borde, Ph.D.
- A. K. Byrd, Ph.D.
- Y. Choi, Ph.D.
- J. H. Gilkeson, Ph.D.
- G. E. Porter, Ph.D.
- R. Upchurch, Ph.D.
- C. Gallett, M. B. K.
- S. Smith, Ph.D.
- J. R. R. D. F.
- M. B. K.
- N. K. Modani, Ph.D.
- A. M. Whyte, Ph.D.
- D. Winters, Ph.D.
- S. F. Borde, Ph.D.
- A. K. Byrd, Ph.D.
- Y. Choi, Ph.D.
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- R. Upchurch, Ph.D.
- C. Gallett, M. B. K.
- S. Smith, Ph.D.
- J. R. R. D. F.
- M. B. K.
- N. K. Modani, Ph.D.
- A. M. Whyte, Ph.D.
- D. Winters, Ph.D.
- S. F. Borde, Ph.D.
- A. K. Byrd, Ph.D.
Admission to Master's Programs

Application Deadlines

<table>
<thead>
<tr>
<th>Semester</th>
<th>Deadline</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fall admission</td>
<td>June 15</td>
</tr>
<tr>
<td>Spring admission</td>
<td>November 1</td>
</tr>
<tr>
<td>Summer admission</td>
<td>March 15</td>
</tr>
</tbody>
</table>

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. 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 575 on the Test of English as a Foreign Language (TOEFL).

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, i.e., graduate courses may not be taken in a post-baccalaureate status.

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 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

Program Coordinator .................. R. L. Pennington, BA 241, Phone: (407) UCF-2187
Brevard Campus Program Coordinator ............ E. Odisho, Phone: (407) 632-0098
Daytona Campus Program Coordinator ....... J. H. Potts, Phone: (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 at Brevard Community College's Melbourne Campus. 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

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACG 5005</td>
<td>Financial and Managerial Accounting Concepts</td>
<td>3</td>
</tr>
<tr>
<td>BUL 5125</td>
<td>Legal and Social Environment of Business</td>
<td>3</td>
</tr>
<tr>
<td>ECO 5005</td>
<td>Economic Concepts</td>
<td>3</td>
</tr>
<tr>
<td>ECO 5415</td>
<td>Statistics for Business and Economics</td>
<td>3</td>
</tr>
<tr>
<td>FIN 5405</td>
<td>Financial Concepts</td>
<td>3</td>
</tr>
<tr>
<td>ISM 5021</td>
<td>Introduction to Management Information Systems</td>
<td>3</td>
</tr>
<tr>
<td>MAC 2233</td>
<td>Concepts of Calculus</td>
<td>3</td>
</tr>
<tr>
<td>MAN 5050</td>
<td>Management Concepts</td>
<td>2</td>
</tr>
<tr>
<td>MAN 5501</td>
<td>Introduction to Production/Operations Management</td>
<td>2</td>
</tr>
<tr>
<td>MAR 5055</td>
<td>Marketing Concepts</td>
<td>3</td>
</tr>
</tbody>
</table>

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, international business, or real estate.

Professional Core

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACG 6425</td>
<td>Managerial Accounting Analysis</td>
<td>3</td>
</tr>
<tr>
<td>ECO 6115</td>
<td>Economic Analysis of the Firm</td>
<td>3</td>
</tr>
<tr>
<td>ECO 6416</td>
<td>Statistical Methods for Business Decisions</td>
<td>3</td>
</tr>
<tr>
<td>FIN 6406</td>
<td>Financial Analysis and Management</td>
<td>3</td>
</tr>
<tr>
<td>Course Code</td>
<td>Course Title</td>
<td>Hours</td>
</tr>
<tr>
<td>-------------</td>
<td>--------------------------------------------------</td>
<td>-------</td>
</tr>
<tr>
<td>MAN 6245</td>
<td>Organizational Behavior and Development</td>
<td>3</td>
</tr>
<tr>
<td>MAN 6546</td>
<td>Quantitative Models for Business Decisions</td>
<td>3</td>
</tr>
<tr>
<td>MAN 6721</td>
<td>Business Policy and Responsibility</td>
<td>3</td>
</tr>
<tr>
<td>MAR 6816</td>
<td>Marketing Policy</td>
<td>3</td>
</tr>
</tbody>
</table>

Accounting undergraduate majors may not take ACG 6425, but must take an elective in any other business area. Marketing undergraduate majors are not allowed to take MAR 6816. Instead, they must replace the course with one of the marketing electives outlined below.

**Electives**

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 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 Evaluation
- GEB 6115 Entrepreneurship
- MAN 6299 Creative and Innovative Management
- MAR 5941 Small Business Consulting

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.

- FIN 6425 Asset Management
- FIN 6475 Business Valuation
- FIN 6506 Investments
- FIN 6507 Seminar in Investments
- FIN 6627 International Financial Management

**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
- HFT 6240 Managing Hospitality and Guest Services Organizations
- HFT 6251 The Management of Lodging Operations
- HFT 6710 International Tourism Management

**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
- ECO 6705 Seminar in International Economics
- FIN 6627 International Financial Management
- INR 6007 Seminar in International Politics
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.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>MAR 6077</td>
<td>Contemporary Marketing Problems</td>
</tr>
<tr>
<td>MAR 6406</td>
<td>Sales Management and Control</td>
</tr>
<tr>
<td>MAR 6456</td>
<td>Advanced Industrial Marketing Management</td>
</tr>
<tr>
<td>MAR 6616</td>
<td>Marketing Research Methods</td>
</tr>
<tr>
<td>MAR 6845</td>
<td>Services Marketing</td>
</tr>
</tbody>
</table>

Real Estate
The real estate M.B.A. specialization requires REE 6306 and REE 6308 plus three hours of restricted electives chosen from those listed below. Undergraduate finance majors must substitute an additional three hours of the restricted electives in place of FIN 6406.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>ECP 6605</td>
<td>Economics of Urban and Regional Problems</td>
</tr>
<tr>
<td>FIN 6314</td>
<td>Management of Financial Institutions</td>
</tr>
<tr>
<td>FIN 6425</td>
<td>Asset Management</td>
</tr>
<tr>
<td>FIN 6475</td>
<td>Business Valuation</td>
</tr>
<tr>
<td>FIN 6506</td>
<td>Investments</td>
</tr>
</tbody>
</table>

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 Director of the M.B.A. program 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

Master of Science in Accounting
Program Coordinator ................................................................. L. J. Savage
BA 433, Phone: (407) UCF-5661 or UCF-2871, e-mail: savage@pegasus.cc.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. (This program satisfies the requirements of the State Board of Accounting Rule 21-A-27.02.)

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 advisor, 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.
BUSINESS ADMINISTRATION

Degree Requirements

Required Courses

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACG 5346</td>
<td>Cost Accounting II</td>
<td>3 hours</td>
</tr>
<tr>
<td>ACG 5636</td>
<td>Advanced Auditing Topics</td>
<td>3 hours</td>
</tr>
<tr>
<td>ACG 6405</td>
<td>Accounting Information Systems II</td>
<td>3 hours</td>
</tr>
<tr>
<td>ACG 6805</td>
<td>Seminar in Accounting Theory</td>
<td>3 hours</td>
</tr>
<tr>
<td>TAX 5015</td>
<td>Federal Income Tax II</td>
<td>3 hours</td>
</tr>
</tbody>
</table>

Restricted Electives

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

Two courses from the following:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACG 5206</td>
<td>Seminar in Financial Reporting</td>
<td>3 hours</td>
</tr>
<tr>
<td>ACG 5625</td>
<td>Auditing and EDP</td>
<td>3 hours</td>
</tr>
<tr>
<td>ACG 5675</td>
<td>Operational Auditing</td>
<td>3 hours</td>
</tr>
<tr>
<td>ACG 6255</td>
<td>International and Multinational Accounting</td>
<td>3 hours</td>
</tr>
<tr>
<td>ACG 6356</td>
<td>Seminar in Cost Accounting</td>
<td>3 hours</td>
</tr>
<tr>
<td>ACG 6519</td>
<td>Seminar in Governmental and Nonbusiness Organizations</td>
<td>3 hours</td>
</tr>
<tr>
<td>ACG 6696</td>
<td>Seminar in Auditing</td>
<td>3 hours</td>
</tr>
<tr>
<td>ACG 6806</td>
<td>Seminar in Professional Accounting Issues</td>
<td>3 hours</td>
</tr>
<tr>
<td>TAX 6065</td>
<td>Seminar in Tax Research</td>
<td>3 hours</td>
</tr>
<tr>
<td>TAX 6135</td>
<td>Seminar in the Taxation of Corporations and Shareholders</td>
<td>3 hours</td>
</tr>
<tr>
<td>TAX 6205</td>
<td>Seminar in Taxation of Partnership Income</td>
<td>3 hours</td>
</tr>
<tr>
<td>TAX 6405</td>
<td>Seminar in the Taxation of Estates, Gifts, and Trusts</td>
<td>3 hours</td>
</tr>
<tr>
<td>TAX 6845</td>
<td>Seminar in Tax Planning</td>
<td>3 hours</td>
</tr>
</tbody>
</table>

Three courses from the following:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>ECO 6115</td>
<td>Economic Analysis of the Firm</td>
<td>3 hours</td>
</tr>
<tr>
<td>ECO 6416</td>
<td>Statistical Methods for Business Decisions</td>
<td>3 hours</td>
</tr>
<tr>
<td>FIN 6406</td>
<td>Financial Analysis and Management</td>
<td>3 hours</td>
</tr>
<tr>
<td>MAN 6245</td>
<td>Organizational Behavior and Development</td>
<td>3 hours</td>
</tr>
<tr>
<td>MAN 6546</td>
<td>Quantitative Models for Business Decisions</td>
<td>3 hours</td>
</tr>
<tr>
<td>MAR 6816</td>
<td>Marketing Policy</td>
<td>3 hours</td>
</tr>
</tbody>
</table>

Substitutes for the above listed electives may be made only with advisor approval.

Foundation Core

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.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACG 3101</td>
<td>Intermediate Financial Accounting I</td>
<td>3 hours</td>
</tr>
<tr>
<td>ACG 3111</td>
<td>Intermediate Financial Accounting II</td>
<td>3 hours</td>
</tr>
<tr>
<td>ACG 3381</td>
<td>Cost Accounting I</td>
<td>3 hours</td>
</tr>
<tr>
<td>ACG 4203</td>
<td>Advanced Accounting</td>
<td>3 hours</td>
</tr>
<tr>
<td>ACG 4401</td>
<td>Accounting Systems I</td>
<td>3 hours</td>
</tr>
<tr>
<td>ACG 4651</td>
<td>Auditing</td>
<td>3 hours</td>
</tr>
<tr>
<td>ACG 5005*</td>
<td>Financial and Managerial Accounting Concepts</td>
<td>3 hours</td>
</tr>
<tr>
<td>BUL 3320</td>
<td>Business Law I</td>
<td>3 hours</td>
</tr>
<tr>
<td>BUL 3321</td>
<td>Business Law II</td>
<td>3 hours</td>
</tr>
<tr>
<td>CGS 2100C</td>
<td>Computer Fundamentals for Business Applications</td>
<td>3 hours</td>
</tr>
<tr>
<td>ECO 5005*</td>
<td>Economic Concepts</td>
<td>3 hours</td>
</tr>
<tr>
<td>ECO 5415*</td>
<td>Statistics for Business and Economics</td>
<td>3 hours</td>
</tr>
<tr>
<td>FIN 5405*</td>
<td>Financial Concepts</td>
<td>3 hours</td>
</tr>
<tr>
<td>MAN 5050*</td>
<td>Management Concepts</td>
<td>2 hours</td>
</tr>
<tr>
<td>MAN 5501*</td>
<td>Introduction to Production/Operations Management</td>
<td>2 hours</td>
</tr>
<tr>
<td>MAR 5055*</td>
<td>Marketing Concepts</td>
<td>3 hours</td>
</tr>
<tr>
<td>TAX 4001</td>
<td>Federal Income Tax I</td>
<td>3 hours</td>
</tr>
</tbody>
</table>

* Or undergraduate course equivalent taken as an undergraduate student.
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 Organizations 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

Program Coordinator .......................................................... Dale Bandy
BA 435, Phone: (407) UCF-2964 or UCF-2871, e-mail: dbandy@pegasus.cc.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 advisor. Required courses and available electives are described below.

Degree Requirements

<table>
<thead>
<tr>
<th>Required Courses</th>
<th>18 Semester Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>TAX 5015</td>
<td>Federal Income Tax II</td>
</tr>
<tr>
<td>TAX 6065</td>
<td>Seminar in Tax Research</td>
</tr>
<tr>
<td>TAX 6135</td>
<td>Seminar in the Taxation of Corporations and Shareholders</td>
</tr>
<tr>
<td>TAX 6205</td>
<td>Seminar in Taxation of Partnership Income</td>
</tr>
<tr>
<td>TAX 6405</td>
<td>Seminar in Taxation of Estates, Gifts, and Trusts</td>
</tr>
<tr>
<td>TAX 6845</td>
<td>Seminar in Tax Planning</td>
</tr>
</tbody>
</table>

Restricted Elective Courses

A total of 12 semester hours of electives must be selected with advisor 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

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

Program Coordinator ........................................ T. L. Martin
BA 325, Phone: (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 30 Semester Hours
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 1104 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
- ECO 6266 Business Cycles and Forecasting
- ECP 6705 Managerial Economics
- FIN 6406 Financial Analysis and Management
- FIN 6425 Asset Management and Financial Decisions
- FIN 6506 Analysis of Investment Opportunities
- FIN 6627 International Financial Management
- RMI 6008 Risk Management

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
- ECO 6505 Public Finance and Fiscal Policy
- ECP 6205 Labor Economics
- ECP 6405 Industrial Organization and Performance
- ECP 6426 Economics of Regulated Industries
- ECP 6605 Economics of Urban and Regional Problems
- ECP 6705 Managerial Economics
- REE 6306 Corporate Real Estate Investment Decision-Making
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 6266 Business Cycles and Forecasting
- ECO 6424 Econometrics
- ECP 6705 Managerial Economics
- MAN 6546 Quantitative Models for Business Decisions
- MAR 6616 Marketing Research Methods

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

- ECO 6705 Seminar in International Economics
- ECS 6015 Economic Development
- FIN 6627 International Financial Management
- INR 6607 Seminar in International Politics
- PUP 6058 Issues in International Public Policy
For candidates seeking careers in the area of human resources development or positions in interdisciplinary manpower-related issues, selection among the following electives is recommended:

- ECP 6205 Labor Economics
- ECS 6015 Economic Development
- EIN 5117 Management Information Systems
- EIN 6258 Man-Computer Interaction
- EVT 6267 Vocational Program Planning, Development, and Evaluation
- ISM 6121 Systems Analysis and Development
- MAN 6156 Personnel Resources Administration
- MAN 6245 Organizational Behavior and Development
- PAD 6417 Human Resource Management
Doctor of Philosophy in Business Administration

Contact the Associate Dean's Office, BA 240, Phone: (407) UCF-2987

This program will be accepting students for the Fall 1999 semester.

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.

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 the Test of English as a Foreign Language (TOEFL) score 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.

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, June 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:

<table>
<thead>
<tr>
<th>Area</th>
<th>Range of Semester Hours Required</th>
</tr>
</thead>
<tbody>
<tr>
<td>Preparation and Courses:</td>
<td></td>
</tr>
<tr>
<td>MBA degree or equivalent¹</td>
<td>30 hours</td>
</tr>
<tr>
<td>Major</td>
<td>12-21 hours</td>
</tr>
<tr>
<td>Minor/Support Area</td>
<td>6-9 hours</td>
</tr>
<tr>
<td>Research Tools²</td>
<td>12-15 hours</td>
</tr>
<tr>
<td>Teaching³</td>
<td>0-3 hours</td>
</tr>
<tr>
<td>Candidacy Examination⁴</td>
<td></td>
</tr>
<tr>
<td>Dissertation²</td>
<td>24 hours</td>
</tr>
<tr>
<td>Total Semester Hours Required</td>
<td>84-102 hours</td>
</tr>
</tbody>
</table>

1. Each major may specify different requirements for this category. Consult the doctoral 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 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**

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. Coordinator or the student's advisory committee.

**Accounting Major Concentration**

- ACG 7157 Seminar in Financial Accounting Research 3 hours
- ACG 7887 Accounting Research Forum 4 hours
- ACG 7915 Directed Research in Accounting 3 hours
- Two other seminars from the following (3 hours each): 6 hours
  - ACG 7399 Seminar in Management Accounting Research
  - ACG 7699 Seminar in Auditing Research
  - TAX 7066 Seminar in Doctoral Tax Research

**Minor/Support Area**

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
- Economics
- Engineering
- Finance
- Management
- Marketing
- Mathematics
- Political Science
- Psychology
- Sociology
- Statistics

**Research Tools**

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
- GEB 7910 Research Methods in Business
- QMB 7555 Applied Business Statistics

The remaining nine semester hours (in addition to the minor concentration) typically are selected from offerings in the following disciplines:

- Computer Science
- Economics
- Engineering
- Management Science
- Mathematics
- Psychology
- Sociology
- 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
Minimum Hours Required for Ph.D. 24 Semester Hours
94 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 Institutions and Markets 3 hours
FIN 7816 Investment Theory 3 hours
FIN 7915 Directed Research in Finance 3 hours
FIN 7930 Seminar in Finance 3 hours

Minor/Support Area 6 Semester Hours
ECO 7026 Macroeconomic Theory 3 hours
ECO 7115 Microeconomic Theory 3 hours

Research Tools 12 Semester Hours
ECO 6424 Econometrics 3 hours
ECO 7XXX Applied Models I 3 hours
ECO 7XXX Applied Models II 3 hours
ECO 7XXX Time Series 3 hours

Teaching Requirement
The requirements for the teaching component of the doctoral degree will be developed with the doctoral 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
Minimum Hours Required for Ph.D. 24 Semester Hours
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.
Hospitality Management Major

Foundation Body of Knowledge 30 Semester Hours
In Hospitality Management, the foundation body of knowledge includes (a) the Common Body of Knowledge in an MBA degree from an accredited university, or its equivalent, and (b) an undergraduate degree in Hospitality, Tourism, or a related area.

Hospitality Management Major Concentration 12 Semester Hours
HFT 7258 Strategies and Tactics: Lodging 3 hours
HFT 7546 Strategies and Tactics: Guest Services 3 hours
HFT 7715 Strategies and Tactics: Travel and Tourism 3 hours
HFT 7856 Strategies and Tactics: Foodservice 3 hours

Minor/Support Area 6 Semester Hours
FIN 7807 Corporate Finance Theory 3 hours
MAN 7776 Business Level Strategy 3 hours

Research Tools 12 Semester Hours
ECO 7XXX Applied Models I 3 hours
ECO 7XXX Applied Models II 3 hours
GEB 7910 Research Methods in Business 3 hours
STA 5205 Experimental Design 3 hours

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 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.

Dissertation 24 Semester Hours

Minimum Hours Required for Ph.D. 87 Semester Hours

Final Defense
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.

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.

Required Courses
MAN 7275 Organizational Behavior

Select one of these three courses:
MAN 7XXX Organizational Theory
MAN 7776 Business-level Strategic Management OR
MAN 7777 Corporate-level Strategic Management
MAN 7XXX Directed readings in the area of concentration—to be determined by the student's doctoral study advisory committee
MAN 7XXX Directed readings in the area of concentration—to be determined by the student's doctoral study advisory committee
In addition, two courses from the following are required:

- MAN 7XXX Management Information Systems
- MAN 7776 Business-level Strategic Management (if not taken to satisfy one of the requirements listed above)
- MAN 7777 Corporate-level Strategic Management (if not taken to satisfy one of the requirements listed above)
- MAN 7XXX Other Management electives as they are developed for the program

Minor/Support Area 9 Semester Hours
Students may select a minimum of nine 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
- Hospitality Management
- 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.

Required Courses
- ECO 7XXX Applied Models I
- ECO 7XXX Applied Models II
- GEB 7910 Research Methods in Business Administration
- STA 5205 Experimental Design

Teaching Requirement
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 concentration. Students are admitted to candidacy after satisfying all general degree requirements, passing comprehensive examination requirements, and fulfilling the residency requirement.

Dissertation 24 Semester Hours

Minimum Hours Required for Ph.D. 96 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.

Market Major Concentration 12 Semester Hours

MAR 7XXX Marketing Theory, Scaling, and Measurement
MAR 7XXX Consumer Behavior
MAR 7XXX Marketing Strategy
MAR 7XXX Marketing Models

Minor/Support Area 6 Semester Hours
Advanced Research Concentration:
MAR 7919 Doctoral Research

The Marketing doctoral curriculum required 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
CLP XXXX Causal Modeling
ECO 6424 Econometrics
ECO 7XXX Applied Models I
ECO 7XXX Applied Models II

Teaching Requirement 3 Semester Hours
The requirements for the teaching component of the doctoral degree will be developed with the doctoral coordinator based on the student's experience.

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 concentration. Students are admitted to candidacy after satisfying all general degree requirements, passing comprehensive exam requirements, 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. 90 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.
Programs in the College of Education strive to meet the needs of today's classrooms as well as those of government and industry.
College of Education

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. 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

<table>
<thead>
<tr>
<th>Name</th>
<th>Position</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sandra L. Robinson</td>
<td>Dean</td>
</tr>
<tr>
<td>Jennifer M. Platt</td>
<td>Associate Dean</td>
</tr>
<tr>
<td>Michael C. Hynes</td>
<td>Associate Dean</td>
</tr>
<tr>
<td>Margaret G. Miller</td>
<td>Associate Professor</td>
</tr>
<tr>
<td>Anna Turbett</td>
<td>Director of Development</td>
</tr>
<tr>
<td>Blanche Sheinkopf and Dan Ezell</td>
<td>Brevard Campus Coordinators</td>
</tr>
<tr>
<td>Jeffrey Kaplan</td>
<td>Daytona Beach Campus Coordinator</td>
</tr>
</tbody>
</table>

Faculty

**Department of Educational Foundations**

<table>
<thead>
<tr>
<th>Name</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>K. L. Biraimah, Ph.D.</td>
<td>Chair and Professor</td>
</tr>
<tr>
<td>R. G. Cowgill, Ph.D.</td>
<td>Professor</td>
</tr>
<tr>
<td>C. D. Dziuban, Ph.D.</td>
<td>Professor</td>
</tr>
<tr>
<td>T. S. Kubala, Ed.D.</td>
<td>Professor</td>
</tr>
<tr>
<td>M. L. Kysilka, Ph.D.</td>
<td>Professor</td>
</tr>
<tr>
<td>R. R. Lange, Ph.D.</td>
<td>Professor</td>
</tr>
<tr>
<td>K. W. Allen, Ph.D.</td>
<td>Associate Professor</td>
</tr>
<tr>
<td>S. L. Hiett, Ph.D.</td>
<td>Associate Professor</td>
</tr>
<tr>
<td>C. C. Holt, Ed.D.</td>
<td>Associate Professor</td>
</tr>
<tr>
<td>A. J. Miller, Ed.D.</td>
<td>Associate Professor</td>
</tr>
<tr>
<td>P. T. Sciortino, Ph.D.</td>
<td>Associate Professor</td>
</tr>
<tr>
<td>T. J. Sullivan, Ed.D.</td>
<td>Associate Professor</td>
</tr>
<tr>
<td>G. West, Ph.D.</td>
<td>Associate Professor</td>
</tr>
<tr>
<td>A. T. Wood, Ph.D.</td>
<td>Director of Brinson Center for Ethics in Education and Associate Professor</td>
</tr>
<tr>
<td>L. Chang, Ph.D.</td>
<td>Assistant Professor</td>
</tr>
<tr>
<td>C. J. Hutchinson, Ed.D.</td>
<td>Assistant Professor</td>
</tr>
<tr>
<td>J. S. Kaplan, Ph.D.</td>
<td>Assistant Professor</td>
</tr>
</tbody>
</table>

**Department of Educational Services**

<table>
<thead>
<tr>
<th>Name</th>
<th>Title</th>
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<tbody>
<tr>
<td>D. J. Baumbach, Ed.D.</td>
<td>Professor</td>
</tr>
<tr>
<td>W. C. Bozeman, Ph.D.</td>
<td>Professor</td>
</tr>
<tr>
<td>R. A. Cornell, Ed.D.</td>
<td>Professor</td>
</tr>
<tr>
<td>D. E. Hernandez, Ed.D.</td>
<td>Professor</td>
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<tr>
<td>W. H. Johnson, Ph.D.</td>
<td>Professor</td>
</tr>
<tr>
<td>M. A. Lynn, Ed.D.</td>
<td>Professor</td>
</tr>
<tr>
<td>D. J. Mealor, Ph.D.</td>
<td>Professor</td>
</tr>
<tr>
<td>G. W. Owlg, Ed.D.</td>
<td>Interim Chair and Professor</td>
</tr>
<tr>
<td>E. H. Robinson, Ph.D.</td>
<td>Professor</td>
</tr>
<tr>
<td>R. A. Rothberg, Ed.D.</td>
<td>Professor</td>
</tr>
<tr>
<td>C. R. Balado, Ed.D.</td>
<td>Associate Professor</td>
</tr>
<tr>
<td>R. M. Bollet, Ed.D.</td>
<td>Associate Professor</td>
</tr>
<tr>
<td>J. A. Middleton, Ed.D.</td>
<td>Associate Professor</td>
</tr>
<tr>
<td>B. Murray, Ph.D.</td>
<td>Associate Professor</td>
</tr>
<tr>
<td>K. Murray, J.D., Ph.D.</td>
<td>Associate Professor</td>
</tr>
</tbody>
</table>
G. Pawlas, Ph.D ................................................. Associate Professor
L. Tubbs, Ed.D .................................................. Vice President of Student Affairs and Associate Professor
A. Creamer, Ed.D .............................................. Assistant Professor
G. Gunter, Ph.D ................................................. Assistant Professor
D. Jones, Ph.D .................................................. Assistant Professor
J. R. Lee, Ed.D .................................................. Assistant Professor
D. Shepard-Tew, Ph.D ........................................ Assistant Professor

Department of Instructional Programs
T. Blair, Ph.D .................................................. Professor
D. K. Brumbaugh, Ed.D ...................................... Associate Dean, Director of Lockheed Martin/UCF Academy, and Professor
M. C. Hynes, Ph.D ........................................... Associate Professor
A. R. Joels, Ph.D .............................................. Professor
R. D. Martin, Ed.D ........................................... Professor
M. J. Palmer, Ed.D ........................................... Professor
S. L. Robinson, Ph.D ........................................ Dean and Professor
C. Scott-Kassner, Ph.D ...................................... Professor
R. A. Thompson, Ed.D ...................................... Professor
J. S. Allen, Ed.D ............................................... Associate Professor
J. H. Armstrong, Ed.D ...................................... Interim Chair and Associate Professor
R. A. Bailey, Ph.D ............................................. Associate Professor
D. J. Camp, Ph.D ............................................. Associate Professor
J. W. Cornett, Ph.D ............................................ Associate Professor
R. M. Everett, Ph.D ............................................. Associate Professor
D. W. Gurney, Ph.D ........................................... Associate Professor
M. H. Hopkins, Ph.D ........................................ Associate Professor
L. R. Hudson, Ph.D ........................................... Associate Professor
J. A. Johnson, Ph.D ........................................... Associate Director of Lockheed Martin/UCF Academy and Associate Professor
S. E. Ortiz, Ed.D .............................................. Associate Professor
R. F. Paugh, Ed.D ............................................ Associate Professor
M. K. Romjue, Ph.D .......................................... Associate Professor
B. W. Siebert, Ph.D ............................................ Associate Professor
S. E. Sorg, Ph.D ................................................ Associate Professor
K. Williams, Ph.D ............................................ Associate Professor
S. Atkins, Ph.D .............................................. Assistant Professor
T. Brewer, Ph.D ............................................. Assistant Professor
E. F. Clifford, Ph.D ........................................... Assistant Professor
P. Crawford, Ph.D ............................................ Assistant Professor
A. Sweeney, Ph.D ............................................ Assistant Professor

Department of Exceptional and Physical Education
J. L. Olson, Ph.D .............................................. Professor
J. M. Platt, Ed.D .............................................. Associate Dean and Professor
F. D. Rohrer, Ph.D ............................................. Professor
L. Cross, Ph.D ................................................ Interim Chair and Associate Professor
P. E. Higgins botham, Ed.D ................................ Associate Professor
M. Lue, Ph.D .................................................. Associate Professor
M. Miller, Ed.D .............................................. Assistant Dean and Associate Professor
J. W. Powell, Ed.D ............................................ Associate Professor
M. Blanes, Ph.D ............................................. Assistant Professor
D. Ezell, Ph.D ................................................ Assistant Professor
M. Little, Ph.D .............................................. Assistant Professor
H. P. Martin, Ed.D ........................................... Assistant Professor
D. L. Mitchell, Ed.D ........................................... Assistant Professor
S. Pankaskie, Ph.D ........................................... Assistant Professor
S. Y. Smalley, Ph.D ........................................... Assistant Professor
Programs in Education

<table>
<thead>
<tr>
<th>Master's Degrees</th>
<th>Doctoral Degrees</th>
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<td>Art Education</td>
<td>Instructional Systems</td>
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<tr>
<td>Counselor Education</td>
<td>Mathematics Education</td>
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<td>Educational Leadership</td>
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<td>Educational Media</td>
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<td>Educational Technology</td>
<td>Reading Education</td>
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<td>Elementary Education</td>
<td>Science Education</td>
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<td>English Language Arts</td>
<td>Social Science Education</td>
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<td>Exceptional Student Education</td>
<td>Vocational Education</td>
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<td>School Psychology</td>
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<td>Educational Leadership</td>
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<tr>
<td>Curriculum and Instruction</td>
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</tbody>
</table>

Master’s Degree Programs in Education

Programs are offered in a wide variety of areas within the general field of education. Master of Education programs are open only to 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 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. 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

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; 823-2022). 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 post-baccalaureate hours taken
- Grade point average on any post-baccalaureate 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 post-baccalaureate status. Those who are accepted as provisional students by one program are not accepted into another, but must reapply for provisional admission into another program.

Program of Study

Students are officially assigned formal academic advisors 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 post-baccalaureate/transfer hours toward a degree is contingent upon the recommendation of the academic advisor and is approved only after a program of study has been officially filed through all university channels.

Academic advisors are not assigned to individuals admitted as post-baccalaureate students. Post-baccalaureate students may seek information and general advisement in the Education Student Services Office (ED 109; 823-3723). Those who are post-baccalaureates seeking certification in the state of Florida who have been initially certified elsewhere are not eligible for financial assistance from the university. In general, post-baccalaureates 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 or unresolved "I" (incomplete) grades, 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 re-examination 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 advisor 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 advisor; 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 advisor and result in a program of at least 36 semester hours. For specific options within programs, please consult the program coordinator for the degree sought.

Master of Arts: Tracks in Extended Content

Program Coordinator ......................................................... T. S. Kubala
ED 350, Phone: (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 Studies, and English Language Arts. Only six hours of independent study courses may be used to satisfy degree requirements. It is important to see an advisor 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 advisors in the program.

Area A: Core (some programs may vary slightly) .............................. 15 Semester Hours
EDF 6155 Lifespan Human Development and Learning .................. 3 hours
EDF 6401 Statistics for Educational Data OR .............................. 3 hours
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 (Electives approved by advisor) ................. 27 Semester Hours

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Art Education

Program Coordinator ................................................................. T. Brewer
ED 158, Phone: (407) UCF-3714, e-mail: tbrewer@pegasus.cc.ucf.edu

Master of Education in Art Education

Minimum hours required for M.Ed. 39 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 15 or 21 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

Select One Option:
Option A: Research Report
ARE 6938 Research Trends 3 hours
ARE 6909 Research Report 2, 1 hours
Option B: Non-Thesis (Approved by advisor) 6 hours
Option C: Thesis
EDF 6401 Statistics for Educational Data 3 hours
ARE 6971 Thesis 2, 1 hours

Area B: Specialization (Approved by advisor) 18 Semester Hours

Area C: Studio 6 Semester Hours
Two studio courses (4000- or 5000-level ART courses approved by advisor)

Master of Arts in Art Education

Minimum hours required for M.A. 54 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 OR 3 hours
EDF 6608 Social Factors in American Education 3 hours

Area B: Specialization (Approved by advisor) 18 Semester Hours
Select One:
Option A: Research Report
ARE 6938 Research Trends 3 hours
ARE 6909 Research Report 2, 1 hours
Option B: Non-Thesis (Approved by advisor) 6 hours
Counselor Education

Program Coordinator ................................................................. A. Creamer
ED 315, Phone: (407) UCF-6044, e-mail: creamer@pegasus.cc.ucf.edu

This program includes two degree options. The Master of Education degree program is designed to meet the needs of students who have a baccalaureate degree and have completed course work for regular Florida State Teaching Certification and plan to seek certification in school counseling.

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 other tracks require an internship of 600 clock hours.

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.

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.
## Master of Education in Counselor Education, School Counseling

Minimum hours required for M.Ed.: 48 Semester Hours

<table>
<thead>
<tr>
<th>Area A: Core</th>
<th>9 or 12 Semester Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDF 6155</td>
<td>Lifespan Human Development and Learning</td>
</tr>
<tr>
<td>EDF 6481</td>
<td>Fundamentals of Graduate Research in Education</td>
</tr>
<tr>
<td>EGC 6909</td>
<td>Research Report or 2 electives</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Area B: Specialization</th>
<th>30 Semester Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>MHS 5005</td>
<td>Introduction to the Counseling Profession</td>
</tr>
<tr>
<td>MHS 6220</td>
<td>Individual Psychoeducational Testing I</td>
</tr>
<tr>
<td>MHS 6400</td>
<td>Theories of Counseling and Personality</td>
</tr>
<tr>
<td>MHS 6401</td>
<td>Techniques of Counseling</td>
</tr>
<tr>
<td>MHS 6420</td>
<td>Counseling Special Populations</td>
</tr>
<tr>
<td>MHS 6500</td>
<td>Group Procedures and Theories in Counseling</td>
</tr>
<tr>
<td>MHS 6780</td>
<td>Ethical and Legal Issues</td>
</tr>
<tr>
<td>SDS 6330</td>
<td>Career Development</td>
</tr>
<tr>
<td>SDS 6411</td>
<td>Counseling with Children and Adolescents</td>
</tr>
<tr>
<td>SDS 6620</td>
<td>Organization and Administration of School Counseling Programs</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Area C: Professional Clinical Experience</th>
<th>9 Semester Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>MHS 6800</td>
<td>Practicum in Counselor Education</td>
</tr>
<tr>
<td>MHS 6830</td>
<td>Counseling Internship I</td>
</tr>
<tr>
<td>MHS 6830</td>
<td>Counseling Internship II</td>
</tr>
</tbody>
</table>

**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

Minimum hours required for M.A.: 60 Semester Hours

<table>
<thead>
<tr>
<th>Area A: Core</th>
<th>9 or 12 Semester Hours</th>
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</thead>
<tbody>
<tr>
<td>EDF 6155</td>
<td>Lifespan Human Development and Learning</td>
</tr>
<tr>
<td>EDF 6481</td>
<td>Fundamentals of Graduate Research in Education</td>
</tr>
<tr>
<td>EGC 6909</td>
<td>Research Report or 2 approved electives</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Area B: Specialization</th>
<th>30 Semester Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>MHS 5005</td>
<td>Introduction to the Counseling Profession</td>
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<tr>
<td>MHS 6220</td>
<td>Individual Psychoeducational Testing I</td>
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<td>Group Procedures and Theories in Counseling</td>
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<td>Ethical and Legal Issues</td>
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<td>Career Development</td>
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<td>SDS 6411</td>
<td>Counseling with Children and Adolescents</td>
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<tr>
<td>SDS 6620</td>
<td>Organization and Administration of School Counseling and Guidance Programs</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Area C: Professional Clinical Experience</th>
<th>9 Semester Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>MHS 6800</td>
<td>Practicum in Counselor Education</td>
</tr>
<tr>
<td>MHS 6830</td>
<td>Counseling Internship I</td>
</tr>
<tr>
<td>MHS 6830</td>
<td>Counseling Internship II</td>
</tr>
</tbody>
</table>
Area D: Required DOE Certification

Foundations: Select one of the following:

- EDF 6517 History and Philosophy of American Education
- EDF 6608 Social Factors in American Education
- EDF 6886 Multicultural Education

3 Semester Hours

General Methods (Approved by advisor)

3 Semester Hours

Master of Arts in Counselor Education, Mental Health Counseling

Minimum hours required for M.A.

60 Semester Hours

This program prepares students for Florida licensure in mental health counseling.

Area A: Core

- EDF 6155 Lifespan Human Development and Learning
- EDF 6481 Fundamentals of Graduate Research in Education
- EGC 6909 Research Report or 2 approved electives

9 or 12 Semester Hours

Area B: Specialization

- MHS 5005 Introduction to the Counseling Profession
- MHS 6020 Mental Health Care Systems
- MHS 6070 Diagnosis and Treatment in Counseling
- MHS 6220 Individual Psychoeducational Testing I
- MHS 6221 Individual Psychoeducational Testing II
- MHS 6400 Theories of Counseling and Personality
- MHS 6401 Techniques of Counseling
- MHS 6420 Counseling Special Populations
- MHS 6480 Human Sexuality and Relationships
- MHS 6500 Group Procedures and Theories in Counseling
- MHS 6780 Ethical and Legal Issues
- SDS 6330 Career Development

36 Semester Hours

Area C: Cognate Electives (Approved by advisor)

3 Semester Hours

Area D: Professional Clinical Experiences

- MHS 6800 Practicum in Counselor Education I
- MHS 6800 Practicum in Counselor Education II
- MHS 6830 Counseling Internship I
- MHS 6830 Counseling Internship II

12 Semester Hours

NOTE: Courses should be taken in the following sequence: MHS 5005, 6400, 6401, 6500, 6800, and 6830.
Educational Leadership

Master's Program Coordinator ................................................................. M. A. Lynn
RP 215, Phone: (407) 384-2193, e-mail: malynn@pegasus.cc.ucf.edu

Application Deadlines
Fall admission July 15
Spring admission December 15
Summer admission 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. They do not fulfill state certification requirements.

Educational Leadership 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, 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 program coordinator should be contacted to request an evaluation of prior graduate course work (required for admission into the program).

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.
## Master of Arts in Educational Leadership

Minimum hours required for M.A. 42 Semester Hours

<table>
<thead>
<tr>
<th>Area A: Core</th>
<th>15 Semester Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDF 6155</td>
<td>Lifespan Human Development and Learning 3 hours</td>
</tr>
<tr>
<td>EDF 6481</td>
<td>Fundamentals of Graduate Research in Education 3 hours</td>
</tr>
<tr>
<td>EDF 6517</td>
<td>History and Philosophy of American Education OR 3 hours</td>
</tr>
<tr>
<td>EDF 6508</td>
<td>Social Factors in American Education 3 hours</td>
</tr>
<tr>
<td>EDF 6401</td>
<td>Statistics for Educational Data OR 3 hours</td>
</tr>
<tr>
<td>EDF 6432</td>
<td>Measurement and Evaluation in Education 3 hours</td>
</tr>
<tr>
<td>EDA 6909</td>
<td>Research Report 2,1 hours</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Area B: Specialization (Approved by advisor)</th>
<th>9 Semester Hours</th>
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</table>

<table>
<thead>
<tr>
<th>Area C: Administration</th>
<th>18 Semester Hours</th>
</tr>
</thead>
</table>

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 OR 3 hours |
| EDS 6130  | Educational Supervisory Practices II 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 (required) 3 hours |

## Master of Arts in Educational Leadership, Student Personnel Administration in Higher Education

Minimum hours required for M.A. 39 Semester Hours

<table>
<thead>
<tr>
<th>Area A: Core</th>
<th>6 Semester Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDF 6481</td>
<td>Fundamentals of Graduate Research in Education 3 hours</td>
</tr>
<tr>
<td>EDF 6432</td>
<td>Measurement and Evaluation in Education OR 3 hours</td>
</tr>
<tr>
<td>EDF 6401</td>
<td>Statistics for Educational Data 3 hours</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Area B: Specialization</th>
<th>24 Semester Hours</th>
</tr>
</thead>
</table>

| 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 6040  | Student Personnel Services in Higher Education 3 hours |
| SDS 6330  | Career Development 3 hours |
| SDS 6624  | The College Community and the Student 3 hours |

<table>
<thead>
<tr>
<th>Area C: Electives (Approved by advisor)</th>
<th>6 Semester Hours</th>
</tr>
</thead>
</table>

| Area D: Professional Field Experience | 3 Semester Hours |

| EDH 6946  | Higher Education Internship 3 hours |

## Master of Education in Educational Leadership, Curriculum and Instruction

Minimum hours required for M.Ed. 33 Semester Hours

<table>
<thead>
<tr>
<th>Area A: Core</th>
<th>18 or 21 Semester Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDF 6236</td>
<td>Principles of Instruction and Learning 3 hours</td>
</tr>
<tr>
<td>EDF 6432</td>
<td>Measurement and Evaluation in Education 3 hours</td>
</tr>
<tr>
<td>EDF 6481</td>
<td>Fundamentals of Graduate Research in Education 3 hours</td>
</tr>
<tr>
<td>EDF 6517</td>
<td>History and Philosophy of American Education 3 hours</td>
</tr>
<tr>
<td>EDG 6223</td>
<td>Curriculum Theory and Organization 3 hours</td>
</tr>
<tr>
<td>EDG 6909</td>
<td>Research Report or 2 approved electives 2,1 or 6 hours</td>
</tr>
</tbody>
</table>
EDUCATION  □  MASTER'S DEGREE PROGRAMS

Area B: Specialization
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 advisor  3 Semester Hours

Elementary Education

Application Deadlines
Fall admission  July 15
Spring admission  December 15
Summer admission  April 15

Program Coordinator: M. H. Hopkins
ED 348, Phone: (407) UCF-2939, e-mail: marthah@pegasus.cc.ucf.edu

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

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 Option:
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 6990 Research Report  2,1 hours

Area B: Specialization

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

Master of Education in Elementary Education, Primary

Minimum hours required for M.Ed.  36 Semester Hours

The purpose of this program is to prepare students to become master teachers of, or consultants for, programs in nursery school through grade three. The program includes a “professional core” of research, human development, and measurement and evaluation courses; field experiences and courses focusing on programs, creative activities, organiza-
tion 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**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDF 6155</td>
<td>Lifespan Human Development and Learning</td>
<td>3</td>
</tr>
<tr>
<td>EDF 6481</td>
<td>Fundamentals of Graduate Research in Education</td>
<td>3</td>
</tr>
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</table>

Select One Option:

**Option A - Research Project or Thesis**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDF 6401</td>
<td>Statistics for Educational Data</td>
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</tr>
<tr>
<td>EDE 6971</td>
<td>Thesis OR</td>
<td>2.1</td>
</tr>
<tr>
<td>EDE 6909</td>
<td>Research Report</td>
<td>2.1</td>
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**Option B - Non-Thesis (6 SH electives approved by advisor)**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Hours</th>
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</thead>
<tbody>
<tr>
<td>EDF 6886</td>
<td>Multicultural Education</td>
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**Area B: Specialization**

<table>
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<th>Course Code</th>
<th>Course Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>EEC 5205</td>
<td>Programs and Trends in Early Childhood Education</td>
<td>3</td>
</tr>
<tr>
<td>EEC 5206</td>
<td>Organization of Instruction in Early Childhood Education</td>
<td>3</td>
</tr>
<tr>
<td>EEC 5208</td>
<td>Creative Activities in Early Childhood</td>
<td>3</td>
</tr>
<tr>
<td>EEC 6268</td>
<td>Play Development, Intervention, and Assessment</td>
<td>3</td>
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<tr>
<td>EEC 6406</td>
<td>Guiding and Facilitating Social Competence</td>
<td>3</td>
</tr>
<tr>
<td>EEX 5750</td>
<td>Communication with Parents and Agencies</td>
<td>3</td>
</tr>
<tr>
<td>EEX 6017</td>
<td>Typical and Atypical Applied Child Development</td>
<td>3</td>
</tr>
<tr>
<td>EEX 6224</td>
<td>Observation and Assessment of Young Children</td>
<td>3</td>
</tr>
</tbody>
</table>

**Master of Education in Elementary Education, Mathematics Education**

Minimum hours required for M.Ed.: 33 Semester Hours

This is a program for elementary teachers who serve as special mathematics laboratory teachers; or as adjunct mathematics-learning disability teachers helping the regular classroom teacher in diagnosing, prescribing, and remediating the instruction of children identified as learning disabled in mathematics; or as mathematics specialists who are the curriculum resource instructional leaders in their school.

This program includes the development of competencies in diagnosing learning difficulties and error patterns in mathematics, organizing and managing laboratory experiences, using a wide variety of specific teaching techniques for all content strands in K-8 (pre-algebra) mathematics classroom individualized instruction programs. The program 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.

**Area A: Core**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDF 6481</td>
<td>Fundamentals of Graduate Research in Education</td>
<td>3</td>
</tr>
<tr>
<td>EDF 6401</td>
<td>Statistics for Educational Data OR</td>
<td>3</td>
</tr>
<tr>
<td>EDF 6432</td>
<td>Measurement and Evaluation in Education</td>
<td>3</td>
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Select One:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDF 6155</td>
<td>Lifespan Human Development and Learning</td>
<td>3</td>
</tr>
<tr>
<td>EDF 6517</td>
<td>History and Philosophy of American Education</td>
<td>3</td>
</tr>
<tr>
<td>EDF 6608</td>
<td>Social Factors in American Education</td>
<td>3</td>
</tr>
<tr>
<td>MAE 6909</td>
<td>Research Report or 2 electives</td>
<td>2,1 or 6</td>
</tr>
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</table>

**Area B: Specialization**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Hours</th>
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</thead>
<tbody>
<tr>
<td>MAE 4634</td>
<td>Programs in Teaching of Mathematics</td>
<td>3</td>
</tr>
<tr>
<td>MAE 6517</td>
<td>Diagnosis/Remediation of Difficulties in Mathematics for the Classroom Teacher</td>
<td>3</td>
</tr>
<tr>
<td>MAE 6899</td>
<td>Seminar in Teaching Mathematics</td>
<td>3</td>
</tr>
<tr>
<td>MAE 6946</td>
<td>Practicum</td>
<td>3</td>
</tr>
</tbody>
</table>
Area C: Electives (Approved by advisor)  9 Semester Hours
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

This program is not approved for automatic certification by the state of Florida. To be certified as an elementary mathematics specialist, a person must have a minimum of 18 semester hours in mathematics.

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 SH 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 5147  Developmental Reading  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
# English Language Arts Education

## Application Deadlines
- **Fall admission:** July 15
- **Spring admission:** December 15
- **Summer admission:** April 15

## Program Coordinator
- J. S. Allen
- ED 353, Phone: (407) UCF-6125, e-mail: allenj@pegasus.cc.ucf.edu

## Master of Education in English Language Arts Education

### Minimum hours required for M.Ed. 33 Semester Hours

This program is designed to meet the advanced knowledge and skill needs of the English classroom teacher.

### Area A: Core

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDF 6401</td>
<td>Statistics for Educational Data OR</td>
</tr>
<tr>
<td>EDF 6432</td>
<td>Measurement and Evaluation in Education</td>
</tr>
<tr>
<td>EDF 6481</td>
<td>Fundamentals of Graduate Research in Education</td>
</tr>
<tr>
<td>Choose one:</td>
<td></td>
</tr>
<tr>
<td>EDF 6155</td>
<td>Lifespan Human Development and Learning</td>
</tr>
<tr>
<td>EDF 6517</td>
<td>History and Philosophy of American Education</td>
</tr>
<tr>
<td>EDF 6608</td>
<td>Social Factors in American Education</td>
</tr>
<tr>
<td>ESE 6909</td>
<td>Research Report or 2 approved electives</td>
</tr>
</tbody>
</table>

### Area B: Specialization 21 Semester Hours

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>LAE 5295</td>
<td>Writing Workshop I</td>
</tr>
<tr>
<td>LAE 5495</td>
<td>Assessing Writing</td>
</tr>
<tr>
<td>LAE 6467</td>
<td>Studies in Adolescent Literature</td>
</tr>
<tr>
<td>LAE 6637</td>
<td>Research in Teaching English</td>
</tr>
<tr>
<td>LAE 6792</td>
<td>CFWP Teacher/Researcher</td>
</tr>
<tr>
<td>RED 6337</td>
<td>Reading in the Secondary School</td>
</tr>
<tr>
<td>Elective (Approved by advisor)</td>
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</tr>
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</table>

## 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

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
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</thead>
<tbody>
<tr>
<td>EDF 6155</td>
<td>Lifespan Human Development and Learning</td>
</tr>
<tr>
<td>EDF 6236</td>
<td>Principles of Instruction and Learning</td>
</tr>
<tr>
<td>EDF 6481</td>
<td>Fundamentals of Graduate Research in Education</td>
</tr>
<tr>
<td>EDF 6517</td>
<td>History and Philosophy of American Education</td>
</tr>
<tr>
<td>EDG 6253</td>
<td>Curriculum Inquiry</td>
</tr>
<tr>
<td>ESE 6909</td>
<td>Research Report or 2 approved electives</td>
</tr>
</tbody>
</table>

### Area B: Specialization (Approved by advisor) 15 or 18 Semester Hours

<table>
<thead>
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<th>Course</th>
<th>Title</th>
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</thead>
<tbody>
<tr>
<td>LAE 5295</td>
<td>Writing Workshop I</td>
</tr>
<tr>
<td>LAE 6467</td>
<td>Studies in Adolescent Literature</td>
</tr>
<tr>
<td>LAE 6637</td>
<td>Research in Teaching English</td>
</tr>
<tr>
<td>LAE 6792</td>
<td>CFWP Teacher/Researcher</td>
</tr>
<tr>
<td>Elective (Approved by advisor)</td>
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</table>

### Area C: Internship 9 Semester Hours

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
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</thead>
<tbody>
<tr>
<td>LAE 6946</td>
<td>Graduate Internship</td>
</tr>
<tr>
<td>LAE 6946</td>
<td>Graduate Internship</td>
</tr>
</tbody>
</table>
EDUCATION  □  MASTER'S DEGREE PROGRAMS

Corequisites:
- LAE 4360  English Instructional Analysis  4 hours

Students must have required English course work to meet the 30-semester-hour rule. 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 advisor if courses are difficult to schedule in content areas.

Exceptional Student Education: Varying Exceptionalities

<table>
<thead>
<tr>
<th>Application Deadlines</th>
<th>Program Coordinator</th>
<th>M. Lue</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fall admission</td>
<td>ED 305, Phone: (407) UCF-2036, e-mail: <a href="mailto:mbell@pegasus.cc.ucf.edu">mbell@pegasus.cc.ucf.edu</a></td>
<td></td>
</tr>
<tr>
<td>Spring admission</td>
<td></td>
<td></td>
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<tr>
<td>Summer admission</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Master of Education in Exceptional Student Education: Varying Exceptionalities

Minimum hours required for M.Ed. 33 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.

<table>
<thead>
<tr>
<th>Area A: Core</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>EDF 6432  Measurement and Evaluation in Education</td>
<td>3 hours</td>
<td></td>
</tr>
<tr>
<td>EDF 6481  Fundamentals of Graduate Research in Education</td>
<td>3 hours</td>
<td></td>
</tr>
<tr>
<td>EEX 6971  Thesis or 2 approved electives*</td>
<td>2,1 or 6 hours</td>
<td></td>
</tr>
</tbody>
</table>

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 6226  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 Teaching Practicum with Exceptional Children or Elective (Approved by Advisor) | 3 hours           |

* Suggested electives include ELD 6248, EMR 6362, EED 6226, courses in Pre-K Exceptional Education, Gifted Education, or Elementary Education.

Master of Arts in Exceptional Student Education: Varying Exceptionalities

Minimum hours required for M.A. 36 Semester Hours

In addition to these 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, Special Learning Disabilities (SLD), Mental Health (MH), and Emotionally Handicapped (EH). Graduates must be certifiable by the completion of the degree program. This program is for non-education majors or previously certified teachers in another field.

<table>
<thead>
<tr>
<th>Area A: Core</th>
<th></th>
<th></th>
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</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>EDF 6432  Measurement and Evaluation in Education</td>
<td>3 hours</td>
<td></td>
</tr>
<tr>
<td>EDF 6481  Fundamentals of Graduate Research in Education</td>
<td>3 hours</td>
<td></td>
</tr>
<tr>
<td>EEX 6909  Research Report or 2 approved electives</td>
<td>2,1 or 6 hours</td>
<td></td>
</tr>
</tbody>
</table>
Area B: Specialization

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 6946 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 and Learning  3 hours
EDF 6236 Principles in Instruction 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
MAE 5318 Current Methods in Elementary School Mathematics  3 hours
RED 5147 Developmental Reading  3 hours

Prerequisite:
EEX 5051 Exceptional Children in the Schools  3 hours

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

Program Coordinator .......................................................... J. R. Lee
ED 308, Phone: (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 15
Summer admission April 15

Admission to Educational Media Program
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. Included in this packet will be: (1) an application for admission into the Educational Media 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 (ED318). 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

**Program Coordinator**

G. Gunter  
ED 313, Phone: (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 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

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Hours</th>
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</thead>
<tbody>
<tr>
<td>EDF 6155</td>
<td>Lifespan Human Development and Learning</td>
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</tr>
<tr>
<td>EDF 6481</td>
<td>Fundamentals of Graduate Research in Education</td>
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</tr>
<tr>
<td>EDF 6401</td>
<td>Statistics for Educational Data OR</td>
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</tr>
<tr>
<td>EDF 6432</td>
<td>Measurement and Evaluation in Education</td>
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### Option A - Research Report

<table>
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<th>Hours</th>
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<tbody>
<tr>
<td>EME 6909</td>
<td>Research Report</td>
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### Option B - Non-Thesis Option

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<tbody>
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<td>EME 6062</td>
<td>Research in Instructional Technology</td>
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<td></td>
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</table>

### Area B: Specialization

24 Semester Hours

<table>
<thead>
<tr>
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<th>Course Title</th>
<th>Hours</th>
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<tbody>
<tr>
<td>EME 5051</td>
<td>Technologies of Instruction and Information Management</td>
<td>3</td>
</tr>
<tr>
<td>EME 5208</td>
<td>Production Techniques for Instructional Settings</td>
<td>3</td>
</tr>
<tr>
<td>EME 5225</td>
<td>Media for Children and Young Adults</td>
<td>3</td>
</tr>
<tr>
<td>EME 6105</td>
<td>Collection Development Policies and Procedures</td>
<td>3</td>
</tr>
<tr>
<td>EME 6608</td>
<td>Role of the Media Specialist in Curriculum and Instruction</td>
<td>3</td>
</tr>
<tr>
<td>EME 6706</td>
<td>Administrative Principles in Media Centers</td>
<td>3</td>
</tr>
<tr>
<td>EME 6805</td>
<td>Organization of Media and Information</td>
<td>3</td>
</tr>
<tr>
<td>EME 6807</td>
<td>Information Sources and Services</td>
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### Area C: Elective

3 Semester Hours

<table>
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<tr>
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<th>Course Title</th>
<th>Hours</th>
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<tbody>
<tr>
<td>EME 6209</td>
<td>Multimedia Instructional Systems II</td>
<td>3</td>
</tr>
<tr>
<td>EME 6058</td>
<td>Current Trends in Educational Media</td>
<td>3</td>
</tr>
<tr>
<td>EME 5408</td>
<td>Computer Applications in Instructional Technology</td>
<td>3</td>
</tr>
<tr>
<td>LAE 4464</td>
<td>Survey of Literature for Adolescents</td>
<td>3</td>
</tr>
<tr>
<td>LAE 5415</td>
<td>Children's Literature in Elementary Education</td>
<td>3</td>
</tr>
<tr>
<td>EME</td>
<td>Elective</td>
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</table>

### Area D: Internship

<table>
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<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>EME 6946</td>
<td>Graduate Internship (Required if no media center experience)</td>
<td>3</td>
</tr>
</tbody>
</table>
Application Deadlines
Fall admission July 15
Spring admission December 15
Summer admission April 15

Area A: Core
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
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
Electives in current certification area or other as approved by advisor 3 hours
Elective 3 hours

Area D: Practicum
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 OR 3 hours
EDF 6608 Social Factors in American Education OR 3 hours
EDF 6886 Multicultural Education 3 hours

Master of Arts in
Instructional Technology, Instructional Systems

Program Coordinator R. Cornell
ED 320, Phone: (407) UCF-5179, e-mail: cornell@pegasus.cc.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.

Area A: Core
EDF 6481 Fundamentals of Graduate Research in Education 3 hours

Select One Option:
Option A
EME 6909 Research Report 2.1 hours

Option B
Option C
EME 6062 Research in Instructional Technology 3 hours

Elective approved by advisor 3 hours

Area B: Specialization
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
EME 6313 Media Systems Design 3 hours
EME 6613 Instructional System Design 3 hours
EME 6705 Administration of Instructional Systems 3 hours
EME 6946 Graduate Internship in Instructional Systems OR 3 hours
COE 6946 Cooperative Education

Area C: Elective
(Courses not listed below require advisor approval)
EIN 5255 Interactive Engineering 3 hours
EME 6053 Current Trends in Instructional Technology 3 hours
EME 6208 Multimedia Instructional Systems I 3 hours
EME 6209 Multimedia Instructional Systems II 3 hours
INP 6317 Organizational Psychology and Motivation 3 hours

Lockheed Martin/UCF Academy for Mathematics and Science

Program Coordinator .......................................................... J. A. Johnson
ED 146, Phone: (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 a limited access program 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 15 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

Application Deadlines
Fall admission July 15
Spring admission December 15
Summer admission April 15

Program Coordinator .......................................................... D. K. Brumbaugh
ED 195, Phone: (407) UCF-2045, e-mail: brumbad@pegasus.cc.ucf.edu

Master of Education in Mathematics Education

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
EDF 6481 Fundamentals of Graduate Research in Education 3 hours
Select One:
EDF 6401 Statistics for Educational Data OR 3 hours
EDF 6432 Measurement and Evaluation in Education 3 hours
Select One:
EDF 6155 Lifespan Human Development and Learning OR 3 hours
EDF 6517 History and Philosophy of American Education OR 3 hours
EDF 6608 Social Factors in American Education 3 hours
MAE 6909 Research Report or 2 approved electives 2, 1 or 6 hours

Area B: Specialization (Approved by advisor) 6 Semester Hours

Area C: Curriculum Core (Approved by advisor) 15 Semester Hours
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
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 6181 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 2,1 or 6 hours

Area B: Specialization (Electives approved by advisor) 12 Semester Hours
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 must have required mathematics course work to meet the 30-semester-hour rule. 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 advisor if courses are difficult to schedule in content areas.

Music Education

Application Deadlines
Fall admission July 15
Spring admission December 15
Summer admission April 15

Program Coordinator .................................................. C. Scott-Kassner
ED 359, Phone: (407) UCF-6493, e-mail: kassner@pegasus.cc.ucf.edu

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 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 OR
EDF 6517 History and Philosophy of American Education OR
EDF 6603 Social Factors in American Education 3 hours
MUE 6909 Research Report 2,1 hours

Area B: Specialization (Approved by advisor) 12 Semester Hours
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 6946 Directed Elective 3 hours

* 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.
Other Requirements - A placement examination in music history, music theory, and sight singing (or completion of equivalent courses).

<table>
<thead>
<tr>
<th>Course</th>
<th>Description</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>MUH 4218</td>
<td>Review of Music History</td>
<td>1 hour</td>
</tr>
<tr>
<td>MUT 4031</td>
<td>Review of Music Theory</td>
<td>1 hour</td>
</tr>
<tr>
<td>MUT 4275</td>
<td>Review of Sightsinging and Ear Training</td>
<td>2 hours</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDF 6155</td>
<td>Lifespan Human Development and Learning</td>
<td>3 hours</td>
</tr>
<tr>
<td>EDF 6236</td>
<td>Principles of Instruction and Learning</td>
<td>3 hours</td>
</tr>
<tr>
<td>EDF 6481</td>
<td>Fundamentals of Graduate Research in Education</td>
<td>3 hours</td>
</tr>
</tbody>
</table>

Select One:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDF 6517</td>
<td>History and Philosophy of American Education OR</td>
<td>3 hours</td>
</tr>
<tr>
<td>EDF 6608</td>
<td>Social Factors in American Education OR</td>
<td>3 hours</td>
</tr>
<tr>
<td>EDF 6886</td>
<td>Multicultural Education</td>
<td>3 hours</td>
</tr>
</tbody>
</table>

MUE 6909  Research Report or 2 approved electives  2,1 or 6 hours

Area B: Specialization (Approved by advisor)  12 Semester Hours

* 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

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>MUE 6946</td>
<td>Graduate Internship (or equivalent)</td>
<td>3 hours</td>
</tr>
<tr>
<td>MUE 6946</td>
<td>Graduate Internship</td>
<td>6 hours</td>
</tr>
</tbody>
</table>

Corequisites - Music specialization requirements must be met by either a B.A. in Music or additional course work to be determined by advisor.

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDF 6432</td>
<td>Measurement and Evaluation in Education</td>
<td>3 hours</td>
</tr>
<tr>
<td>MUE 4360</td>
<td>Secondary School Music Instructional Analysis</td>
<td>2 hours</td>
</tr>
</tbody>
</table>

Other Requirements - A placement examination in music history, music theory, and sight singing (or completion of equivalent courses).

<table>
<thead>
<tr>
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<td>Review of Music Theory</td>
<td>1 hour</td>
</tr>
<tr>
<td>MUT 4275</td>
<td>Review of Sightsinging and Ear Training OR</td>
<td>2 hours</td>
</tr>
</tbody>
</table>

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 advisor if courses are difficult to schedule in content areas.
Physical Education

Application Deadlines
Fall admission July 15
Spring admission December 15
Summer admission April 15

Program Coordinator .............................................................. G. R. Gergley
ED 151, Phone: (407) UCF-2034, e-mail: gergley@pegasus.cc.ucf.edu

Master of Arts in
Physical Education, Exercise Physiology/Wellness Track

Minimum hours required for M.A. 39 Semester Hours
Area A: Core
EDF 6481 Fundamentals of Graduate Research in Education 3 hours
*PET 6910 Problem Analysis—Review of Literature 3 hours
*PET 6946 Practicum, Clinical Practice 3/3 hours

* Can be taken only after 2/3 of program is completed.
NOTE: Credit in human anatomy is a prerequisite or corequisite for many PET courses. Consult with an advisor.

Area B: Specialization (Approved by advisor) 27 Semester Hours
Research Report Option 3/6 Semester Hours
PET 6909 Research Report or 2 approved electives 2, 1 or 6 hours
(In consultation with the advisor, the student who writes a research report may choose to take 27 hours in the specialization area.)

Reading Education

Application Deadlines
Fall admission July 15
Spring admission December 15
Summer admission April 15

Program Coordinator .............................................................. A. R. Joels
ED 351, Phone: (407) UCF-2008, e-mail: ajoels@pegasus.cc.ucf.edu

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 One Option:
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
(Electives pre-approved by advisor) 6 Semester Hours
EDUCATION  □  MASTER'S DEGREE PROGRAMS

Area B: Specialization

Science Education

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>RED 6116</td>
<td>Trends in Reading Education</td>
<td>3</td>
</tr>
<tr>
<td>RED 6336</td>
<td>Reading in the Content Areas</td>
<td>3</td>
</tr>
<tr>
<td>RED 6337</td>
<td>Reading in the Secondary School (PR: RED 6336)</td>
<td>3</td>
</tr>
<tr>
<td>RED 6746</td>
<td>Management of Reading Programs</td>
<td>3</td>
</tr>
<tr>
<td>RED 6845</td>
<td>Advanced Evaluation and Instruction in Reading</td>
<td>3</td>
</tr>
<tr>
<td>RED 6846</td>
<td>Reading Practicum (PR: RED 6845)</td>
<td>6</td>
</tr>
</tbody>
</table>

Prerequisites: Prescribed by College of Education to meet state certification requirements or as support for degree program.

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Hours</th>
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<tbody>
<tr>
<td>RED 5147</td>
<td>Developmental Reading OR</td>
<td>3</td>
</tr>
<tr>
<td>RED 3012</td>
<td>Basic Foundations of Reading</td>
<td>3</td>
</tr>
<tr>
<td>RED 5514</td>
<td>Classroom Diagnosis and Development of Reading Proficiencies OR</td>
<td>3</td>
</tr>
<tr>
<td>RED 4519</td>
<td>Diagnostic and Corrective Reading Strategies</td>
<td>3</td>
</tr>
<tr>
<td>LAE 3414</td>
<td>Literature for Children OR</td>
<td>3</td>
</tr>
<tr>
<td>LAE 5415</td>
<td>Children's Literature in Elementary Education OR</td>
<td>3</td>
</tr>
<tr>
<td>LAE 4464</td>
<td>Survey of Literature for Adolescents</td>
<td>3</td>
</tr>
<tr>
<td>LAE 4314</td>
<td>Language Arts in Elementary School OR</td>
<td>3</td>
</tr>
<tr>
<td>LAE 4342</td>
<td>Teaching Language and Composition</td>
<td>3</td>
</tr>
</tbody>
</table>

Program Coordinator ................................................................. J. A. Johnson
ED 146, Phone: (407) UCF-2950, e-mail: jjohnson@pegasus.cc.ucf.edu

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.

<table>
<thead>
<tr>
<th>Area A: Core</th>
<th>Title</th>
<th>Hours</th>
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<tbody>
<tr>
<td>EDF 6401</td>
<td>Statistics for Educational Data OR</td>
<td>3</td>
</tr>
<tr>
<td>EDF 6432</td>
<td>Measurement and Evaluation in Education</td>
<td>3</td>
</tr>
<tr>
<td>EDF 6481</td>
<td>Fundamentals of Graduate Research in Education</td>
<td>3</td>
</tr>
</tbody>
</table>

Select One:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDF 6155</td>
<td>Lifespan Human Development and Learning</td>
<td>3</td>
</tr>
<tr>
<td>EDF 6517</td>
<td>History and Philosophy of American Education</td>
<td>3</td>
</tr>
<tr>
<td>EDF 6608</td>
<td>Social Factors in American Education</td>
<td>3</td>
</tr>
</tbody>
</table>

ESE 6909 Research Report or 2 approved electives 2, or 6 hours

<table>
<thead>
<tr>
<th>Area B: Specialization (Approved by advisor)</th>
<th>Title</th>
<th>Hours</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Area C: Curriculum (Approved by advisor)</th>
<th>Title</th>
<th>Hours</th>
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</thead>
<tbody>
<tr>
<td>SCE 6238</td>
<td>Inquiry in the Sciences</td>
<td>3</td>
</tr>
</tbody>
</table>

Master of Arts in Science Education, Biology

Minimum hours required for M.A.  39 Semester Hours

Program for non-education majors, or previously certified teachers in another field.

<table>
<thead>
<tr>
<th>Area A: Core</th>
<th>Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDF 6155</td>
<td>Lifespan Human Development and Learning</td>
<td>3</td>
</tr>
<tr>
<td>EDF 6236</td>
<td>Principles of Instruction and Learning</td>
<td>3</td>
</tr>
<tr>
<td>EDF 6481</td>
<td>Fundamentals of Graduate Research in Education</td>
<td>3</td>
</tr>
<tr>
<td>EDF 6517</td>
<td>History and Philosophy of American Education</td>
<td>3</td>
</tr>
<tr>
<td>EDG 6253</td>
<td>Curriculum Inquiry</td>
<td>3</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Area B: Specialization (Approved by advisor)</th>
<th>Title</th>
<th>Hours</th>
</tr>
</thead>
</table>

176
Select One Option:
Option A - Research Report
ESE 6909 Research Report 2.1 hours
Option B - Non-Thesis
PCB 5045C Conservation Biology 4 hours
PCB 6675C Evolutionary Biology 4 hours
Area B: Specialization (Approved by advisor) 12 Semester Hours
5000- or 6000-level biology courses approved by advisor* 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.

Master of Arts in Science Education, Chemistry

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
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
ESE 6909 Research Report 2.1 hours
Option B - Non-Thesis
(Chemistry 5000- or 6000-level courses; may include 3 hours of 4000-level; approved by advisor)
Area B: Specialization (Approved by advisor) 12 Semester Hours
5000- or 6000-level chemistry approved by advisor* 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 SH in chemistry including Technology or History of Science.
SCE 4360 Science Instructional Analysis 4 hours
* Only six hours of independent study.

Master of Arts in Science Education, Physics

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
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
ESE 6909 Research Report 2.1 hours
Option B - Non-Thesis (3 SH in 5000- or 6000-level physics approved by advisor)
PHY 5015C Physics for Teachers II 3 hours

Area B: Specialization
5000- or 6000-level physics approved by advisor* 9 hours
SCE 6238 Inquiry in the Sciences 3 hours

Area C: Internship
SCE 6946 Graduate Internship 3 hours

Corequisites: Students must have B.S. degree in Physics or B.S. degree with 30 hours in Physics including Technology or History of Science.
SCE 4360 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.

Social Science Education

<table>
<thead>
<tr>
<th>Application Deadlines</th>
<th>Minimum hours required for M.Ed.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fall admission</td>
<td>33 Semester Hours</td>
</tr>
<tr>
<td>Spring admission</td>
<td></td>
</tr>
<tr>
<td>Summer admission</td>
<td></td>
</tr>
</tbody>
</table>

This program is designed to meet advanced knowledge and skill needs of the social science classroom teacher.

Area A: Core
EDF 6401 Statistics for Educational Data OR 3 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
ESE 6909 Research Report or 2 approved electives 2.1 or 6 hours

Area B: Specialization (Electives approved by advisor)

Area C: Curriculum
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 advisor 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  2,1 or 6 hours

Area B: Specialization (Electives approved by advisor)*  12/15 Semester 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 must meet required courses for 30 hour rule in Social Science.
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

Application Deadlines
Fall admission  July 15
Spring admission  December 15
Summer admission  April 15

Program Coordinator .................................................. L. R. Hudson
ED 346, Phone: (407) UCF-2848, e-mail: lhudson@pegasus.cc.ucf.edu

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  2,1 hours
EVT 6946 Graduate Internship or Electives (approved by advisor)  6 hours
Area B: Vocational Education Core

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Hours</th>
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<tbody>
<tr>
<td>EVT 5561</td>
<td>Student Guidance in the Vocational Program</td>
<td>3</td>
</tr>
<tr>
<td>EVT 5817</td>
<td>Management of Vocational Programs</td>
<td>3</td>
</tr>
<tr>
<td>EVT 6267</td>
<td>Vocational Program Planning, Development, and Evaluation</td>
<td>3</td>
</tr>
</tbody>
</table>

Area C: Specialization (Selected with approval of advisor)

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.

<table>
<thead>
<tr>
<th>Area A: Core</th>
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<tbody>
<tr>
<td>EDF 6432</td>
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<td>3</td>
</tr>
<tr>
<td>EDF 6481</td>
<td>Fundamentals of Graduate Research in Education</td>
<td>3</td>
</tr>
<tr>
<td>Select One:</td>
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</tr>
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<td>Lifespan Human Development and Learning</td>
<td>3</td>
</tr>
<tr>
<td>EDF 6236</td>
<td>Principles of Instruction and Learning</td>
<td>3</td>
</tr>
<tr>
<td>EDF 6517</td>
<td>History and Philosophy of American Education</td>
<td>3</td>
</tr>
<tr>
<td>EDF 6608</td>
<td>Social Factors in American Education</td>
<td>3</td>
</tr>
<tr>
<td>EDF 6886</td>
<td>Multicultural Education</td>
<td>3</td>
</tr>
<tr>
<td>Select One Option:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>EVT 6946</td>
<td>Graduate Internship</td>
<td>6</td>
</tr>
<tr>
<td>EVT 6909</td>
<td>Research Report</td>
<td>2,1</td>
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</tbody>
</table>

Area B: Vocational Education Core

<table>
<thead>
<tr>
<th>Course</th>
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<td>EVT 5817</td>
<td>Management of Vocational Programs</td>
<td>3</td>
</tr>
<tr>
<td>EVT 6267</td>
<td>Vocational Program Planning, Development, and Evaluation</td>
<td>3</td>
</tr>
</tbody>
</table>

Area C: Specialization (Selected with approval of advisor)

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:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>EVT 3365</td>
<td>General Methods/Testing Evaluation in Vocational Education</td>
<td>4</td>
</tr>
<tr>
<td>EVT 3502</td>
<td>Special Needs of Vocational Students</td>
<td>4</td>
</tr>
<tr>
<td>EVT 4065</td>
<td>Principles and Practices of Vocational Education</td>
<td>4</td>
</tr>
<tr>
<td>Select One:</td>
<td></td>
<td></td>
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<tr>
<td>EVT 3312</td>
<td>Course Construction in Health Occupations Education</td>
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<tr>
<td>EVT 3371</td>
<td>Course Construction in Industrial Education</td>
<td>4</td>
</tr>
<tr>
<td>BTE 4410</td>
<td>Course Construction in Business Education</td>
<td>4</td>
</tr>
</tbody>
</table>

A track is available for this program in Extended Content and requires 18 hours of graduate-level content in this program.
Specialist Degree Programs in Education

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
- Other criteria as required by the respective degree program area AND
- A recommendation from the respective advanced graduate program admission committee.

NOTE: Those applicants who do not meet the admission criteria may appeal to the respective program admission committee for consideration. A second GRE score is required, and at least one of the scores must exceed 900 for review by these committees.

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 program coordinators and the specialization advisors 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 post-baccalaureate. Students who are reverted to post-baccalaureate 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.
EDUCATION □ SPECIALIST DEGREE PROGRAMS

Curriculum/Instruction and Educational Leadership

Program Coordinator, Curriculum and Instruction ............................................ M. L. Kysilka
ED 355, Phone: (407) UCF-2011, e-mail: kysilka@pegasus.cc.ucf.edu

Program Coordinator, Educational Leadership .................................................... M. A. Lynn
RP 215, Phone: (407) 384-2193, e-mail: malynn@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.

Admission to an Education Specialist Degree Program is separate from admission to the Doctoral Program. Upon completion of the Specialist Degree, the candidate may apply for admission to the Ed.D. degree program.

Degree Requirements
- Complete a minimum of 36 semester hours beyond the master's degree including the selected program requirements.
- Have an overall 3.0 GPA on all graduate work attempted.
- The completed planned program must include a minimum of 12 graduate-level hours in the specialization area AND a minimum of 6 graduate-level hours in Research/Statistics.
- 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

Program Coordinator ............................................ D. Mealor
ED 308, Phone: (407) UCF-2465, e-mail: mealor@pegasus.cc.ucf.edu

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), psycho-educational 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 undergraduate GPA of 3.0 (on a 4.0 scale) for the last 60 attempted semester hours
- Attain a GRE score of 1,000 (verbal and quantitative scores combined)
- 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 Salado (407) 823-2054.

Area A: Core

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Hours</th>
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</thead>
<tbody>
<tr>
<td>EDF 6155</td>
<td>Lifespan Human Development and Learning</td>
<td>3</td>
</tr>
<tr>
<td>EDF 6236</td>
<td>Principles of Instruction and Learning</td>
<td>3</td>
</tr>
<tr>
<td>EDF 6401</td>
<td>Statistics for Educational Data</td>
<td>3</td>
</tr>
<tr>
<td>EDF 6481</td>
<td>Fundamentals of Graduate Research in Education</td>
<td>3</td>
</tr>
<tr>
<td>EEX 5051</td>
<td>Exceptional Children in the Schools</td>
<td>3</td>
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15 Semester Hours

Area B: Specialization

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<th>Course Code</th>
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<tr>
<td>MHS 6400</td>
<td>Theories of Counseling and Personality</td>
<td>3</td>
</tr>
<tr>
<td>MHS 6401</td>
<td>Techniques of Counseling</td>
<td>3</td>
</tr>
<tr>
<td>MHS 6500</td>
<td>Group Procedures and Theories in Counseling</td>
<td>3</td>
</tr>
<tr>
<td>SPS 6125</td>
<td>Infant Development Assessment</td>
<td>3</td>
</tr>
<tr>
<td>SPS 6175</td>
<td>Cultural Diversity and Nonbiased Assessment</td>
<td>3</td>
</tr>
<tr>
<td>SPS 6191</td>
<td>Individual Psychoeducational Diagnosis I</td>
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<tr>
<td>SPS 6192</td>
<td>Individual Psychoeducational Diagnosis II</td>
<td>4</td>
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<tr>
<td>SPS 6194</td>
<td>Assessment of Special Needs</td>
<td>3</td>
</tr>
<tr>
<td>SPS 6206</td>
<td>Psychoeducational Interventions</td>
<td>3</td>
</tr>
<tr>
<td>SPS 6225</td>
<td>Behavioral and Observational Analysis of Classroom</td>
<td>3</td>
</tr>
<tr>
<td>SPS 6601</td>
<td>Introduction to Psychological Services in Schools</td>
<td>3</td>
</tr>
<tr>
<td>SPS 6606</td>
<td>School Consultation Techniques</td>
<td>3</td>
</tr>
<tr>
<td>SPS 6608</td>
<td>Seminar in School Psychology</td>
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<tr>
<td>SPS 6909</td>
<td>Research Report I and II</td>
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<td>SPS 6931</td>
<td>Ethical and Legal Issues in School Psychological Services</td>
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<td>SPS 6948</td>
<td>Practicum in School Psychology I</td>
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<tr>
<td>SPS 6948</td>
<td>Practicum in School Psychology II</td>
<td>3</td>
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<tr>
<td>SPS 6949</td>
<td>School Psychology Internship</td>
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68 Semester Hours

Total Minimum Semester Hours Required

83 Semester Hours

Pre- or Corequisites: (DOE Certification)

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<tr>
<th>Course Code</th>
<th>Course Title</th>
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<tr>
<td>EDA 6061</td>
<td>Organization and Administration of Schools</td>
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<tr>
<td>EDF 6517</td>
<td>History and Philosophy of American Education OR</td>
<td>3</td>
</tr>
<tr>
<td>EDF 6608</td>
<td>Social Factors in American Education</td>
<td>3</td>
</tr>
</tbody>
</table>

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Doctoral Degree Programs in Education

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 course work 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 semesters 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

Additionally, applicants for the doctoral degrees in the College of Education must

- Have completed at least three years of full-time teaching or comparable experience; and
- 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. Admittance in one doctoral program does not guarantee admittance 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 advisor and 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.
Curriculum and Instruction

Doctor of Philosophy, Curriculum and Instruction

Ph.D. Program Coordinator ....................................................... M. C. Hynes
ED 146, Phone: (407) UCF-6076, e-mail: hynes@pegasus.cc.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
  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 EDF 7232, EDG 7221, and EDG 7356.

- Research and Data Analysis
  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
  Minimum 54 semester hours
  Advanced graduate proficiency in a recognized area of specialization. Credit must be earned in each of the following areas:
  - Internship 3 semester hours minimum
  - Cognate 9 semester hours minimum
  - Specialization 42 semester hours minimum (includes selected courses in Curriculum, Instruction, Foundations, and Educational Leadership)

To enter candidacy for the Ph.D., each student must have an overall 3.0 GPA on all graduate work included in the planned program and pass all required examinations.

Candidy 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 Specilization 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. Program Coordinator ..................................................... M. L. Kysilka
ED 355, Phone: (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.

Degree Requirements

- Prerequisites
  (EDG 6223, EDF 6481, EDF 6401, or equivalent) 9 semester hours

- Curriculum/Instruction Core
  All core courses and the core examination must be completed in the first six semesters of enrollment in the doctoral program.
  (EDF 7232, EDG 7221, EDG 7356, EDG 7692)

- Specialization Area
  Minimum 45 semester hours
  (includes selected courses in Curriculum, Instruction, Foundations, Educational Leadership, and Community College)
DOCTORAL DEGREE PROGRAMS

- Research and Data Analysis (EDF 7403, EDF 7463) 6 semester hours
- To enter candidacy for the Ed.D., each student must have an overall 3.0 GPA on all graduate work included in the planned program and pass all required examinations.
- Dissertation Minimum 21 semester hours
- 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 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.

Educational Leadership

Doctor of Education, Educational Leadership

Program Coordinator ................................................................. M. A. Lynn
RP 215, Phone: (407) 384-2193, e-mail: malynn@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 located on the Educational Leadership web page at http://pegasus.cc.ucf.edu/~educlead/content.html.

Degree Requirements
- Prerequisite Courses (as necessary)
- Educational Leadership Core Courses 16 semester hours
- Cognate Courses Minimum 6 semester hours
- Area of Specialization Minimum 15 semester hours
- Research and Data Analysis Minimum 12 semester hours
- Dissertation Minimum 21 semester hours
- Pass all examinations and successfully defend dissertation.
- Have an overall 3.0 GPA on all graduate work attempted.

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 Educational Leadership Ed.D. candidates will be required to write examinations in three areas; these are:
  - General Educational Leadership 5-hour examination
  - Area of Specialization 3-hour examination
  - Research/Data Analysis 3-hour examination
- Students must be enrolled in the university during the semester an examination is taken.

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.
Students interact in the first-floor lobby of the Engineering building between classes. The College of Engineering maintains modern research facilities that provide laboratories for CAD/CAM, robotics, microelectronics, light wave research, laser and optics laboratories, mechanics, combustion, environmental engineering, and other related research.
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
J. A. Sepúlveda, Ph.D., P.E ........................................................ Director of Graduate Affairs

Programs in Engineering

Department of Civil and Environmental Engineering (CEE)
Civil Engineering
Environmental Engineering
Environmental Engineering Sciences
Structures and Foundations
Transportation Systems Engineering
Water Resources Engineering

Department of Electrical and Computer Engineering (ECE)
Computer Architecture
Communications
Computer Engineering
Controls
Digital Signal Processing
Digital Systems
Electrical Engineering
Electromagnetics
Electronics
Electro-Optics
Knowledge-based Systems
Microelectronics
Optical Science and Engineering
Software Engineering

Department of Industrial Engineering and Management Systems (IEMS)
Engineering Management
Human Engineering/Ergonomics
Industrial Engineering
Manufacturing Systems
Operations Research
Precision Engineering and Manufacturing
Product Assurance Engineering
Simulation Modeling and Analysis
Interactive Simulation and Training Systems

Department of Mechanical, Materials, and Aerospace Engineering (MMAE)
Aerospace Systems
Materials Science and Engineering
Mechanical Systems
Thermo-Fluids
Mechanical Engineering

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 departmental program coordinators in making admissions decisions.
**College Degree Requirements**

**Application Deadlines**
- Fall admission: July 15
- Spring admission: December 15
- Summer admission: April 15

**Optical Science and Engineering**
- Fall admission (priority): February 1*

*Students applying for fellowships or assistantships must apply for the fall semester by the priority date.

**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 550 on the TOEFL test.

**Doctoral Programs Admission Requirements**
- Each applicant is expected to have a master's degree in engineering (or related discipline) awarded by a recognized institution and meet the departmental admission requirements. The applicant must successfully complete a Ph.D. Qualifying Examination conducted by the department. A student is normally given only one opportunity to pass the examination, but a second attempt may be approved by the department. The examination is normally taken within the first year of study beyond the master's degree.
- On the decision of the department's graduate admissions committee, selected outstanding applicants may be considered for direct entrance to the doctoral program from the bachelor's degree. Students selected for this must meet and exceed all master's program admission requirements. These applicants must successfully complete the Ph.D. Qualifying Examination by the term in which they complete the thirtieth hour of graduate course work.

In addition to meeting the minimum University criteria (see University Graduate Regulations), each degree candidate must also satisfy college and department degree requirements. Specific department requirements are listed in respective departmental sections.

**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 6000-level courses.
- A maximum of 9 semester hours of graduate credit may be transferred into the program from UCF post-baccalaureate 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 Research and Graduate Studies reserves the right to review appointments to advisory committees, place a representative on any advisory committee, or appoint a co-advisor.
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) and one must be from outside the College of Engineering. 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 Research and Graduate Studies reserves the right to review appointments to advisory committees, place a representative on any advisory committee, or appoint a co-advisor.
- 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 dissertation proposal and the final dissertation. The dissertation proposal and final dissertation must be approved by a majority of the advisory committee.

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 post-baccalaureate 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 Department

Roger L. Wayson ......................................................... Program Coordinator
Office: ENGR 208, Phone: (407) 823-2841, e-mail: wayson@pegasus.cc.ucf.edu

C. D. Cooper, Ph.D., P.E. .................................................. Professor
J. P. Hartman, Ph.D., P.E. .................................................. Professor
S. S. Kuo, Ph.D., P.E. ....................................................... Professor
A. E. Radwan Ph.D., P.E. .................................................. Chair and Professor
J. S. Taylor, Ph.D., P.E. ..................................................... Professor
M. P. Wanielista, Ph.D., P.E. .......................................... Dean and Professor
H. M. Al-Deek, Ph.D. .................................................... Associate Professor
M. B. Chopra, Ph.D. ..................................................... Associate Professor
J. D. Dietz, Ph.D., P.E. .................................................... Associate Professor
C. M. Head, Ph.D., P.E. ................................................ Associate Professor
S. K. Kunnath, Ph.D., P.E. ........................................... Associate Professor
A. Mirmiran, Ph.D., P.E. ............................................. Associate Professor
U. O. Onyemelukwe, Ph.D. ........................................... Associate Professor
D. R. Reinhart, Ph.D., P.E. .......................................... Associate Dean and Associate Professor
R. L. Wayson, Ph.D., P.E. ............................................ Graduate Coordinator and Associate Professor
M. A. Aly, Ph.D. .......................................................... Assistant Professor
S. M. El-Tawil, Ph.D. .................................................. Assistant Professor
S. C. Hagen, Ph.D. .......................................................... Assistant Professor
S. K. Hong, Ph.D. .......................................................... Assistant Professor
F. N. Nnadi, Ph.D. .......................................................... Assistant Professor
A. A. Randall, Ph.D., P.E. ............................................ Assistant Professor

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 three options for the master's degree programs: the thesis option, the research report 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 research report option is available in the M.S.Env.E. and M.S. (Environmental Engineering Sciences) programs only and requires a research report that is equivalent to 3 hours out of a total of 33 hours. This option is primarily suitable for part-time, nonresident students. The research report should meet thesis publication guidelines.

The non-thesis option is available in the M.S.C.E., M.S. (Structures and Foundations), M.S. (Transportation Systems Engineering), and M.S. (Water Resources Engineering) programs only and requires 36 coursework hours and a comprehensive examination that may be oral or written at the discretion of the student's advisor and committee. This option is available 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 advisor.

### Required Courses

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>CEG 5015</td>
<td>Geotechnical Engineering II</td>
<td>3</td>
</tr>
<tr>
<td>CEG 5700</td>
<td>Geo-Environmental Engineering</td>
<td>3</td>
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<tr>
<td>CEG 6115</td>
<td>Foundation Engineering</td>
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<tr>
<td>CES 5325</td>
<td>Bridge Engineering</td>
<td>3</td>
</tr>
<tr>
<td>CES 5606</td>
<td>Advanced Steel Structures</td>
<td>3</td>
</tr>
<tr>
<td>CES 5706</td>
<td>Advanced Reinforced Concrete</td>
<td>3</td>
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<tr>
<td>CES 6715</td>
<td>Prestressed Concrete Structures</td>
<td>3</td>
</tr>
<tr>
<td>CES 6840</td>
<td>Composite Steel Concrete Structures</td>
<td>3</td>
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</tbody>
</table>

Take any three of the following courses:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>CEG 6065</td>
<td>Soil Dynamics</td>
<td>3</td>
</tr>
<tr>
<td>CEG 6317</td>
<td>Advanced Geotechnical Engineering</td>
<td>3</td>
</tr>
<tr>
<td>CES 5325</td>
<td>Bridge Engineering</td>
<td>3</td>
</tr>
<tr>
<td>CES 5821</td>
<td>Masonry and Timber Design</td>
<td>3</td>
</tr>
<tr>
<td>CES 6116</td>
<td>Finite Element Structural Analysis</td>
<td>3</td>
</tr>
<tr>
<td>CES 6170</td>
<td>Boundary Element Methods in Civil Engineering</td>
<td>3</td>
</tr>
<tr>
<td>CES 6209</td>
<td>Dynamics of Structures</td>
<td>3</td>
</tr>
<tr>
<td>CES 6220</td>
<td>Wind and Earthquake Engineering</td>
<td>3</td>
</tr>
</tbody>
</table>

Take two courses from among:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Hours</th>
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</thead>
<tbody>
<tr>
<td>TTE 5204</td>
<td>Traffic Engineering OR</td>
<td>3</td>
</tr>
<tr>
<td>TTE 5805</td>
<td>Geometric Design of Transportation Systems</td>
<td>3</td>
</tr>
<tr>
<td>CWR 5205</td>
<td>Hydraulic Engineering OR</td>
<td>3</td>
</tr>
<tr>
<td>CWR 5545</td>
<td>Water Resources Engineering OR</td>
<td>3</td>
</tr>
<tr>
<td>CWR 6125</td>
<td>Groundwater Hydrology OR</td>
<td>3</td>
</tr>
<tr>
<td>CWR 6235</td>
<td>Open Channel Hydraulics</td>
<td>3</td>
</tr>
</tbody>
</table>

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:

### Elective Sub-Discipline

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>CEG 6065</td>
<td>Soil Dynamics</td>
<td>3</td>
</tr>
<tr>
<td>CEG 6317</td>
<td>Advanced Geotechnical Engineering</td>
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</tr>
<tr>
<td>CES 5325</td>
<td>Bridge Engineering</td>
<td>3</td>
</tr>
<tr>
<td>CES 5821</td>
<td>Masonry and Timber Design</td>
<td>3</td>
</tr>
<tr>
<td>CES 6116</td>
<td>Finite Element Structural Analysis</td>
<td>3</td>
</tr>
<tr>
<td>CES 6170</td>
<td>Boundary Element Methods in Civil Engineering</td>
<td>3</td>
</tr>
<tr>
<td>CES 6209</td>
<td>Dynamics of Structures</td>
<td>3</td>
</tr>
<tr>
<td>CES 6220</td>
<td>Wind and Earthquake Engineering</td>
<td>3</td>
</tr>
</tbody>
</table>
### Master of Science in Structures and Foundations

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 advisor 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 OR
- **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**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>CEG 5015</td>
<td>Geotechnical Engineering II</td>
<td>3</td>
</tr>
<tr>
<td>CEG 5700</td>
<td>Geo-Environmental Engineering</td>
<td>3</td>
</tr>
<tr>
<td>CEG 6065</td>
<td>Soil Dynamics</td>
<td>3</td>
</tr>
<tr>
<td>CEG 6115</td>
<td>Foundation Engineering</td>
<td>3</td>
</tr>
<tr>
<td>CEG 6317</td>
<td>Advanced Geotechnical Engineering</td>
<td>3</td>
</tr>
<tr>
<td>CES 6170</td>
<td>Boundary Element Methods in Civil Engineering</td>
<td>3</td>
</tr>
<tr>
<td>TTE 5835</td>
<td>Pavement Design</td>
<td>3</td>
</tr>
</tbody>
</table>

#### Other courses with advisor's consent

3 hours each

### Transportation Engineering

The transportation course not taken as required

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>CGN 6655</td>
<td>Regional Planning, Design, and Systems</td>
<td>3</td>
</tr>
<tr>
<td>TTE 5205</td>
<td>Highway Capacity and Traffic Flow Analysis</td>
<td>3</td>
</tr>
<tr>
<td>TTE 5315</td>
<td>Transportation Safety Analysis</td>
<td>3</td>
</tr>
<tr>
<td>TTE 5700</td>
<td>Railroad Engineering</td>
<td>3</td>
</tr>
<tr>
<td>TTE 5835</td>
<td>Pavement Design</td>
<td>3</td>
</tr>
<tr>
<td>TTE 6256</td>
<td>Traffic Operations</td>
<td>3</td>
</tr>
<tr>
<td>TTE 6270</td>
<td>Intelligent Transportation Systems</td>
<td>3</td>
</tr>
<tr>
<td>TTE 6526</td>
<td>Planning and Design of Airports</td>
<td>3</td>
</tr>
<tr>
<td>TTE 6625</td>
<td>Mass Transportation Systems</td>
<td>3</td>
</tr>
</tbody>
</table>

### Water Resources Engineering

Any of the water resources courses not taken as required

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>CWR 6102</td>
<td>Advanced Hydrology</td>
<td>3</td>
</tr>
<tr>
<td>CWR 6126</td>
<td>Groundwater Modeling</td>
<td>3</td>
</tr>
<tr>
<td>CWR 6236</td>
<td>River Engineering and Sediment Transport</td>
<td>3</td>
</tr>
<tr>
<td>CWR 6535</td>
<td>Modeling Water Resources Systems</td>
<td>3</td>
</tr>
</tbody>
</table>

#### Thesis

**6 Semester Hours**

**Total Hours Required for M.S.C.E.**

30 or 36 Semester Hours

---

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>CES 6230</td>
<td>Advanced Structural Mechanics</td>
<td>3</td>
</tr>
<tr>
<td>CES 6715</td>
<td>Prestressed Concrete Structures</td>
<td>3</td>
</tr>
<tr>
<td>CES 6840</td>
<td>Composite Steel Concrete Structures</td>
<td>3</td>
</tr>
<tr>
<td>CES 6910</td>
<td>Research in Structural Engineering</td>
<td>3</td>
</tr>
<tr>
<td>TTE 5835</td>
<td>Pavement Design</td>
<td>3</td>
</tr>
</tbody>
</table>

Other courses with advisor's consent

3 hours each

---

194
Sub-Group B: Structural Engineering

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>CES 5325</td>
<td>Bridge Engineering</td>
<td>3</td>
</tr>
<tr>
<td>CES 5606</td>
<td>Advanced Steel Structures</td>
<td>3</td>
</tr>
<tr>
<td>CES 5706</td>
<td>Advanced Reinforced Concrete</td>
<td>3</td>
</tr>
<tr>
<td>CES 5821</td>
<td>Masonry and Timber Design</td>
<td>3</td>
</tr>
<tr>
<td>CES 6116</td>
<td>Finite Element Structural Analysis</td>
<td>3</td>
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<tr>
<td>CES 6209</td>
<td>Dynamics of Structures</td>
<td>3</td>
</tr>
<tr>
<td>CES 6220</td>
<td>Wind and Earthquake Engineering</td>
<td>3</td>
</tr>
<tr>
<td>CES 6230</td>
<td>Advanced Structural Mechanics</td>
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</tr>
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<td>CES 6715</td>
<td>Prestressed Concrete Structures</td>
<td>3</td>
</tr>
<tr>
<td>CES 6840</td>
<td>Composite Steel Concrete Structures</td>
<td>3</td>
</tr>
<tr>
<td>CES 6910</td>
<td>Research in Structural Engineering</td>
<td>3</td>
</tr>
</tbody>
</table>

**Thesis** 6 Semester Hours

**Total Hours Required for M.S.** 30 or 36 Semester Hours

---

Master of Science in Transportation Systems Engineering

The Department offers a Master of Science (M.S.) degree in Transportation Systems Engineering to students with appropriate science or engineering baccalaureate backgrounds. Students should have background (or articulation course work) in the following areas:

**Prerequisites**
- Probability and Statistics for Engineers (STA 3032)
- Engineering Economic Analysis (EGN 3613)
- Transportation Engineering (TTE 4004)
- Mathematics through Differential Equations (MAC 2311, 2312, 2313; MAP 2302)

**Required Courses** 12 Semester Hours

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>TTE 5204</td>
<td>Traffic Engineering</td>
<td>3</td>
</tr>
<tr>
<td>TTE 5805</td>
<td>Geometric Design of Transportation Systems</td>
<td>3</td>
</tr>
<tr>
<td>TTE 6256</td>
<td>Traffic Operations</td>
<td>3</td>
</tr>
<tr>
<td>TTE 6270</td>
<td>Intelligent Transportation Systems</td>
<td>3</td>
</tr>
</tbody>
</table>

**Elective Courses** 12 or 24 Semester Hours

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>CGN 6655</td>
<td>Regional Planning, Design, and Development</td>
<td>3</td>
</tr>
<tr>
<td>ENV 5071</td>
<td>Environmental Analysis of Transportation Systems</td>
<td>3</td>
</tr>
<tr>
<td>STA 5156</td>
<td>Probability and Statistics for Engineers</td>
<td>3</td>
</tr>
<tr>
<td>TTE 5205</td>
<td>Highway Capacity and Traffic Flow Analysis</td>
<td>3</td>
</tr>
<tr>
<td>TTE 5315</td>
<td>Transportation Safety Analysis</td>
<td>3</td>
</tr>
<tr>
<td>TTE 5700</td>
<td>Railroad Engineering</td>
<td>3</td>
</tr>
<tr>
<td>TTE 5835</td>
<td>Pavement Design</td>
<td>3</td>
</tr>
<tr>
<td>TTE 6526</td>
<td>Planning and Design of Airports</td>
<td>3</td>
</tr>
<tr>
<td>TTE 6625</td>
<td>Mass Transportation Systems</td>
<td>3</td>
</tr>
</tbody>
</table>

**Thesis** 6 Semester Hours

**Total Hours Required for M.S.** 30 or 36 Semester Hours

---

Master of Science in Water Resources Engineering

The Water Resources Engineering program (M.S.) is offered to students with appropriate baccalaureate backgrounds and should include the following articulation course work. Each student must have an individual program of study approved by their faculty committee.

**Prerequisites**
- CEG 4101C Geotechnical Engineering
- CWR 4101C Hydrology
- CWR 4203C Hydraulics
- EGN 3613 Engineering Economic Analysis
- STA 3032 Probability and Statistics for Engineers
### Required Courses (any five)  
<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>CWR 5205</td>
<td>Hydraulic Engineering</td>
<td>3</td>
</tr>
<tr>
<td>CWR 5545</td>
<td>Water Resources Engineering</td>
<td>3</td>
</tr>
<tr>
<td>CWR 6125</td>
<td>Groundwater Hydrology</td>
<td>3</td>
</tr>
<tr>
<td>CWR 6235</td>
<td>Open Channel Hydraulics</td>
<td>3</td>
</tr>
<tr>
<td>CWR 6236</td>
<td>River Engineering and Sediment Transport</td>
<td>3</td>
</tr>
<tr>
<td>CWR 6535</td>
<td>Modeling Water Resources Systems</td>
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</tr>
</tbody>
</table>

15 Semester Hours

### Technical Elective Courses  
<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Hours</th>
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<tbody>
<tr>
<td>ENV 6055</td>
<td>Fate and Transport of Subsurface Contaminants</td>
<td>3</td>
</tr>
<tr>
<td>ENV 6616</td>
<td>Receiving Water Impact</td>
<td>3</td>
</tr>
<tr>
<td>CEG 6317</td>
<td>Advanced Geotechnical Engineering</td>
<td>3</td>
</tr>
<tr>
<td>CWR 6305</td>
<td>Urban Hydrology</td>
<td>3</td>
</tr>
<tr>
<td>STA 5156</td>
<td>Probability and Statistics for Engineers OR</td>
<td>3</td>
</tr>
<tr>
<td>STA 5206</td>
<td>Statistical Analysis</td>
<td>3</td>
</tr>
</tbody>
</table>

Other courses with advisor’s consent 3 hours each

9 or 15 Semester Hours

### 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 coursework 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 advisors. The degree requires 30 semester hours of acceptable graduate work which includes a thesis (6 semester hours), or 33 semester hours of acceptable graduate work which includes a research report (3 semester hours). The student develops an individual program of study with a faculty advisor.

### Required Courses  
<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
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</tr>
</thead>
<tbody>
<tr>
<td>CWR 5545</td>
<td>Water Resources Engineering OR</td>
<td>3</td>
</tr>
<tr>
<td>CWR 6125</td>
<td>Groundwater Hydrology OR</td>
<td>3</td>
</tr>
<tr>
<td>CWR 6235</td>
<td>Open Channel Hydraulics</td>
<td>3</td>
</tr>
<tr>
<td>ENV 6015</td>
<td>Physical/Chemical Treatment Systems</td>
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<tr>
<td>ENV 6016</td>
<td>Biological Treatment Systems in Environmental Engineering</td>
<td>3</td>
</tr>
<tr>
<td>ENV 6347</td>
<td>Hazardous Waste Incineration OR</td>
<td>3</td>
</tr>
<tr>
<td>ENV 6558</td>
<td>Industrial Waste Treatment</td>
<td>3</td>
</tr>
<tr>
<td>ENV 6106</td>
<td>Theory and Practice of Atmospheric Dispersion Modeling OR</td>
<td>3</td>
</tr>
<tr>
<td>ENV 6126</td>
<td>Design of Air Pollution Controls</td>
<td>3</td>
</tr>
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</table>

15 Semester Hours

### Elective Courses  
<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Environmental 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:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Any of the appropriate ENV graduate-level courses (5000 or 6000) with the consent of the student’s advisor</td>
<td>3 hours each</td>
<td></td>
</tr>
</tbody>
</table>

### Water Resources 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:  
<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Any of the appropriate CWR graduate-level courses (5000 or 6000) with the consent of the student’s advisor</td>
<td>3 hours each</td>
<td></td>
</tr>
</tbody>
</table>

### Thesis or Research Report  
6 or 3 Semester Hours

### Total Hours Required for M.S.Env.E.  
30 or 33 Semester Hours
Master of Science in Environmental Engineering Sciences

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 advisors.

Prerequisites
Calculus through Differential Equations

Students with Engineering Undergraduate Degrees
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)

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)

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)

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

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>CWR 5545</td>
<td>Water Resources Engineering OR</td>
<td>3</td>
</tr>
<tr>
<td>CWR 6125</td>
<td>Groundwater Hydrology OR</td>
<td>3</td>
</tr>
<tr>
<td>CWR 6235</td>
<td>Open Channel Hydraulics</td>
<td>3</td>
</tr>
<tr>
<td>ENV 6015</td>
<td>Physical/Chemical Treatment Systems OR</td>
<td>3</td>
</tr>
<tr>
<td>ENV 6016</td>
<td>Biological Treatment Systems OR</td>
<td>3</td>
</tr>
<tr>
<td>ENV 6558</td>
<td>Industrial Waste Treatment</td>
<td>3</td>
</tr>
<tr>
<td>ENV 6106</td>
<td>Theory and Practice of Atmospheric Dispersion Modeling OR</td>
<td>3</td>
</tr>
<tr>
<td>ENV 6126</td>
<td>Design of Air Pollution Controls OR</td>
<td>3</td>
</tr>
<tr>
<td>ENV 6347</td>
<td>Hazardous Waste Incineration</td>
<td>3</td>
</tr>
</tbody>
</table>

12 Semester Hours: 197
Doctor of Philosophy in Civil Engineering or Environmental Engineering

The Doctor of Philosophy (Ph.D.) degree is intended for a student with 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 to the graduate program. 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 will be from courses taken outside the Department. A maximum of 36 semester hours, including 6 thesis hours, may be transferred from a master's degree toward these requirements. An additional 9 semester hours of post-master's work may be transferred. 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.
Electrical and Computer Engineering Department

Parveen F. Wahid ..................... Electrical and Computer Engineering Program Coordinator
Office: ENGR 407, Phone: (407) 823-2766, e-mail: pfw@ece.engr.ucf.edu

Jim Moharam ..................... Optical Science and Engineering Program Coordinator
Office: CREOL 274, Phone: (407) 823-6833, e-mail: oharam@pegasus.cc.ucf.edu

C. S. Bauer, Ph.D., P.E. ................................................... Professor
G. D. Boreman, Ph.D., P.E. ................................................... Professor
C. G. Christodoulou, Ph.D. ................................................... Professor
A. J. Gonzalez, Ph.D., P.E. ................................................... Professor
J. J. Liou, Ph.D. ................................................................. Professor
D. C. Malocha, Ph.D., P.E. ................................................... Professor
W. B. Mikhail, Ph.D. ............................................................ Chair and Professor
M. G. Moharam, Ph.D. .......................................................... Professor
H. R. Myler, Ph.D., P.E. ......................................................... Professor
R. L. Phillips, Ph.D. ............................................................. Professor
M. J. Solleau, Ph.D. .............................................................. CREOL Director and Professor
N. S. Tzannes, Ph.D. ............................................................ Professor
I. Batarseh, Ph.D., P.E. ......................................................... Associate Professor
M. A. Belkerdid, Ph.D., P.E. .................................................. Associate Professor
P. Deffyett, Ph.D. ................................................................. Associate Professor
M. Georgiopoulos, Ph.D. ..................................................... Associate Professor
J. E. Harvey, Ph.D. ............................................................. Associate Professor
T. Kasperis, Ph.D. .............................................................. Associate Professor
H. I. Klee, Ph.D. ................................................................. Associate Professor
D. G. Linton, Ph.D., P.E. ...................................................... Associate Professor
R. N. Miller, Ph.D., P.E. ....................................................... Associate Dean and Associate Professor
A. Mortazawi, Ph.D. .......................................................... Associate Professor
B. E. Petrasko, D.Eng. ......................................................... Associate Professor
Z. Qu, Ph.D. ........................................................................ Associate Professor
S. M. Richie, Ph.D. ............................................................ Associate Professor
N. Riza, Ph.D. ................................................................. Associate Professor
W. Shu, Ph.D. ................................................................. Associate Professor
K. B. Sundaram, Ph.D. ......................................................... Associate Professor
P. F. Wahid, Ph.D. .......................................................... Associate Professor
A. R. Weeks, Ph.D. .......................................................... Associate Professor
M.Y. Wu, Ph.D. ........................................................... Associate Professor
J. S. Yuan, Ph.D. ............................................................ Associate Professor
J. Zalewski, Ph.D. ........................................................... Associate Professor
R. F. DeMarra, Ph.D. ............................................................ Assistant Professor
M. G. Haralambous, D.Sc., P.E. ........................................ Assistant Professor
J. Rolland, Ph.D. ............................................................ Assistant Professor
P. Li Kam Wa, Ph.D. ............................................................ Assistant Professor

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 Styland, 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 optical sciences and engineering. 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 550 on the TOEFL test.

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 Coordinator for further information.

Detailed information on the specializations is available in the department. Students must have an advisor appointed and an official program of study submitted before completing nine semester hours of course work.

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 coordinator in consultation with student's research advisor 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 3552C 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 Degree Requirements

This option requires a minimum of thirty semester hours of approved course work.
Program requirements include:

- Required courses from one of the following specialization areas:
  - Communications Electronics
  - Controls Electro-optics
  - Digital Signal Processing Solid State and Microelectronics
  - Electromagnetics

- 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 advisor in an approved program of study.
- At least 15 credit hours must be from 6000-level courses.

Course Requirements for the Specialization Areas

Communication Specialization Courses

Required Courses:
- EEL 5542 Random Processes I
- EEL 6530 Communication Theory

Electives:
- EEL 6504 Communications Systems Design
- EEL 6543 Random Processes II
- EEL 6537 Detection and Estimation
- EEL 5555C RF and Microwave Communications
- EEL 5762 Performance Analysis of Computer and Communication Systems
- EEL 5547 Introduction to Radar Systems
- EEL 6785 Computer Network Design
- EEL 6590 Advanced Topics in Communications

Controls/Power Specialization

Required Courses:
- EEL 5630 Digital Control Systems
- EEL 5173 Signal and System Analysis

Electives in Controls:
- EEL 6621 Nonlinear Control Systems
- EEL 6671 Modern and Optimal Control Systems
- EEL 6674 Optimal Estimation for Control
- EEL 6617 Fundamentals of Modern Multivariable Control
- EEL 6616 Adaptive Control
- EEL 6680 Advanced Topics in Modern Control Systems

Electives in Power:
- EEL 6240 Power Electronics I
- EEL 6208 Advanced Machines
- EEL 6255 Advanced Power Systems Analysis
- EEL 6267 Advanced Topics in Power Engineering
- EEL 6246 Power Electronics II

Digital Signal Processing Specialization

Required Courses:
- EEL 4750 Digital Signal Processing Fundamentals
- EEL 5513 Digital Signal Processing Applications

Electives:
- EEL 6502 Adaptive Digital Signal Processing
- EEL 6505 Multidimensional Digital Processing
- EEL 8755 VLSI Design of Digital Signal Processing
- EEL 5558 Advanced Topics in Digital Signal Processing
- EEL 5820 Image Processing I
- EEL 5825 Pattern Recognition
Electromagnetics Specialization

Required Courses:

EEL 6488 Electromagnetic Fields

One of the following courses is required:

EEL 4436C Microwave Engineering
EEL 5462C Antenna Analysis and Design
EEL 5434 Microwave Circuits and Devices

Electives:

EEL 5555C RF and Microwave Communications
EEL 6463 Antenna Analysis and Design II
EEL 6492 Advanced Topics in Electromagnetics and Microwaves

Electronics Specialization

Required Courses:

EEL 6371 Advanced Electronics I

One of the following courses is required:

EEL 5240 Power Electronics I
EEL 5357 CMOS Analog and Digital IC Design

Electives:

EEL 5353 Semiconductor Device Modeling and Simulation
EEL 5370 Operational Amplifiers
EEL 6354 Advanced Semiconductor Devices II
EEL 6372 Advanced Topics in Electronics
EEL 6246 Power Electronics II

Electro-Optics Specialization

Three of the following courses are required:

EEL 5441 Introduction to Wave Optics
EEL 6443 Electro-Optics
EEL 6560 Laser Engineering
EEL 6561 Fourier Optics
EEL 5453 Geometrical Optics

Electives:

EEL 5563 Fiber Optics Communication
EEL 6451L Electro-Optics Laboratory
EEL 6565 Infrared Technology

Microelectronics Specialization

Required Courses:

EEL 5355C Fabrication of Solid-state Devices
EEL 6354 Advanced Semiconductor Device I

Electives:

EEL 5332C Thin Film Technology
EEL 5353 Semiconductor Device Modeling and Simulation
EEL 5357 CMOS Analog and Digital IC Design
EEL 5517 Surface Acoustic Wave Devices and Systems
EEL 5352 Semiconductor Material and Device Characterization
EEL 6359 Advanced Semiconductor Device II
EEL 6338 Advanced Topics in Microelectronics

Detailed information on the research activities in each of the specializations is available in the department. Students must have an advisor appointed and an official program of study submitted before completing nine semester hours of course work.
Non-Thesis Degree Requirements
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.

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 departmental 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. 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."

Examinations
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 seven 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.

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 required to submit a score of at least 550 on the TOEFL test.

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 Coordinator for further information.

Articulation
Undergraduate articulation courses may be required for students with bachelor's and/or master's degrees in fields other than computer engineering. The articulation courses will be determined by the graduate coordinator in consultation with the student's advisor on a case-by-case basis.
In general, all students must have had the following undergraduate 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.

Specialization Areas
There are four specialization areas available in the master's degree program in Computer Engineering. They are:
- Digital Systems
- Computer Architecture
- Software Engineering
- Knowledge-based Systems

Each specialization area has a thesis option and a coursework-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 advisor prior to completing 9 hours of course work. A maximum of 9 semester hours of course work taken prior to admission to the program can be used in a degree program.

Thesis Option Degree Requirements
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 advisor 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.

<table>
<thead>
<tr>
<th>Required Courses (Core)</th>
<th>9 Semester Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>EEL 5708 High Performance Computer Architecture</td>
<td>3 hours</td>
</tr>
<tr>
<td>EEL 5874 Expert Systems and Knowledge Engineering</td>
<td>3 hours</td>
</tr>
<tr>
<td>EEL 5881 Software Engineering I</td>
<td>3 hours</td>
</tr>
</tbody>
</table>

Non-Thesis Degree Requirements
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 for 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.
## Specialization Requirements

### Digital Systems (Thesis Option)

**Core**
- **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 advisor) 3 hours

**Thesis** 6 hours

**Total** 30 Semester Hours

### Digital Systems (Non-Thesis Option)

**Core**
- **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 advisor) 9 hours

**Final Exam** 0 hours

**Total** 36 Semester Hours

### Computer Architecture (Thesis Option)

**Core**
- **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 advisor) 6 hours

**Thesis** 6 hours

**Total** 30 Semester Hours

### Computer Architecture (Non-Thesis Option)

**Core**
- **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 advisor) 15 hours

**Final Exam** 0 hours

**Total** 36 Semester Hours

### Software Engineering (Thesis Option)

**Core**
- **ECM 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 advisor) 9 hours

**Thesis** 6 hours

**Total** 30 Semester Hours

### Software Engineering (Non-Thesis Option)

**Core**
- **ECM 6883** Software Engineering II 3 hours

At least two 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 advisor) 18 hours

**Final Exam** 0 hours

**Total** 36 Semester Hours
Knowledge-based Systems (Thesis Option)
Core
*EEL 4872 Engineering Applications of Intelligent Systems 9 hours
EEL 6875 Engineering of Artificial Intelligence Systems 3 hours
At least one of the following courses:
EEL 6876 Current Topics in AI in Engr. Systems 3 hours
EEL 6878 Modeling and Artificial Intelligence 3 hours
Electives (Selected in consultation with advisor) 9 hours
Thesis 6 hours
Total 30 Semester Hours

Knowledge-based Systems (Non-Thesis Option)
Core
*EEL 4872 Engineering Applications of Intelligent Systems 9 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 advisor) 12 hours
Final Exam 0 hours
Total 36 Semester Hours

* If the student has taken this course or an equivalent as an undergraduate, then an elective, chosen in consultation with the advisor, can be used to replace this course.

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 departmental 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. 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 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."

Examinations
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.

Master of Science in Optical Science and Engineering

Admission
The Master of Science degree in Optical Science and Engineering (M.S.O.S.E.) is intended for students with a baccalaureate degree in electrical engineering, physics, optics, or other related fields. Admission requirements include a minimum grade point average of 3.0 (A=4.0) in the last 60 attempted semester hours of the bachelor's degree and a minimum combined score 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 required to submit a score of at least 550 on the TOEFL test. 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 be required to correct any academic deficiencies. Students should contact the ECE Graduate Coordinator for further information.

Articulation
Undergraduate articulation courses may be required for students with bachelor's and/or master's degrees in fields other than electrical engineering, physics, and optics. The articulation courses will be determined by the graduate coordinator in consultation with the student's faculty advisor on a case-by-case basis.

Thesis Option Degree Requirements
This program option requires 30 semester hours of approved course work including a minimum of 6 hours of thesis credit. At least 15 hours of the required semester hours must be at the 6000 level. An approved program of study is chosen in consultation with a faculty advisor. The program must include 15 credit hours in electro-optics and optical science engineering courses of which at least 9 hours must be from EEL 5441, EEL 5453, EEL 6560, EEL 6565, EEL 5451, EEL 6443, or EEL 6561.

Non-Thesis Degree Requirements
This option requires a minimum of 36 semester hours of approved course work. 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.
Doctor of Philosophy in
Optical Science and Engineering

The Doctor of Philosophy (Ph.D.) degree is primarily intended for students with a master's degree in electrical engineering, physics, optics, and other related fields who wish to pursue a career in research or academia. Specializations include photonics, electro-optics, optical signal processing, optical materials, nonlinear optics, optical imaging, IR technology, optical communication, remote sensing and laser radar, and laser engineering.

Application Deadlines
Fall admission: July 15
Spring admission: December 15
Summer admission: April 15

Optical Science and Engineering
Fall admission (priority): February 1*

*Students applying for fellowships or assistantships must apply for the fall semester by the priority date.

Admission
Students must satisfy University requirements and have completed a master's degree in electrical engineering, physics, optics, or other related fields. Admission requirements include a minimum grade point average of 3.5 (a=4.0) in the master's program and a minimum combined score of 1100 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 required to submit a score of at least 550 on the TOEFL test.

Students are required to pass a Qualifying Examination to be advanced to a degree-seeking status. The student must form a dissertation committee and submit an approved program of study upon passing the Qualifying Examination.

Degree Requirements
The Ph.D. program requires a minimum of 81 semester credit hours of graduate course work including a minimum of 24 dissertation hours. The remaining 60 semester hours are divided into a minimum of 24 semester hours of optical science and engineering, a minimum of 12 semester hours of electrical engineering, sciences, or mathematics electives, and up to 24 hours of advanced optics, engineering, or sciences electives, seminars, independent studies and research. Graduate course work includes 5000 or higher level courses with a maximum of 12 hours of combined independent studies and directed research. Up to 6 hours of 4000 level may be included if transferred from a master’s program. At least 6 semester hours must be taken at UCF outside the program area. A program of study must be developed with an advisory committee at the beginning of the Ph.D. program. The degree must be completed within seven years from the entry date to the doctoral program.

Articulation
Undergraduate articulation courses may be required for students with master's degrees in fields other than electrical engineering, physics, and optics. The articulation courses will be determined by the student's advisory committee on a case-by-case basis.

Transfer Credits
Up to 36 semester credit hours, with grade "B" or better, may be transferred from a master's degree toward these requirements, including a maximum of 6 hours of 4000-level undergraduate courses. Transfer of credit is considered when the program of study is submitted for approval.

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 normally 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.
Industrial Engineering and Management Systems Department

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 degree options 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 option in Product Assurance Engineering. This degree serves the increasing demand for individuals trained in the areas of productivity and quality. In 1996, the Department was granted permission to offer an option 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 option 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 option 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 million, which places the Department within the top ten nationally ranked industrial engineering departments in external support. The Department's emergence as one of the 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 among 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 twenty-first 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, which 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 nonpolluting alternative fuels that use mixtures of hydrogen and methane. System-wide 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 a 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 Industrial Engineering (M.S.I.E.) and a Master of Science (M.S.) degree with options 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 official TOEFL score of 550 (only international applicants who are not from countries where English is the only official language or who did not graduate from an accredited American college or university); and a minimum GPA of 3.0 in the last 60 attempted semester hours of undergraduate studies; or a minimum GRE score of 1000 on the combined verbal-quantitative portion along with a minimum GPA
of 2.8 in the last 60 attempted semester hours of undergraduate studies. All students must provide official GRE scores regardless of GPA during the application process. 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 options 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 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

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 (M.S.I.E.) 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

<table>
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<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>EIN 5602C</td>
<td>Expert Systems in Industrial Engineering</td>
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<td>EIN 6140</td>
<td>Project Engineering</td>
<td>3</td>
</tr>
<tr>
<td>EIN 6357</td>
<td>Advanced Engineering Economic Analysis</td>
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<td>ESI 5531</td>
<td>Discrete Systems Simulation</td>
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<td>ESI 6427</td>
<td>Linear Programming and Extensions</td>
<td>3</td>
</tr>
<tr>
<td>EIN 5247</td>
<td>Experimental Design and Taguchi Methods</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>(can substitute STA 5205 - Experimental Design or</td>
<td></td>
</tr>
<tr>
<td></td>
<td>PSY 6216 - Advanced Research Methodology I)</td>
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<td>EIN 6971</td>
<td>Thesis (required)</td>
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Electives

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<th>Course Title</th>
<th>Credits</th>
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</table>

Thesis (required) 6 hours

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ENGINEERING

Engineering Management Option (M.S.)
30-36 Semester Hours

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 skills to bridge the gap between a technical specialty and technical management.

Prerequisites
Mathematics through Differential Equations (MAP 2302)
High-level computer language and microcomputer familiarity

Required Courses
<table>
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<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Hours</th>
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<td>STA 5156</td>
<td>Probability and Statistics for Engineers</td>
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<td>EIN 5117</td>
<td>Management Information Systems</td>
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<td>EIN 5355</td>
<td>Cost Engineering</td>
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<td>EIN 6357</td>
<td>Advanced Engineering Economic Analysis</td>
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<td>Project Engineering</td>
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<td>EIN 5602C</td>
<td>Expert Systems in Industrial Engineering</td>
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<tr>
<td>EIN 6322</td>
<td>Engineering Management</td>
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</tr>
<tr>
<td>ESI 5316</td>
<td>Operations Research</td>
<td>3</td>
</tr>
</tbody>
</table>

Thesis Option
- Thesis (EIN 6971) - 6 Semester Hours

Non-Thesis Option
- Electives - 12 Semester Hours

Human Engineering/Ergonomics Option (M.S.)
30-36 Semester Hours

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 that maximize human performance, safety, and overall productivity.

Prerequisites
- 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 18 Semester Hours

EIN 5247 Experimental Design and Taguchi Methods 3 hours
(can substitute STA 5205 - Experimental Design or PSY 6216 - Advanced Research Methodology I)
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

Human Performance/Perception Restricted Elective 3 Semester Hours

Select one of the following courses:
EXP 5256 Human Factors I
EXP 5208 Sensation and Perception
EXP 6116 Visual Performance
EXP 6255 Human Performance
EXP 6506 Human Cognition and Learning

Thesis Option 9 Semester Hours

EIN 6971 Thesis 6 hours
Electives 3 hours

Non-Thesis Option 15 Semester Hours

Electives 15 hours

Manufacturing Systems Option (M.S.) 30-36 Semester Hours

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 option 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
Engineering Economic Analysis (EGN 3613)*
Probability and Statistics for Engineers (STA 3032 or equivalent)**
Operations Research (ESI 4312 or equivalent)***
Manufacturing Engineering (EIN 4391C or equivalent)****

* May be satisfied by taking EIN 6357 or EIN 5256 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.
*** May be satisfied by taking ESI 5316 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

EIN 5368C Integrated Factory 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 6399 Concurrent Engineering 3 hours
Operations Research Option (M.S.)

30-36 Semester Hours

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 option 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)*
High-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

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Hours</th>
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<tbody>
<tr>
<td>ESI 5531</td>
<td>Discrete Systems Simulation</td>
<td>3 hours</td>
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<td>ESI 6427</td>
<td>Linear Programming and Extensions</td>
<td>3 hours</td>
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<td>ESI 6437</td>
<td>Nonlinear Programming and Dynamic Programming OR</td>
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<td>ESI 6448</td>
<td>Network Analysis and Integer Programming</td>
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<td>EIN 5602C</td>
<td>Expert Systems in Industrial Engineering</td>
<td>3 hours</td>
</tr>
<tr>
<td>ESI 6358</td>
<td>Decision Analysis</td>
<td>3 hours</td>
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<tr>
<td>STA 5247</td>
<td>Experimental Design and Taguchi Methods</td>
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<td>STA 6236</td>
<td>Regression Analysis</td>
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<tr>
<td>STA 5525</td>
<td>Stochastic Processes and Applied Probability Theory</td>
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Thesis Option

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Non-Thesis Option

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</tr>
</thead>
<tbody>
<tr>
<td>Electives</td>
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<td>15 hours</td>
</tr>
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</table>
Precision Engineering and Manufacturing Option (M.S.)
30-36 Semester Hours

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
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 5256 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

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<tr>
<td>EGN 5855C</td>
<td>Metrology</td>
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<tr>
<td>EIN 5392C</td>
<td>Manufacturing Systems Engineering</td>
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<tr>
<td>EIN 5607C</td>
<td>Computer Control of Manufacturing Systems</td>
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<tr>
<td>EIN 6417</td>
<td>Precision Engineering</td>
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<tr>
<td>EIN 6398</td>
<td>Advanced and Nontraditional Manufacturing Processes</td>
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Thesis Option
EIN 6971 Thesis 15 Semester Hours 6 hours
Electives 9 hours

Non-Thesis Option
Electives 21 Semester Hours 21 hours

Product Assurance Engineering Option (M.S.)
30-36 Semester Hours

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 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 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 4391C)**
Operations Research (ESI 4312)*

* These requirements may be met by taking ESI 5316 and STA 5156 as part of the program of study.
** Undergraduate course may be taken as an elective in the program of study.

Required Courses 24 Semester Hours
EIN 5502C Expert Systems in Industrial Engineering 3 hours
EIN 6140 Project Engineering 3 hours
EIN 5392C Manufacturing Systems Engineering 3 hours
ESI 6227 Total Quality Management 3 hours
ESI 5236 Reliability Engineering 3 hours
ESI 6224 Quality Assurance Management 3 hours
ESI 6225 Quality Analysis and Control 3 hours
STA 5205 Experimental Design 3 hours

Thesis Option 6 Semester Hours
EIN 6971 Thesis 6 hours

Non-Thesis Option 12 Semester Hours
Electives 12 hours

Interactive Simulation and Training Systems Option (M.S.)
30-36 Semester Hours

The Interactive Simulation and Training Systems program focuses on providing a fundamental understanding of significant topics relative to systems, requirements, design, and use of such systems for knowledge transfer in the technical environment. Additionally, the Interactive Simulation and Training Systems program 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 program 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 3032 and EIN 4221)*

* This requirement may be met by taking STA 5156 as part of the program of study.

Required Courses 15 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

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### Industrial Management Systems

<table>
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<tr>
<th>Course</th>
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<tr>
<td>ESI 5531</td>
<td>Discrete Systems Simulation OR</td>
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<tr>
<td>ESI 6532</td>
<td>Object-oriented Simulation OR</td>
<td>3</td>
</tr>
<tr>
<td>EIN 6524</td>
<td>Simulation Modeling Paradigms OR</td>
<td>3</td>
</tr>
<tr>
<td>ESI 6546</td>
<td>Process Simulation</td>
<td></td>
</tr>
</tbody>
</table>

#### Thesis Option
- **EIN 6971** Thesis: 6 hours
- **Electives**: 9 hours

#### Non-Thesis Option
- **ESI 6XXX** Simulation Design and Analysis: 3 hours
- **Electives**: 18 hours

### Simulation Modeling and Analysis Option (M.S.)

**30-36 Semester Hours**

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 program 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 program. 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
- Mathematics through Differential Equations (MAP 2302)
- Probability and Statistics for Engineers (STA 3032 and EIN 4221)*
- Computer programming capability in FORTRAN, C, or C++
- Operations Research (ESI 4312)**

* This requirement 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

**Simulation Language Foundation:**
- **ESI 5531** Discrete Systems Simulation: 3 hours
- **ESI 6532** Object Oriented Simulation: 3 hours

**Simulation Modeling Foundation:**
- **EIN 6524** Simulation Modeling Paradigms: 3 hours

**Evaluation Foundation:**
- **EIN 5247** Experimental Design and Taguchi Methods: 3 hours
  (can substitute STA 5205 - Experimental Design or PSY 6216 - Advanced Research Methodology I)
- **ESI 6217** Statistical Aspects of Digital Simulation: 3 hours

**Thesis Option**
- **EIN 6971** Thesis: 6 hours
- **Electives**: 9 hours

**Non-Thesis Option**

**Integrative Capstone:**
- **ESI 6XXX** Simulation Design and Analysis: 3 hours
- **Electives**: 18 hours

**21 Semester Hours**
Doctor of Philosophy in Industrial Engineering

The Doctor of Philosophy (Ph.D.) degree 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, or simulation and training.

Doctoral Program 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 and accredited 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 hours of their undergraduate degrees and have at least combined verbal and quantitative GRE scores of 1200 will be considered for direct entrance as doctoral students from their bachelor's degrees. Students meeting these criteria and the approval of the Doctoral Committee will be admitted as Doctoral students. Students must complete any needed articulation course work and pass a Ph.D. Qualifying Examination in order to continue in regular doctoral status. This examination is normally taken within the first year after all articulation work is completed. Decisions as to whether students are allowed to continue in the doctoral program are based in part on the Qualifying Examination results and are made by the Departmental Doctoral Committee.

Doctoral 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 and directed research. A total of 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 at UCF must be taken outside of the program area. 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. At the beginning of the Ph.D. program, and within the first nine hours of course work, a preliminary program of study must be developed with an advisory committee 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, the official program of study is developed with an advisor 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 entry date as a 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; 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 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. The Dissertation Defense Examination is an oral examination taken in defense of the written dissertation.
Prerequisites
Students must have background (or articulation course work passed with a grade of “B” or better) in the following areas:

A high-level structured programming language
Calculus through differential equations
Probability and Statistics for Engineers (STA 3032)
Work Measurement and Design (EIN 3314C)
Industrial Facilities Planning and Design (EIN 4364C)
Manufacturing Engineering (EIN 4391C)

Required Courses 33 Semester Hours.
The following areas must form part of the student’s program of study. Substitute courses may be approved by the Department’s Doctoral Committee.

EIN 5117 Management Information Systems 3 hours
EIN 5247 Experimental Design and Taguchi Methods 3 hours
EIN 5248C Ergonomics 3 hours
EIN 5602C Expert Systems in Industrial Engineering 3 hours
EIN 6140 Project Engineering 3 hours
EIN 6336 Production and Inventory Control 3 hours
EIN 6357 Advanced Engineering Economic Analysis 3 hours
ESI 5531 Discrete Systems Simulation 3 hours
ESI 6225 Quality Analysis and Control 3 hours
ESI 6427 Linear Programming and Extensions 3 hours
STA 6236 Regression Analysis 3 hours

Electives 24 Semester Hours

Dissertation 24 Semester Hours

Minimum Hours Required for Ph.D. 81 Semester Hours

IEMS Graduate Course by Areas of Study

Engineering Management

EIN 5117 Management Information Systems I 3 hours
EIN 5356 Cost Engineering 3 hours
EIN 5381 Engineering Logistics 3 hours
EIN 6140 Project Engineering 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 6252 Human-Virtual Environment Interaction 3 hours
EIN 6258 Human Computer 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 5602 Expert Systems in Industrial Engineering 3 hours
EIN 6603 Readings in Expert Systems/Al in Industrial Engineering 3 hours
### Manufacturing/Operations Management

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<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Hours</th>
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<tr>
<td>EGN 5720</td>
<td>Internal Combustion Engine Analysis and Optimization</td>
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<tr>
<td>EGN 5855C</td>
<td>Metrology</td>
<td>3</td>
</tr>
<tr>
<td>EGN 6721C</td>
<td>Experimental Methods for High Performance Engine Manufacturing</td>
<td>3</td>
</tr>
<tr>
<td>EIN 5368C</td>
<td>Integrated Factory Automation Systems</td>
<td>3</td>
</tr>
<tr>
<td>EIN 5388</td>
<td>Forecasting</td>
<td>3</td>
</tr>
<tr>
<td>EIN 5415C</td>
<td>Tool Engineering and Manufacturing Analysis</td>
<td>3</td>
</tr>
<tr>
<td>EIN 5392C</td>
<td>Manufacturing Systems Engineering</td>
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<tr>
<td>EIN 5607C</td>
<td>Computer Control of Manufacturing Systems</td>
<td>3</td>
</tr>
<tr>
<td>EIN 6336</td>
<td>Production and Inventory Control</td>
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<tr>
<td>EIN 6398</td>
<td>Advanced and Nontraditional Manufacturing Processes</td>
<td>3</td>
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<tr>
<td>EIN 6399</td>
<td>Concurrent Engineering</td>
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<tr>
<td>EIN 6417</td>
<td>Precision Engineering</td>
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<tr>
<td>EIN 6418C</td>
<td>Electronics Manufacturing</td>
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<tr>
<td>EIN 6425</td>
<td>Scheduling and Sequencing</td>
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<tr>
<td>EIN 6930</td>
<td>Manufacturing Engineering Seminar</td>
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<tr>
<td>EIN 6936</td>
<td>Seminar in Advanced Industrial Engineering</td>
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### Operations Research

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<tr>
<td>ESI 5315</td>
<td>Research Foundations for IE and OR Modeling</td>
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<tr>
<td>ESI 5316</td>
<td>Operations Research</td>
<td>3</td>
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<tr>
<td>ESI 5359</td>
<td>Risk Assessment and Management</td>
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</tr>
<tr>
<td>ESI 5419C</td>
<td>Engineering Applications of Linear and Nonlinear Optimization</td>
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</tr>
<tr>
<td>ESI 6336</td>
<td>Queuing Systems</td>
<td>3</td>
</tr>
<tr>
<td>ESI 6358</td>
<td>Decision Analysis</td>
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<tr>
<td>ESI 6427</td>
<td>Linear Programming and Extensions</td>
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</tr>
<tr>
<td>ESI 6437</td>
<td>Nonlinear Mathematical Programming and Dynamic Programming</td>
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<td>ESI 6448</td>
<td>Network Analysis and Integer Programming</td>
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<td>ESI 6551C</td>
<td>Systems Engineering</td>
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<td>ESI 6921</td>
<td>Seminar in Advanced Operations Research</td>
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<td>ESI 6941</td>
<td>Operations Research Practicum</td>
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### Simulation and Training

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<tr>
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<td>EIN 5255</td>
<td>Interactive Simulation</td>
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<tr>
<td>EIN 6317</td>
<td>Training Systems Engineering</td>
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</tr>
<tr>
<td>EIN 6645</td>
<td>Modeling and Simulation of Real-time Processes</td>
<td>3</td>
</tr>
<tr>
<td>EIN 6647</td>
<td>Intelligent Simulation</td>
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</tr>
<tr>
<td>EIN 6649</td>
<td>Intelligent Simulation Training System Design</td>
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<tr>
<td>ESI 5531</td>
<td>Discrete Systems Simulation</td>
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<td>ESI 6217</td>
<td>Statistical Aspects of Digital Simulation</td>
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<td>ESI 6529</td>
<td>Advanced Systems Simulation</td>
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<td>ESI 6532</td>
<td>Object-oriented Simulation</td>
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### Statistics and Quality Control

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<th>Course Title</th>
<th>Hours</th>
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<tbody>
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<td>EIN 5247</td>
<td>Experimental Design and Taguchi Methods</td>
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<tr>
<td>EIN 6330</td>
<td>Quality Control in Automation</td>
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</tr>
<tr>
<td>ESI 5236</td>
<td>Reliability Engineering</td>
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</tr>
<tr>
<td>ESI 6224</td>
<td>Quality Assurance Management</td>
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</tr>
<tr>
<td>ESI 6225</td>
<td>Quality Analysis and Control</td>
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<tr>
<td>ESI 6227</td>
<td>Total Quality Management</td>
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<tr>
<td>STA 5156</td>
<td>Probability and Statistics for Engineers</td>
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### Other

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<tr>
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<tbody>
<tr>
<td>EIN 5936</td>
<td>Seminar in Industrial Engineering Doctoral Research</td>
<td>1</td>
</tr>
</tbody>
</table>
Mechanical, Materials, and Aerospace Engineering Department

Alain J. Kassab ................................................ Program Coordinator
Office: ENGR 381, Phone: (407) 823-2416, e-mail: kassab@pegasus.cc.ucf.edu

P. J. Bishop, Ph.D., P.E. ........................................ Director of Graduate Studies and Professor
L. C. Chow, Ph.D. ......................................... Chair and Professor
V. H. Desai, Ph.D., P.E. ..................................... Professor
B. E. Eno, Ph.D., P.E. ...................................... Professor
E. R. Hosler, Ph.D., P.E. .................................... Professor
J. D. McBrayer, Sc.D., P.E. ............................... Professor
F. A. Moslehy, Ph.D., P.E. .................................. Professor
D. W. Nicholson, Ph.D. ..................................... Professor
W. F. Smith, Sc.D., P.E. .................................... Professor
R. H. Chen, Ph.D. ........................................... Associate Professor
L. Chew, Ph.D. .............................................. Associate Professor
A. A. Giannuzzi, Ph.D. ..................................... Associate Professor
A. H. Hagedoorn, Ph.D., P.E. ......................... Associate Professor
R. W. Johnson, Ph.D., P.E. ............................... Associate Professor
A. J. Kassab, Ph.D. ......................................... Associate Professor
K. C. Lin, Ph.D., P.E. ........................................ Associate Professor
A. Minardi, Ph.D. ............................................ Associate Professor
J. Nayfeh, Ph.D. ............................................ Associate Chair and Associate Professor
C. E. Nuckolls, Ph.D., P.E. ............................... Associate Professor
G. G. Ventre, Ph.D., P.E. .................................. Associate Professor
J. Kapat, Ph.D. ............................................... Assistant Professor
A. Kar, Ph.D. ................................................ Assistant Professor
S. Seal, Ph.D. ................................................ Assistant Professor
D. Zhou, Ph.D. .............................................. Assistant Professor

Joint Appointees
K. A. Cerqua-Richardson, Ph.D. ....................... Department of Chemistry
B. Chai, Ph.D. ................................................ Department of Physics
L. Debnath, Ph.D. ........................................... Department of Mathematics
N. S. Dhere, Ph.D. .......................................... Florida Solar Energy Center
D. C. Malocha, Ph.D. ....................................... Electrical and Computer Engineering
B. Nimmo, Ph.D. ........................................... Florida Solar Energy Center
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, combustion, aeroacoustics, computational thermofluids, laser machining, energy conservation, two-phase flow, and phase change

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/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 vibra-
tion problems, friction and wear modeling in tribosystems, finite element simulation of dy-
namic 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 thermofluids include electronic packaging, 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 Mas-
ter of Science in Mechanical Engineering (M.S.M.E.) and the Doctor of Philosophy (Ph.D.)
degrees. Options offered for the MSME are: Aerospace Systems, Materials Science and
Engineering, Mechanical Systems, Thermo-Fluids, Computer-Aided Mechanical Engineer-
ing, and Professional. The professional and computer-aided options are mainly designed to
meet the needs of part-time students. Options for the Ph.D. are Aerospace Systems, Materia-
als Science and Engineering, Mechanical Systems, and Thermo-Fluids.

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 regu-
lar status are a 3.0 grade point average (4.0=A) in the last 60 attempted hours of under-
graduate 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 550 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 advisor 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 MSME degree is offered as a thesis or a non-thesis program in each of the six
departmental options: Aerospace Systems, Materials Science and Engineering, Mechanical
Systems, Thermo-Fluids, Computer-Aided Mechanical Engineering, and Professional. The
thesis program requires 30 semester hours, at least half of which must be at the 6000 level
and will include 6 hours of thesis credit. The non-thesis program 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 6805 Research
Methods in MMAE as part of their 36 hour course requirement. A program of study, satisfying
option 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 advisor 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 Option (M.S.M.E.)

30-36 Semester Hours

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)

All students must take the following two required courses.

Required Courses

<table>
<thead>
<tr>
<th>Course</th>
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<tr>
<td>EML 5060</td>
<td>Mathematical Methods in Mechanical, Materials, and Aerospace Engineering</td>
<td>3</td>
</tr>
<tr>
<td>EML 5211</td>
<td>Continuum Mechanics</td>
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</tbody>
</table>

Take at least four courses from the option list 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 advisor (or graduate coordinator if you do not have a faculty advisor) 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.

Option List

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Hours</th>
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<tbody>
<tr>
<td>EAS 6185</td>
<td>Turbulent Flow</td>
<td>3</td>
</tr>
<tr>
<td>EAS 5315</td>
<td>Rocket Propulsion</td>
<td>3</td>
</tr>
<tr>
<td>EML 5131</td>
<td>Combustion Phenomena</td>
<td>3</td>
</tr>
<tr>
<td>EML 6725</td>
<td>Computational Fluid Dynamics and Heat Transfer I</td>
<td>3</td>
</tr>
<tr>
<td>EML 6067</td>
<td>Finite Elements in Mechanical, Materials and Aerospace Engineering I</td>
<td>3</td>
</tr>
<tr>
<td>EML 5402</td>
<td>Turbomachinery</td>
<td>3</td>
</tr>
<tr>
<td>EML 5105</td>
<td>Gas Kinetics and Statistical Thermodynamics</td>
<td>3</td>
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<tr>
<td>EML 5311</td>
<td>System Control</td>
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<td>EAS 6405</td>
<td>Advanced Flight Dynamics</td>
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<td>EAS 6138</td>
<td>Advanced Gas Dynamics</td>
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<tr>
<td>EML 6712</td>
<td>Mechanics of Viscous Flow</td>
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Representative Electives

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<td>EAS 5157</td>
<td>V/Stol Aerodynamics and Performance</td>
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<tr>
<td>EAS 5302</td>
<td>Direct Energy Conversion</td>
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<td>EAS 5315</td>
<td>Rocket Propulsion</td>
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<tr>
<td>EAS 6507</td>
<td>Topics in Astrodynamics</td>
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<td>EML 50XX</td>
<td>Engineering Design Practice</td>
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<td>EML 5068</td>
<td>Computational Methods in Mechanical, Materials, and Aerospace Engineering</td>
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<td>EML 5152</td>
<td>Intermediate Heat Transfer</td>
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<td>Acoustics</td>
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<td>EML 5237</td>
<td>Intermediate Mechanics of Materials</td>
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<td>EML 5532C</td>
<td>Computer-Aided Design for Manufacture</td>
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<td>EML 5713</td>
<td>Intermediate Fluid Mechanics</td>
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<td>EML 6062</td>
<td>Boundary Element Methods in Engineering</td>
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<td>EML 6068</td>
<td>Finite Elements in Mechanical, Materials, and Aerospace Engineering II</td>
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<td>EML 6223</td>
<td>Advanced Vibrational Systems</td>
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<td>EML 6305C</td>
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<td>EML 6547</td>
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<tr>
<td>EML 6726</td>
<td>Computational Fluid Dynamics and Heat Transfer II</td>
<td>3</td>
</tr>
<tr>
<td>EAS 6971</td>
<td>Thesis</td>
<td>6</td>
</tr>
<tr>
<td>EML 6085</td>
<td>Research Methods in MMAE (non-thesis option)</td>
<td>3</td>
</tr>
</tbody>
</table>
# Materials Science and Engineering Option (M.S.M.E.)

## 30-36 Semester Hours

### 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)

All students must take the following two required courses.

### Required Courses

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>EMA 6126</td>
<td>Physical Metallurgy</td>
<td>3</td>
</tr>
<tr>
<td>EMA 6626</td>
<td>Mechanical Metallurgy</td>
<td>3</td>
</tr>
</tbody>
</table>

Take at least four courses from the option list 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 advisor (or graduate coordinator if you do not have a faculty advisor) 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.

### Option List

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>EMA 5106</td>
<td>Metallurgical Thermodynamics</td>
<td>3</td>
</tr>
<tr>
<td>EMA 5108</td>
<td>Surface Science</td>
<td>3</td>
</tr>
<tr>
<td>EMA 5326</td>
<td>Corrosion Science and Engineering</td>
<td>3</td>
</tr>
<tr>
<td>EMA 6136</td>
<td>Diffusion in Solids</td>
<td>3</td>
</tr>
<tr>
<td>EMA 6516</td>
<td>X-Ray Diffraction and Crystallography</td>
<td>3</td>
</tr>
<tr>
<td>EMA 6605</td>
<td>Materials Processing Techniques</td>
<td>3</td>
</tr>
<tr>
<td>EMA 6628</td>
<td>Materials Failure Analysis</td>
<td>3</td>
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### Representative Electives

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>EMA 5104</td>
<td>Intermediate Structure and Properties of Materials</td>
<td>3</td>
</tr>
<tr>
<td>EMA 5140</td>
<td>Introduction to Ceramic Materials</td>
<td>3</td>
</tr>
<tr>
<td>EMA 5504</td>
<td>Modern Characterization of Materials</td>
<td>3</td>
</tr>
<tr>
<td>EMA 5584</td>
<td>Biomaterials</td>
<td>3</td>
</tr>
<tr>
<td>EMA 5705</td>
<td>High Temperature Materials</td>
<td>3</td>
</tr>
<tr>
<td>EMA 5610</td>
<td>Laser Materials Processing</td>
<td>3</td>
</tr>
<tr>
<td>EMA 6130</td>
<td>Phase Transformations in Metals and Alloys</td>
<td>3</td>
</tr>
<tr>
<td>EMA 6129</td>
<td>Solidification and Microstructure Evolution</td>
<td>3</td>
</tr>
<tr>
<td>EMA 6149</td>
<td>Imperfections in Crystals</td>
<td>3</td>
</tr>
<tr>
<td>EMA 6518</td>
<td>Transmission Electron Microscopy</td>
<td>3</td>
</tr>
<tr>
<td>EML 5XXX</td>
<td>Engineering Design Practice</td>
<td>3</td>
</tr>
<tr>
<td>EML 5060</td>
<td>Mathematical Methods in Mechanical, Materials, and Aerospace Engineering</td>
<td>3</td>
</tr>
<tr>
<td>EML 5237</td>
<td>Intermediate Mechanics of Materials</td>
<td>3</td>
</tr>
<tr>
<td>EML 5245</td>
<td>Tribology</td>
<td>3</td>
</tr>
<tr>
<td>EML 5532C</td>
<td>Computer-aided Design for Manufacture</td>
<td>3</td>
</tr>
<tr>
<td>EML 5546</td>
<td>Engineering Design w/Composite Materials</td>
<td>3</td>
</tr>
<tr>
<td>EML 6062</td>
<td>Boundary Element Methods in Engineering</td>
<td>3</td>
</tr>
<tr>
<td>EML 5211</td>
<td>Continuum Mechanics</td>
<td>3</td>
</tr>
<tr>
<td>EML 6305C</td>
<td>Experimental Mechanics</td>
<td>3</td>
</tr>
<tr>
<td>EML 6547</td>
<td>Engineering Fracture Mechanics in Design</td>
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</tr>
<tr>
<td>EEL 5332C</td>
<td>Thin Film Technology</td>
<td>3</td>
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<tr>
<td>EEL 6561</td>
<td>Fourier Optics</td>
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<tr>
<td>CHM 5711</td>
<td>The Chemistry of Materials</td>
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<tr>
<td>EMA 6971</td>
<td>Thesis</td>
<td>6</td>
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<tr>
<td>EML 6085</td>
<td>Research Methods in MMAE (non-thesis option)</td>
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</table>

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Mechanical Systems Option (M.S.M.E.)

30-36 Semester Hours

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)

All students must take the following two required courses.

Required Courses: 6 Semester Hours

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Hours</th>
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</thead>
<tbody>
<tr>
<td>EML 5060</td>
<td>Mathematical Methods in Mechanical, Materials, and Aerospace Engineering</td>
<td>3</td>
</tr>
<tr>
<td>EML 5211</td>
<td>Continuum Mechanics</td>
<td>3</td>
</tr>
</tbody>
</table>

Take at least four courses from the option list 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 advisor (or graduate coordinator if you do not have a faculty advisor) 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.

Option List: 12 Semester Hours (Minimum)

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
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<tbody>
<tr>
<td>EML 5311</td>
<td>System Control</td>
<td>3</td>
</tr>
<tr>
<td>EML 5271</td>
<td>Intermediate Dynamics</td>
<td>3</td>
</tr>
<tr>
<td>EML 5546</td>
<td>Engineering Design with Composite Materials</td>
<td>3</td>
</tr>
<tr>
<td>EML 6067</td>
<td>Finite Elements in Mechanical and Aerospace Engineering I</td>
<td>3</td>
</tr>
<tr>
<td>EML 6068</td>
<td>Finite Elements in Mechanical, Materials, and Aerospace Engineering II</td>
<td>3</td>
</tr>
<tr>
<td>EML 6082</td>
<td>Boundary Element Methods in Engineering</td>
<td>3</td>
</tr>
<tr>
<td>EML 6227</td>
<td>Nonlinear Vibrations</td>
<td>3</td>
</tr>
<tr>
<td>EML 6305C</td>
<td>Experimental Mechanics</td>
<td>3</td>
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<tr>
<td>EML 6547</td>
<td>Engineering Fracture Mechanics in Design</td>
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Representative Electives: 12-18 Semester Hours

<table>
<thead>
<tr>
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<th>Title</th>
<th>Hours</th>
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<tbody>
<tr>
<td>EMA 5104</td>
<td>Intermediate Structure and Properties of Materials</td>
<td>3</td>
</tr>
<tr>
<td>EMA 5504</td>
<td>Modern Characterization of Materials</td>
<td>3</td>
</tr>
<tr>
<td>EMA 6628</td>
<td>Materials Failure Analysis</td>
<td>3</td>
</tr>
<tr>
<td>EML 500X</td>
<td>Engineering Design Practice</td>
<td>3</td>
</tr>
<tr>
<td>EML 5066</td>
<td>Computational Methods in Mechanical, Materials, and Aerospace Engineering</td>
<td>3</td>
</tr>
<tr>
<td>EML 5224</td>
<td>Acoustics</td>
<td>3</td>
</tr>
<tr>
<td>EML 5228C</td>
<td>Modal Analysis</td>
<td>3</td>
</tr>
<tr>
<td>EML 5245</td>
<td>Tribology</td>
<td>3</td>
</tr>
<tr>
<td>EML 5237</td>
<td>Intermediate Mechanics of Materials</td>
<td>3</td>
</tr>
<tr>
<td>EML 5532C</td>
<td>Computer-aided Design for Manufacture</td>
<td>3</td>
</tr>
<tr>
<td>EML 5572</td>
<td>Probabilistic Methods in Design</td>
<td>3</td>
</tr>
<tr>
<td>EML 6808</td>
<td>Analysis and Control of Robot Manipulators</td>
<td>3</td>
</tr>
<tr>
<td>EML 6223</td>
<td>Advanced Vibrational Systems</td>
<td>3</td>
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<tr>
<td>EML 6226</td>
<td>Analytical Dynamics</td>
<td>3</td>
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<tr>
<td>EML 6653</td>
<td>Theory of Elasticity</td>
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<tr>
<td>EML 6971</td>
<td>Thesis</td>
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</tr>
<tr>
<td>EML 6085</td>
<td>Research Methods in MMAE (non-thesis option)</td>
<td>3</td>
</tr>
</tbody>
</table>
Thermo-Fluids Option (M.S.M.E.)
30-36 Semester Hours

Prerequisites (or equivalent)
Mathematics through Differential Equations (MAP 2302)
Modeling Methods in Mechanical and Aerospace Engineering (EML 3034)
Thermodynamics of Mechanical Systems (EML 3101)
Energy Systems Lab (EML 3304C)
Fluid Mechanics II (EML 4703)
Heat Transfer (EML 4142)

All students must take the following two required courses.

Required Courses

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>EML 5060</td>
<td>Mathematical Methods in Mechanical, Materials, and Aerospace Engineering</td>
<td>3</td>
</tr>
<tr>
<td>EML 5211</td>
<td>Continuum Mechanics</td>
<td>3</td>
</tr>
</tbody>
</table>

Take at least four courses from the option list 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 advisor (or graduate coordinator if you do not have a faculty advisor) 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.

Option List

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>EML 5105</td>
<td>Gas Kinetics and Statistical Thermodynamics</td>
<td>3</td>
</tr>
<tr>
<td>EML 5402</td>
<td>Turbomachinery</td>
<td>3</td>
</tr>
<tr>
<td>EML 6062</td>
<td>Boundary Elements in Engineering</td>
<td>3</td>
</tr>
<tr>
<td>EML 6155</td>
<td>Convection Heat Transfer</td>
<td>3</td>
</tr>
<tr>
<td>EML 6157</td>
<td>Radiation Heat Transfer</td>
<td>3</td>
</tr>
<tr>
<td>EML 6172</td>
<td>Mechanics of Viscous Flow</td>
<td>3</td>
</tr>
<tr>
<td>EML 6725</td>
<td>Computational Fluid Dynamics and Heat Transfer I</td>
<td>3</td>
</tr>
<tr>
<td>EML 6726</td>
<td>Computational Fluid Dynamics and Heat Transfer II</td>
<td>3</td>
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</table>

Representative Electives

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Hours</th>
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<tbody>
<tr>
<td>EAS 5302</td>
<td>Direct Energy Conversion</td>
<td>3</td>
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<tr>
<td>EAS 5315</td>
<td>Rocket Propulsion</td>
<td>3</td>
</tr>
<tr>
<td>EAS 6138</td>
<td>Advanced Gas Dynamics</td>
<td>3</td>
</tr>
<tr>
<td>EAS 6185</td>
<td>Turbulent Flow</td>
<td>3</td>
</tr>
<tr>
<td>EML 5066</td>
<td>Computational Methods in Mechanical, Materials, and Aerospace Engineering</td>
<td>3</td>
</tr>
<tr>
<td>EML 5131</td>
<td>Combustion Phenomena</td>
<td>3</td>
</tr>
<tr>
<td>EML 5152</td>
<td>Intermediate Heat Transfer</td>
<td>3</td>
</tr>
<tr>
<td>EML 5713</td>
<td>Intermediate Fluid Mechanics</td>
<td>3</td>
</tr>
<tr>
<td>EML 5532C</td>
<td>Computer-aided Design for Manufacture</td>
<td>3</td>
</tr>
<tr>
<td>EML 6104</td>
<td>Classical Thermodynamics</td>
<td>3</td>
</tr>
<tr>
<td>EML 6124</td>
<td>Two Phase Flow</td>
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<tr>
<td>EML 6154</td>
<td>Conduction Heat Transfer</td>
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<tr>
<td>EML 6158</td>
<td>Gaseous Radiation Heat Transfer</td>
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<td>EML 6726</td>
<td>Computational Fluid Dynamics and Heat Transfer II</td>
<td>3</td>
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<tr>
<td>EML 6971</td>
<td>Thesis</td>
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</tr>
<tr>
<td>EML 6085</td>
<td>Research Methods in MMAE (non-thesis option)</td>
<td>3</td>
</tr>
</tbody>
</table>
MECHANICAL, MATERIALS, AND AEROSPACE

Professional Option (M.S.M.E.)
30-36 Semester Hours

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)

All students must take the following two required courses.

Required Courses

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>EML 5060</td>
<td>Mathematical Methods in Mechanical, Materials, and Aerospace Engineering</td>
<td>3</td>
</tr>
<tr>
<td>EML 5211</td>
<td>Continuum Mechanics</td>
<td>3</td>
</tr>
</tbody>
</table>

Take at least four courses from the option list 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 advisor (or graduate coordinator if you do not have a faculty advisor) prior to registering for classes. This option 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.

Option List

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>EMA 6628</td>
<td>Materials Failure Analysis</td>
<td>3</td>
</tr>
<tr>
<td>EML 5131</td>
<td>Combustion Phenomena</td>
<td>3</td>
</tr>
<tr>
<td>EML 5402</td>
<td>Turbomachinery</td>
<td>3</td>
</tr>
<tr>
<td>EML 5532C</td>
<td>Computer-aided Design for Manufacture</td>
<td>3</td>
</tr>
<tr>
<td>EML 6062</td>
<td>Boundary Elements Methods in Engineering</td>
<td>3</td>
</tr>
<tr>
<td>EML 6155</td>
<td>Convection Heat Transfer</td>
<td>3</td>
</tr>
<tr>
<td>EML 6226</td>
<td>Analytical Dynamics</td>
<td>3</td>
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<tr>
<td>EML 6067</td>
<td>Finite Elements in Mechanical and Aerospace Engineering I</td>
<td>3</td>
</tr>
<tr>
<td>EML 6305C</td>
<td>Experimental Mechanics</td>
<td>3</td>
</tr>
<tr>
<td>EML 6547</td>
<td>Engineering Fracture Mechanics in Design</td>
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</tr>
<tr>
<td>EML 6712</td>
<td>Mechanics of Viscous Flow</td>
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</tr>
<tr>
<td>EML 6725</td>
<td>Computational Fluid Dynamics and Heat Transfer I</td>
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Representative Electives

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>EML 5XXX</td>
<td>Engineering Design Practice</td>
<td>3</td>
</tr>
<tr>
<td>EML 5105</td>
<td>Gas Kinetics and Statistical Thermodynamics</td>
<td>3</td>
</tr>
<tr>
<td>EAS 6138</td>
<td>Advanced Gas Dynamics</td>
<td>3</td>
</tr>
<tr>
<td>EAS 6185</td>
<td>Turbulent Flow</td>
<td>3</td>
</tr>
<tr>
<td>EML 5066</td>
<td>Computational Methods in Mechanical, Materials, and Aerospace Engineering</td>
<td>3</td>
</tr>
<tr>
<td>EML 5131</td>
<td>Combustion Phenomena</td>
<td>3</td>
</tr>
<tr>
<td>EML 5152</td>
<td>Intermediate Heat Transfer</td>
<td>3</td>
</tr>
<tr>
<td>EML 5713</td>
<td>Intermediate Fluid Mechanics</td>
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</tr>
<tr>
<td>EML 6058</td>
<td>Finite Elements in Mechanical, Materials and Aerospace Engineering II</td>
<td>3</td>
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<tr>
<td>EML 6726</td>
<td>Computational Fluid Dynamics and Heat Transfer II</td>
<td>3</td>
</tr>
<tr>
<td>EML 5237</td>
<td>Intermediate Mechanics of Materials</td>
<td>3</td>
</tr>
<tr>
<td>EML 5546</td>
<td>Engineering Design with Composite Materials</td>
<td>3</td>
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<tr>
<td>EMA 5106</td>
<td>Metallurgical Thermodynamics</td>
<td>3</td>
</tr>
<tr>
<td>EMA 5108</td>
<td>Surface Science</td>
<td>3</td>
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<tr>
<td>EMA 5326</td>
<td>Corrosion Science and Engineering</td>
<td>3</td>
</tr>
<tr>
<td>EML 6971</td>
<td>Thesis</td>
<td>6</td>
</tr>
<tr>
<td>EML 6085</td>
<td>Research Methods in MMAE (non-thesis option)</td>
<td>3</td>
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</tbody>
</table>
Computer-Aided Mechanical Engineering Option (M.S.M.E.)
30-36 Semester Hours

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 3385)
- Machine Design and Analysis (EML 3500)

All students must take the following two required courses.

**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 option list 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 advisor (or graduate coordinator if you do not have a faculty advisor) 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.

**Option List**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Semester Hours</th>
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<tbody>
<tr>
<td>EGN 5858C</td>
<td>Introduction to Rapid Prototyping</td>
<td>3 hours</td>
</tr>
<tr>
<td>EML 5907</td>
<td>Engineering Design Practice</td>
<td>3 hours</td>
</tr>
<tr>
<td>EML 5532C</td>
<td>Computer-aided Design for Manufacture</td>
<td>3 hours</td>
</tr>
<tr>
<td>EML 6062</td>
<td>Boundary Elements Methods in Engineering</td>
<td>3 hours</td>
</tr>
<tr>
<td>EML 6067</td>
<td>Finite Elements in Mechanical and Aerospace Engineering I</td>
<td>3 hours</td>
</tr>
<tr>
<td>EML 6068</td>
<td>Finite Elements in Mechanical, Materials, and Aerospace Engineering II</td>
<td>3 hours</td>
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<tr>
<td>EML 6725</td>
<td>Computational Fluid Dynamics and Heat Transfer I</td>
<td>3 hours</td>
</tr>
<tr>
<td>EML 6726</td>
<td>Computational Fluid Dynamics and Heat Transfer II</td>
<td>3 hours</td>
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</table>

**Representative Electives**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Semester Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>EAS 6138</td>
<td>Advanced Gas Dynamics</td>
<td>3 hours</td>
</tr>
<tr>
<td>EAS 6185</td>
<td>Turbulent Flow</td>
<td>3 hours</td>
</tr>
<tr>
<td>EML 5105</td>
<td>Gas Kinetics and Statistical Thermodynamics</td>
<td>3 hours</td>
</tr>
<tr>
<td>EML 5402</td>
<td>Turbomachinery</td>
<td>3 hours</td>
</tr>
<tr>
<td>EML 6155</td>
<td>Convection Heat Transfer</td>
<td>3 hours</td>
</tr>
<tr>
<td>EML 6712</td>
<td>Mechanics of Viscous Flow</td>
<td>3 hours</td>
</tr>
<tr>
<td>EML 5066</td>
<td>Computational Methods in Mechanical, Materials, and Aerospace Engineering</td>
<td>3 hours</td>
</tr>
<tr>
<td>EML 5131</td>
<td>Combustion Phenomena</td>
<td>3 hours</td>
</tr>
<tr>
<td>EML 5152</td>
<td>Intermediate Heat Transfer</td>
<td>3 hours</td>
</tr>
<tr>
<td>EML 5713</td>
<td>Intermediate Fluid Mechanics</td>
<td>3 hours</td>
</tr>
<tr>
<td>EML 5532C</td>
<td>Computer-aided Design for Manufacture</td>
<td>3 hours</td>
</tr>
<tr>
<td>EML 6154</td>
<td>Conduction Heat Transfer</td>
<td>3 hours</td>
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<tr>
<td>EML 5237</td>
<td>Intermediate Mechanics of Materials</td>
<td>3 hours</td>
</tr>
<tr>
<td>EML 5546</td>
<td>Engineering Design with Composite Materials</td>
<td>3 hours</td>
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<tr>
<td>EMA 5106</td>
<td>Metallurgical Thermodynamics</td>
<td>3 hours</td>
</tr>
<tr>
<td>EMA 5108</td>
<td>Surface Science</td>
<td>3 hours</td>
</tr>
<tr>
<td>EMA 5326</td>
<td>Corrosion Science and Engineering</td>
<td>3 hours</td>
</tr>
<tr>
<td>EMA 6628</td>
<td>Materials Failure Analysis</td>
<td>3 hours</td>
</tr>
<tr>
<td>EML 6971</td>
<td>Thesis</td>
<td>6 hours</td>
</tr>
<tr>
<td>EML 6085</td>
<td>Research Methods in MMAE (non-thesis option)</td>
<td>3 hours</td>
</tr>
</tbody>
</table>
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.
In pursuing their educational goals, graduate students have the opportunity to participate in research at the University, in the adjacent Research Park, and in Central Florida industries and organizations.
College of Health and Public Affairs

The College of Health and Public Affairs offers eight 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. Donner, M.N. ............................................................... Assistant Dean

Faculty

Department of Communicative Disorders
C. Nye, Ph.D. ........................................................................... Chair and Professor
G. Bruten, Ph.D. ....................................................................... Professor
D. L. Ratusnik, Ph.D. ....................................................... Professor
D. B. Ingram, Ph.D. .......................................................... Associate Professor
T. A. Mullin, Ph.D. .......................................................... Associate Professor
J. Ryalls, Ph.D. ............................................................... Associate Professor
A. E. Brice, Ph.D. .......................................................... Assistant Professor
J. Dutka, Ph.D. ............................................................... Assistant Professor
H. Parker, M.A. ............................................................. Assistant Professor
K. Rivers, Ph.D. ............................................................. Assistant Professor
L. Rosa-Lugo, Ph.D. ....................................................... Assistant Professor
H. A. Utt, Ph.D. ............................................................. Assistant Professor
M. Vanryckeghem, Ph.D. ................................................ Assistant Professor

Department of Criminal Justice and Legal Studies
B. J. McCarthy, Ph.D. ........................................................................... Chair and Professor
B. R. McCarthy, Ph.D. ......................................................... Dean and Professor
B. Bohm, Ph.D. ................................................................. Professor
D. Fabianic, Ph.D. ............................................................. Professor
R. Surette, Ph.D. ............................................................... Professor
D. Bishop, Ph.D. ............................................................... Associate Professor
D. Hall, Ph.D. ................................................................. Associate Professor
S. Mahan, Ph.D. ............................................................... Associate Professor
R. Pyle, Ph.D. ............................................................... Associate Professor
J. Sanborn, Ph.D. ............................................................... Associate Professor
B. Applegate, Ph.D. .............................................................. Assistant Professor
C. Bast, J.D. ................................................................. Assistant Professor
D. Becker, M.S. ............................................................... Assistant Professor
P. Griset, Ph.D. ............................................................... Assistant Professor
S. Holmes, Ph.D. ............................................................... Assistant Professor
M. Lanier, Ph.D. ............................................................... Assistant Professor
K. Lucken, Ph.D. .............................................................. Assistant Professor
F. Ravitch, J.D. ............................................................... Assistant Professor
R. Remis, J.D. ............................................................... Assistant Professor
K. M. Reynolds ................................................................. Assistant Professor
D. Slaughter, J.D. .............................................................. Assistant Professor
K. Cook, J.D. ................................................................. Internship Coordinator

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HEALTH AND PUBLIC AFFAIRS

M. Eastep, M.S. ................................................................. Instructor
J. Flagg, J.D. ........................................................................ Instructor
L. Gonzalez Otero, M.S. .................................................. Instructor
R. Lynch, J.D. ...................................................................... Instructor

Health Professions and Physical Therapy
G. H. Frazer, Ph.D. ......................................................... Chair and Professor
L. J. Aciero, M.D. ............................................................ Professor
S. Douglass, M.S. ............................................................. Associate Professor
T. Edwards, Ed.D., RT(R) .................................................. Associate Professor
E. Hamby, D.B.A., P.T. ........................................................ Associate Professor
A. Liberman, Ph.D., M.H.A., M.Ed. ................................. Associate Professor
J. S. Lytle, M.S., M.P.H. ..................................................... Associate Professor
T. S. Mendenhall, Ph.D., M.B.A. ........................................ Associate Professor
J. A. Valentine, Ph.D., M.S.W., M.P.H. ......................... Associate Professor
L. T. Worrell, M.P.H. ........................................................ Associate Professor
L. Chase-Beasley, Ph.D., P.T. ............................................. Assistant Professor
T. Rotarius, Ph.D., M.B.A. ................................................ Assistant Professor
C. J. Barr, M.S. ................................................................. Instructor
G. Bertetta, M.S. ............................................................... Instructor
M. Diesen, M.S., M.Ed. ..................................................... Instructor
K. B. Enchelmayer, M.P.T., O.T.R. ................................. Instructor
T. Falen, M.S. .................................................................... Instructor
V. J. Hudson, M.P.T., M.B.A., A.T.C. ............................... Instructor
J. Lucy, M.A. ................................................................. Instructor
P. Welker, M.A., RT(R) (CT) ............................................. Instructor

Department of Molecular Biology and Microbiology
R. N. Gennaro, Ph.D. ......................................................... Chair and Professor
O. M. Berring, Ph.D. ........................................................ Professor
M. J. Sweeney, Ph.D. ........................................................ Associate Dean and Professor
R. S. White, Ph.D. ............................................................. Professor
J. F. Charba, Ph.D. ............................................................. Associate Professor
D. W. Washington, Ph.D. ................................................ Associate Professor
K. Chai, Ph.D. ................................................................. Instructor
D. Chakrabarti, Ph.D. ....................................................... Assistant Professor
R. Chakrabarti, Ph.D. ....................................................... Assistant Professor
C. Fernandez-Valle, Ph.D. ................................................ Assistant Professor
S. Naser Ph.D. ................................................................. Assistant Professor
D. F. Hitchcock, M.S. ........................................................ Instructor
F. Logiudice, M.S. ........................................................... Instructor

School of Nursing
E. Stullenbarger, DSN, RN .............................................. Director and Professor
M. L. Sole, Ph.D., RN, FAAN ........................................... Associate Professor
D. Wink, Ed.D., RNC ........................................................ Associate Professor
J. Dorner, M.N., RN ........................................................ Assistant Dean and Associate Professor
A. Bushy, Ph.D., RN .......................................................... Professor
M. Bear, Ph.D., RN ............................................................. Associate Professor
K. Dow, Ph.D., RN, FAAN ................................................ Associate Professor
G. Giovenco, Ph.D., Ed.D., RN ........................................ Associate Professor
R. Gropper, Ph.D., RN ..................................................... Associate Professor
J. Kiej, Ph.D., RN ............................................................ Associate Professor
F. Smith, Ed.D., RN .......................................................... Associate Professor
V. Browne-Krmsley, Ed.D., RN ........................................ Assistant Professor
N. Cigator, Ph.D., RN ........................................................ Assistant Professor
J. Gichia, Ph.D., RN .......................................................... Assistant Professor
L. Holcomb, DSN, RN ..................................................... Assistant Professor
E. Kiehl, Ph.D., RN .......................................................... Assistant Professor
Doctor of Philosophy in Public Affairs

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.

Program 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.

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 (taken within the last five years)
- 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
- Special qualifications or experiences that may enhance the overall learning environment of the program
- Three letters of reference from professionals who can assess the applicant's ability to succeed in a doctoral program

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 for 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 Advisors
Upon acceptance of a student into the program, the graduate program coordinator for Public Affairs will provide an initial orientation and general advising session. Based on the information obtained in this session, the graduate program coordinator will identify a faculty advisor 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 advisor 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 admitted into doctoral status and are entitled to write and defend a dissertation proposal. The defense of the dissertation proposal constitutes the candidacy examination for this program.

Curriculum
Foundation Courses (Required)

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>PAF 7XXX</td>
<td>Foundations of Public Affairs</td>
<td>3 hours</td>
</tr>
<tr>
<td>PAF 7XXX</td>
<td>Social Justice and Public Policy</td>
<td>3 hours</td>
</tr>
<tr>
<td>PAF 7XXX</td>
<td>Ethics and Public Affairs</td>
<td>3 hours</td>
</tr>
<tr>
<td>PAF 7XXX</td>
<td>Policy Analysis in Public Affairs</td>
<td>3 hours</td>
</tr>
<tr>
<td>PAF 7XXX</td>
<td>Strategic Change and Management in Public Affairs</td>
<td>3 hours</td>
</tr>
<tr>
<td>PAF 7XXX</td>
<td>Advanced Research Methods in Public Affairs</td>
<td>3 hours</td>
</tr>
<tr>
<td>PAF 7XXX</td>
<td>Advanced Quantitative Research Methods in Public Affairs</td>
<td>3 hours</td>
</tr>
</tbody>
</table>

Foundation Courses (Electives)

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>PAF 7XXX</td>
<td>Dissertation Seminar in Public Affairs</td>
<td>2 hours</td>
</tr>
<tr>
<td>PAF 7XXX</td>
<td>Seminar in Program Evaluation</td>
<td>3 hours</td>
</tr>
<tr>
<td>PAF 7XXX</td>
<td>Seminar in Survey Research</td>
<td>3 hours</td>
</tr>
<tr>
<td>PAF 7XXX</td>
<td>Seminar in Secondary Data Analysis in Public Affairs</td>
<td>3 hours</td>
</tr>
<tr>
<td>PAF 7XXX</td>
<td>Seminar in Qualitative Methods</td>
<td>3 hours</td>
</tr>
</tbody>
</table>

Disciplinary Specialization Courses

Criminal Justice

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CCJ 7XXX</td>
<td>Seminar in Criminal Justice Policy Analysis</td>
<td>3 hours</td>
</tr>
<tr>
<td>CCJ 7457</td>
<td>Seminar in Criminal Justice Theory</td>
<td>3 hours</td>
</tr>
<tr>
<td>CCJ 7XXX</td>
<td>Special Issues in Criminal Justice</td>
<td>3 hours</td>
</tr>
</tbody>
</table>

(> Any 6000-level courses in the catalog)

Health Services Administration

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>HSC 7XXX</td>
<td>Advanced Health Care Organization Theory</td>
<td>3 hours</td>
</tr>
<tr>
<td>HSC 7XXX</td>
<td>Special Issues in Health Services Administration</td>
<td>3 hours</td>
</tr>
</tbody>
</table>

(> Any 6000-level courses in the catalog)

Health Services Administration

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>HSC 6XXX</td>
<td>Advanced Trends in Health Care Finance Theory</td>
<td>3 hours</td>
</tr>
</tbody>
</table>

(Prerequisite: PHC 6160, Health Care Finance)

Public Administration

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>PAD 7XXX</td>
<td>Advanced Seminar in Public Administration</td>
<td>3 hours</td>
</tr>
<tr>
<td>PAD 6834</td>
<td>Special Issues in Public Administration</td>
<td>3 hours</td>
</tr>
</tbody>
</table>

(> Any 6000-level courses in the catalog)

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>PAD 6XXX</td>
<td>Advanced Public Human Resource Management</td>
<td>3 hours</td>
</tr>
</tbody>
</table>

(Prerequisite: PAD 6417, Human Resource Management)
HEALTH AND PUBLIC AFFAIRS

PAD 6XXX Advanced Public Budgeting and Finance 3 hours
    (Prerequisite: PAD 6227, Public Budgeting and Financial Management)
+ Any 6000-level courses in the catalog

Social Work
SOW 7XXX Theory Building in Social Work 3 hours
SOW 7XXX Seminar in Social Welfare Planning and Implementation 3 hours
SOW 7XXX Special Issues in Social Work 3 hours
    (Course may be repeated with different content.)
SOW 7XXX Advanced Administration in Social Welfare 3 hours
+ Any 6000-level courses in the catalog

Dissertation
PAF 7980 Dissertation Research 15 hours

Communicative Disorders Department

Thomas Mullin, Ph.D.  Program Coordinator
Office: Research Pavilion Suite 200, Phone: (407) 384-2114
E-mail: tmullin@pegasus.cc.ucf.edu

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 5553L, 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.

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 500 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 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

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Semester Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>SPA 5327</td>
<td>Aural Habilitation - Rehabilitation</td>
<td>4 hours</td>
</tr>
<tr>
<td>SPA 5600</td>
<td>Administration and Management of</td>
<td>3 hours</td>
</tr>
<tr>
<td>SPA 5805</td>
<td>Research in Communicative Disorders</td>
<td>3 hours</td>
</tr>
<tr>
<td>SPA 5810</td>
<td>Language Problems in Adults: Aphasia and Other Symbolic Disorders</td>
<td>3 hours</td>
</tr>
<tr>
<td>SPA 5225</td>
<td>Fluency Disorders</td>
<td>3 hours</td>
</tr>
<tr>
<td>SPA 6553C</td>
<td>Differential Diagnosis Speech Language</td>
<td>4 hours</td>
</tr>
<tr>
<td>SPA 6132</td>
<td>Measurements in Speech Science</td>
<td>3 hours</td>
</tr>
<tr>
<td>SPA 6204</td>
<td>Advanced Studies in Communicative Disorders: Articulation</td>
<td>3 hours</td>
</tr>
<tr>
<td>SPA 6211</td>
<td>Voice Disorders</td>
<td>3 hours</td>
</tr>
<tr>
<td>SPA 6403</td>
<td>Language Disorders: School Age Language</td>
<td>3 hours</td>
</tr>
<tr>
<td>SPA 5236</td>
<td>Speech Problems in Adults: Motor Speech Disorders</td>
<td>3 hours</td>
</tr>
<tr>
<td>SPA 5404</td>
<td>Language Disorders: Pre-School</td>
<td>3 hours</td>
</tr>
</tbody>
</table>

Two seminars must be included in the Program of Study:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Semester Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>SPA 6407</td>
<td>Seminar in Language</td>
<td>2 hours</td>
</tr>
<tr>
<td>SPA 6526</td>
<td>Seminar in Speech Pathology</td>
<td>2 hours</td>
</tr>
<tr>
<td>SPA 6826</td>
<td>Seminar in Research</td>
<td>2 hours</td>
</tr>
</tbody>
</table>

Practicum credit toward degree

All students must register for three hours each semester while in attendance, with exceptions as noted in the graduate manual.

Thesis and Non-Thesis Options

Each student will complete a thesis or non-thesis option.

Thesis Option

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, chaired by a departmental faculty member, will be selected to guide the student through the thesis requirements. An oral defense of the thesis is required.

Non-Thesis Option

A student selecting the Clinical Internship option must complete 6 semester hours of Internship in Speech-Language Pathology. In addition, a student in the Clinical Internship option must register for one hour of Directed Research.

Examinations

Students must pass the National Examination for Speech Language Pathology and Audiology (NESPA) before being considered a degree candidate. Students not passing the NESPA after three attempts will then be required to pass a written comprehensive examination administered by the department before being considered a degree candidate.

Minimum Hours Required for M.A.

50 Semester Hours
Healthy and Public Affairs

Criminal Justice and Legal Studies Department

Pamala Griset, Ph.D. ............................................... Program Coordinator
Office: HPB 113, Phone: (407) 823-2603, e-mail: griset@pegasus.cc.ucf.edu

Master of Science in Criminal Justice

The Master of Science in Criminal Justice offers students an in-depth exploration of the complex and changing world of criminal justice. The historical, political, economic, and philosophical forces shaping crime and punishment in the United States are examined. Students also learn valuable qualitative and quantitative research and computer skills.

Federal, state, and local criminal justice agencies benefit from an informed and innovative work force that is aware of the many complexities of the criminal justice system. The importance of advanced education in criminal justice beyond the bachelor's degree is increasingly being recognized by employers in Central Florida and throughout the United States.

The Master of Science in Criminal Justice is designed for a variety of students. Some are recent college graduates interested in pursuing a professional career in criminal justice. Others are employees of criminal justice agencies interested in learning more about their field and advancing their careers. Still, others enter the program as a first step toward a Ph.D. in criminal justice or a related field. Some may be driven simply by a desire to enrich their intellectual lives. Whatever their motivations and backgrounds, graduates of the master's program will be better prepared to meet the many challenges facing the criminal justice system today.

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.

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; or a total score of 1000 or higher on the verbal-quantitative sections of the GRE. 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 TOEFL score of 550.

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 advisor.

Application Deadlines

<table>
<thead>
<tr>
<th>Period</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fall admission</td>
<td>May 1</td>
</tr>
<tr>
<td>Spring admission</td>
<td>November 15</td>
</tr>
<tr>
<td>Summer admission</td>
<td>March 15</td>
</tr>
</tbody>
</table>

240
Minimum Core Requirements

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>CCJ 5015</td>
<td>The Nature of Crime</td>
<td>3</td>
</tr>
<tr>
<td>CCJ 5456</td>
<td>The Administration of Justice</td>
<td>3</td>
</tr>
<tr>
<td>CCJ 5704</td>
<td>Research Methods in Criminal Justice</td>
<td>3</td>
</tr>
<tr>
<td>CCJ 6706</td>
<td>Quantitative Methods and Computer Utilization in Criminal Justice</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td></td>
<td>12</td>
</tr>
</tbody>
</table>

Advanced Curriculum (choose six of the following)

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>CCJ 5105</td>
<td>Foundations of Law Enforcement</td>
</tr>
<tr>
<td>CCJ 5305</td>
<td>Foundations of Corrections</td>
</tr>
<tr>
<td>CCJ 6106</td>
<td>Policy Analysis in Criminal Justice</td>
</tr>
<tr>
<td>CCJ 6217</td>
<td>Law and Social Control</td>
</tr>
<tr>
<td>CCJ 6485</td>
<td>Issues in Justice Policy</td>
</tr>
<tr>
<td>CCJ 6505</td>
<td>The Juvenile Justice System</td>
</tr>
<tr>
<td>CCJ 6705</td>
<td>Applied Criminal Justice Research</td>
</tr>
<tr>
<td>CCJ 6730</td>
<td>Planned Change and Innovation in Criminal Justice</td>
</tr>
<tr>
<td>CCJ 6908</td>
<td>Independent Study</td>
</tr>
<tr>
<td>CCJ 6934</td>
<td>Criminal Justice, Crime, and Popular Culture</td>
</tr>
<tr>
<td>CCJ 6938</td>
<td>Special Topics in Criminal Justice</td>
</tr>
<tr>
<td>CCJ 6946</td>
<td>Criminal Justice Practicum</td>
</tr>
<tr>
<td>CCJ 6971</td>
<td>Thesis</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
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</table>

Minimum Hours Required for M.S.

<table>
<thead>
<tr>
<th></th>
<th>30 Semester Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>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 &quot;B&quot; or above will be accepted for transfer from an accredited university or college.</td>
<td></td>
</tr>
</tbody>
</table>

Health Professions and Physical Therapy Department

Gregory H. Frazer, Ph.D. .... Chair and Health Services Administration Program Coordinator
Office: TR 534, Phone: (407) 823-2359, e-mail: frazer@pegasus.cc.ucf.edu

Eileen Hamby, D.B.A., P.T. .................. Physical Therapy Program Coordinator
Office: TR 544, Phone: (407) 823-3470, e-mail: ehamby@pegasus.cc.ucf.edu

Master of Science in Health Services Administration

The Department of Health Professions and Physical Therapy offers a Master of Science in Health Services Administration. The program of study required for the Health Services Administration option is outlined below.

Application Deadlines

<table>
<thead>
<tr>
<th>Admission Type</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fall admission</td>
<td>July 15</td>
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<tr>
<td>Spring admission</td>
<td>December 15</td>
</tr>
<tr>
<td>Summer admission</td>
<td>April 15</td>
</tr>
</tbody>
</table>

Admission

Admission to graduate status in the Master of Science in 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).
- 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.

**Required Courses**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Semester Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>HSA 5198</td>
<td>Information Systems and Computer Applications in Medicine</td>
<td>24</td>
</tr>
<tr>
<td>HSA 6107</td>
<td>Health Care Organization and Management I</td>
<td></td>
</tr>
<tr>
<td>HSA 6108</td>
<td>Health Care Organization and Management II</td>
<td></td>
</tr>
<tr>
<td>HSA 6126</td>
<td>Principles of Managed Care</td>
<td></td>
</tr>
<tr>
<td>HSC 6636</td>
<td>Issues and Trends in the Health Care Industry</td>
<td></td>
</tr>
<tr>
<td>HSC 6911</td>
<td>Scientific Inquiry</td>
<td></td>
</tr>
<tr>
<td>PHC 6160</td>
<td>Health Care Finance</td>
<td></td>
</tr>
<tr>
<td>PHC 6420</td>
<td>Case Studies in Health Law</td>
<td></td>
</tr>
</tbody>
</table>

**Electives**

Students must choose a minimum of 5 courses in consultation with the advisor. 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 re-examination 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**

Students may choose to do a research project or thesis with the consent of the academic advisor. Normally, 3 semester hours credit is earned for the research project and 6 for the thesis. Students should discuss this with the advisor when the program of study is completed.

**Minimum Hours Required for M.S.**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Semester Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>HSA 5198</td>
<td>Information Systems and Computer Applications in Medicine</td>
<td>24</td>
</tr>
<tr>
<td>HSA 6107</td>
<td>Health Care Organization and Management I</td>
<td></td>
</tr>
<tr>
<td>HSA 6108</td>
<td>Health Care Organization and Management II</td>
<td></td>
</tr>
<tr>
<td>HSA 6126</td>
<td>Principles of Managed Care</td>
<td></td>
</tr>
<tr>
<td>HSC 6636</td>
<td>Issues and Trends in the Health Care Industry</td>
<td></td>
</tr>
<tr>
<td>HSC 6911</td>
<td>Scientific Inquiry</td>
<td></td>
</tr>
<tr>
<td>PHC 6160</td>
<td>Health Care Finance</td>
<td></td>
</tr>
<tr>
<td>PHC 6420</td>
<td>Case Studies in Health Law</td>
<td></td>
</tr>
</tbody>
</table>

**Master of Science in Physical Therapy**

**Program Requirements**

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 Physical Therapy Program**

- Preparation of a physical therapist who will practice as a broadly skilled, inquiring clinician in a variety of healthcare 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 healthcare environment.
- Promotion of the scientific foundations of physical therapy practice and education with emphasis on outcomes and efficacy of treatment.
NOTE: This catalog describes the intended curriculum at the time of publication.

☐ Promotion of interdisciplinary approaches to patient care
☐ Promotion of the physical therapy profession and the physical therapist as a unique and integral component of healthcare

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 and/or a GPA of 3.0 is required.) The GRE must have been taken within five years.

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 200 hours of volunteer/work experience (at least four exposures of 50 hours each in different settings and/or practice areas)
☐ Reference forms completed by the supervising physical therapists in the four different volunteer/work settings
☐ 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 sit for 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

<table>
<thead>
<tr>
<th>Semester 1 - Fall</th>
<th>12 Semester Hours</th>
</tr>
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<tbody>
<tr>
<td>PHT 3XXX</td>
<td>Gross Anatomy/Neuroscience I</td>
</tr>
<tr>
<td>PHT 3XXXL</td>
<td>Gross Anatomy/Neuroscience I Lab</td>
</tr>
<tr>
<td>PHT 3XXX</td>
<td>Physiology of Therapeutic Exercise</td>
</tr>
<tr>
<td>PHT 3XXXL</td>
<td>Physiology of Therapeutic Exercise Lab</td>
</tr>
<tr>
<td>PHT 3XXX</td>
<td>Patient Care Skills</td>
</tr>
<tr>
<td>PHT 3XXXL</td>
<td>Patient Care Skills Lab</td>
</tr>
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</table>

<table>
<thead>
<tr>
<th>Semester 2 - Spring</th>
<th>13 Semester Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>PHT 3XXX</td>
<td>Gross Anatomy/Neuroscience II</td>
</tr>
<tr>
<td>PHT 3XXXL</td>
<td>Gross Anatomy/Neuroscience II Lab</td>
</tr>
<tr>
<td>PHT 3XXX</td>
<td>Physical Assessment</td>
</tr>
<tr>
<td>PHT 3XXXL</td>
<td>Physical Assessment Lab</td>
</tr>
<tr>
<td>PHT 3XXX</td>
<td>Clinical Kinesiology</td>
</tr>
<tr>
<td>PHT 3XXXL</td>
<td>Clinical Kinesiology Lab</td>
</tr>
<tr>
<td>Semester 3 - Summer</td>
<td>10 Semester Hours</td>
</tr>
<tr>
<td>---------------------</td>
<td>------------------</td>
</tr>
<tr>
<td>PHT 4XXX Pathology/Pharmacology</td>
<td>3 hours</td>
</tr>
<tr>
<td>PHT 4XXX Therapeutic Exercise I</td>
<td>2 hours</td>
</tr>
<tr>
<td>PHT 4XXXL Therapeutic Exercise I Lab</td>
<td>1 hour</td>
</tr>
<tr>
<td>PHT 4XXX Foundations of Physical Therapy I</td>
<td>2 hours</td>
</tr>
<tr>
<td>PHT 4XXXC Functional Rehabilitation</td>
<td>2 hours</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Semester 4 - Fall</th>
<th>12 Semester Hours</th>
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</thead>
<tbody>
<tr>
<td>PHT 4XXX Theories and Procedures I</td>
<td>3 hours</td>
</tr>
<tr>
<td>PHT 4XXXL Theories and Procedures I Lab</td>
<td>1 hour</td>
</tr>
<tr>
<td>PHT 4XXX Therapeutic Exercise II</td>
<td>2 hours</td>
</tr>
<tr>
<td>PHT 4XXXL Therapeutic Exercise II Lab</td>
<td>1 hour</td>
</tr>
<tr>
<td>PHT 4XXX Neurological Physical Therapy</td>
<td>2 hours</td>
</tr>
<tr>
<td>PHT 4XXXL Neurological Physical Therapy Lab</td>
<td>1 hour</td>
</tr>
<tr>
<td>PHT 4XXX Clinical Education I</td>
<td>2 hours</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Semester 5 - Spring</th>
<th>13 Semester Hours</th>
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</thead>
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<tr>
<td>PHT 4XXX Theories and Procedures II</td>
<td>2 hours</td>
</tr>
<tr>
<td>PHT 4XXXL Theories and Procedures II Lab</td>
<td>1 hour</td>
</tr>
<tr>
<td>PHT 4XXX Orthopedic Physical Therapy</td>
<td>2 hours</td>
</tr>
<tr>
<td>PHT 4XXXL Orthopedic Physical Therapy Lab</td>
<td>2 hours</td>
</tr>
<tr>
<td>PHT 4372 Gerontology in Physical Therapy Practice</td>
<td>2 hours</td>
</tr>
<tr>
<td>PHT 4XXXC Pediatric Physical Therapy</td>
<td>2 hours</td>
</tr>
<tr>
<td>PHT 4XXXC Cardiopulmonary Physical Therapy</td>
<td>2 hours</td>
</tr>
</tbody>
</table>

Bachelor of Science in Health Science awarded | 120 Semester Hours |

<table>
<thead>
<tr>
<th>Graduate Course Work</th>
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</table>

<table>
<thead>
<tr>
<th>Semester 6 - Summer</th>
<th>15 Semester Hours</th>
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<tbody>
<tr>
<td>PHT 5XXX Foundations of Physical Therapy II</td>
<td>3 hours</td>
</tr>
<tr>
<td>PHT 5XXX Advanced Orthopedic Physical Therapy</td>
<td>2 hours</td>
</tr>
<tr>
<td>PHT 5XXXL Advanced Orthopedic Physical Therapy Lab</td>
<td>2 hours</td>
</tr>
<tr>
<td>PHT 5XXX Information Management and Communications in Physical Therapy</td>
<td>3 hours</td>
</tr>
<tr>
<td>PHT 5XXX Research Methods in Physical Therapy</td>
<td>3 hours</td>
</tr>
<tr>
<td>PHT 5XXX Advanced Clinical Applications I</td>
<td>2 hours</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Semester 7 - Fall</th>
<th>17 Semester Hours</th>
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</thead>
<tbody>
<tr>
<td>PHT 6XXX Research Applications in Physical Therapy I</td>
<td>3 hours</td>
</tr>
<tr>
<td>PHT 6XXX Physical Therapy Integration I</td>
<td>2 hours</td>
</tr>
<tr>
<td>PHT 6XXXL Physical Therapy Integration I Lab</td>
<td>1 hour</td>
</tr>
<tr>
<td>PHT 6XXX Trends and Issues in Physical Therapy</td>
<td>3 hours</td>
</tr>
<tr>
<td>PHT 6XXX Health Promotion/Wellness in Physical Therapy</td>
<td>3 hours</td>
</tr>
<tr>
<td>PHT 6XXX Advanced Neurological Physical Therapy</td>
<td>2 hours</td>
</tr>
<tr>
<td>PHT 6XXXL Advanced Neurological Physical Therapy Lab</td>
<td>1 hour</td>
</tr>
<tr>
<td>PHT 6XXXC Prosthetics/Orthotics</td>
<td>2 hours</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Semester 8 - Spring</th>
<th>16 Semester Hours</th>
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</thead>
<tbody>
<tr>
<td>PHT 8XXX Management of Physical Therapy Services</td>
<td>3 hours</td>
</tr>
<tr>
<td>PHT 8XXX Research Applications in Physical Therapy II</td>
<td>3 hours</td>
</tr>
<tr>
<td>PHT 8XXX Physical Therapy Integration II</td>
<td>2 hours</td>
</tr>
<tr>
<td>PHT 8XXXL Physical Therapy Integration II Lab</td>
<td>2 hours</td>
</tr>
<tr>
<td>PHT 8XXX Gender Health Issues in Physical Therapy</td>
<td>3 hours</td>
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<tr>
<td>PHT 8XXX Advanced Clinical Applications II</td>
<td>3 hours</td>
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</table>

<table>
<thead>
<tr>
<th>Semester 9 - Summer</th>
<th>3 Semester Hours</th>
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</thead>
<tbody>
<tr>
<td>PHT 8XXX Advanced Clinical Applications III</td>
<td>3 hours</td>
</tr>
</tbody>
</table>

Master of Science in Physical Therapy awarded | 171 Semester Hours |
The transition to the three-year professional physical therapy program culminating in a Master of Science in Physical Therapy degree is contingent upon approval from the Commission on Accreditation in Physical Therapy Education (CAPTE).

Examinations
This non-thesis program requires a final comprehensive examination on course work in the program of study. In addition, comprehensive examinations will be required at the end of each year of the three-year program.

Molecular Biology and Microbiology Department

R. N. Gennaro, Ph.D. ........................................... Program Coordinator
Office: BIO 330, Phone: (407) 823-5932, e-mail: gennaro@pegasus.cc.ucf.edu

Master of Science in Molecular Biology and Microbiology

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 TOEFL score of 550.

Applicants who fail to meet either the minimum program GPA or GRE requirement may occasionally be accepted if there is no 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, 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 re-examination. 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

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>MCB 5205</td>
<td>Infectious Processes</td>
<td>3</td>
</tr>
<tr>
<td>MCB 5225</td>
<td>Molecular Biology of Disease</td>
<td>3</td>
</tr>
<tr>
<td>MCB 5487</td>
<td>Current Topics in Molecular Biology</td>
<td>3</td>
</tr>
<tr>
<td>MCB 5505</td>
<td>Virology</td>
<td>3</td>
</tr>
</tbody>
</table>
School of Nursing

Mary Lou Sole, Ph.D., RN, FAAN ........................................ Program Coordinator
Office: HPB 410, Phone: (407) 823-2744, e-mail: msole@pegasus.cc.ucf.edu

Master of Science in Nursing

Administration 36 Semester Hours
Family Nurse Practitioner (FNP) 43 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 administrators to assume leadership positions in a variety of health care settings. Students are only admitted to the programs in the fall 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.

HEALTH AND PUBLIC AFFAIRS

<table>
<thead>
<tr>
<th>Code</th>
<th>Course Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>MCB</td>
<td>5654 Applied Microbiology</td>
<td>3</td>
</tr>
<tr>
<td>MCB</td>
<td>6407C Laboratory Methods for Molecular Biology</td>
<td>5</td>
</tr>
<tr>
<td>MCB</td>
<td>6417C Microbial Metabolism</td>
<td>3</td>
</tr>
<tr>
<td>MCB</td>
<td>6938 Seminar</td>
<td>1-2</td>
</tr>
<tr>
<td>MCB</td>
<td>6971 Thesis</td>
<td>1-6</td>
</tr>
<tr>
<td>PCB</td>
<td>5026 Signal Transduction Mechanics</td>
<td>3</td>
</tr>
<tr>
<td>PCB</td>
<td>5235 Immunopathology</td>
<td>3</td>
</tr>
<tr>
<td>PCB</td>
<td>5239 Tumor Biology</td>
<td>3</td>
</tr>
<tr>
<td>PCB</td>
<td>5806 Endocrinology</td>
<td>3</td>
</tr>
<tr>
<td>ZOO</td>
<td>5745C Essentials of Neuroanatomy</td>
<td>4</td>
</tr>
</tbody>
</table>

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
- TOEFL of 550
- 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).
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 FNP program are eligible to sit for the ANA certification examination and apply for licensure as an ARNP in Florida.)

### Application Deadlines

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Fall admission</td>
<td>February 15</td>
</tr>
<tr>
<td>Daytona Beach campus only</td>
<td></td>
</tr>
<tr>
<td>Spring admission</td>
<td>September 15</td>
</tr>
</tbody>
</table>

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Fall admission</td>
<td>June 1</td>
</tr>
<tr>
<td>Nursing (post-baccalaureate)</td>
<td></td>
</tr>
<tr>
<td>Spring admission</td>
<td>October 15</td>
</tr>
</tbody>
</table>

### Admission

Requirements for admission to the program include the following:

- A baccalaureate degree in nursing from an NLN-accredited program
- An overall grade point average of 3.0 (on a 4.0 scale) for upper-division undergraduate work (usually the last 60 hours)
- A minimum combined GRE score of 1000 on the verbal/quantitative sections
- 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) stating background and experiences
- Three references; at least one should be from a former faculty member
- TOEFL score of 500 or passing score on CGFNS (international students only)

### Degree Requirements

Graduate students must complete a minimum of 36-43 semester hours of graduate-level course work, depending on major. Either a thesis or research utilization project is required.

<table>
<thead>
<tr>
<th>Required Courses for All Students</th>
<th>15 Semester Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>NGR 5110 Theoretical Bases in Nursing</td>
<td>3 hours</td>
</tr>
<tr>
<td>NGR 5195 Issues in Nursing and Health Care Policy</td>
<td>3 hours</td>
</tr>
<tr>
<td>NGR 5810 Research Methods in Nursing</td>
<td>3 hours</td>
</tr>
<tr>
<td>NGR 6840 Statistical Methods in Nursing Research</td>
<td>3 hours</td>
</tr>
<tr>
<td>NGR 6971 Thesis OR</td>
<td>3 hours</td>
</tr>
<tr>
<td>NGR 6813 Research Utilization Project</td>
<td>3 hours</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Requirements for Nurse Practitioner Majors</th>
<th>43 Semester Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>NGR 5002C Advanced Health Assessment</td>
<td>3 hours</td>
</tr>
<tr>
<td>NGR 5141 Pathophysiological Bases for Advanced Nursing Practice</td>
<td>3 hours</td>
</tr>
<tr>
<td>NGR 5155 Health Promotion Across the Lifespan</td>
<td>3 hours</td>
</tr>
<tr>
<td>NGR 6192 Pharmacology for Advanced Nursing Practice</td>
<td>3 hours</td>
</tr>
<tr>
<td>NGR 6600C Family Nurse Practitioner I</td>
<td>4 hours</td>
</tr>
<tr>
<td>NGR 6601C Family Nurse Practitioner II</td>
<td>4 hours</td>
</tr>
<tr>
<td>NGR 6602C Family Nurse Practitioner III</td>
<td>4 hours</td>
</tr>
<tr>
<td>NGR 6603C Family Nurse Practitioner Practicum</td>
<td>4 hours</td>
</tr>
<tr>
<td>Required Courses (listed above)</td>
<td>15 hours</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Requirements for Nursing Administration Majors</th>
<th>36 Semester Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>NGR 5720 Organizational Dynamics</td>
<td>3 hours</td>
</tr>
<tr>
<td>NGR 6722 Financial Management and Resource Development</td>
<td>3 hours</td>
</tr>
<tr>
<td>NGR 6723 Nursing Administration I</td>
<td>4 hours</td>
</tr>
<tr>
<td>NGR 6724 Nursing Administration II</td>
<td>5 hours</td>
</tr>
<tr>
<td>HSA 5198 Information Systems and Computer Applications</td>
<td>3 hours</td>
</tr>
<tr>
<td>HSA 6XXX Elective (HSA or Business Administration graduate course)</td>
<td>3 hours</td>
</tr>
<tr>
<td>Required courses (listed above)</td>
<td>15 hours</td>
</tr>
</tbody>
</table>
RN to MSN Track in Nursing Administration
Accelerated track for students who are licensed as an RN in the state of Florida and meet general education requirements and prerequisites. (This program may not be offered every year. Check with the School of Nursing.)

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
- Licensed as an RN in Florida
- Completion of UCF general education requirements or AA degree from a Florida school
- Completion of prerequisites for the RN-BSN and MSN nursing track
- 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
- Completion of one year of clinical experience as an RN prior to the first graduate clinical course

Interim Requirements
- Completion of the GRE by the end of the second semester in the program

Admission Requirements for Graduate Nursing Phase
(To be met by the end of the third semester of enrollment.)
- Accepted as a student into the upper-division/professional phase at the UCF School of Nursing
- Completion of all UCF School of Nursing course work to date with a minimum GPA of 3.0
- A minimum combined GRE score of 1000 on the verbal/quantitative exams
- A resume
- Three references
- Interview with faculty

Plan of Study

BSN Courses
- NUR 3065 Health Assessment 3 hours
- NUR 3809 Transitional Concepts in Nursing I 3 hours
- NUR 4635C Scientific Theories of Nursing VI 6 hours
- NUR 4836 Professional Development Seminar 3 hours
- NUR 4838L Directed Nursing Practicum in Administration 2 hours
- HSA/BA Elective 3 hours
- Validated credit for previous nursing courses 28 hours

BSN/MSN Shared Courses
- NGR 5195 Issues in Nursing and Health Care Policy 3 hours
- NGR 5720 Organizational Dynamics 3 hours
- NGR 5810 Research Methods in Nursing 3 hours
- HSA 5198 Information Systems and Computer Applications 3 hours

MSN Courses
- NGR 5110 Theoretical Bases in Nursing 3 hours
- NGR 6722 Financial Management and Resource Development 3 hours
- NGR 6723 Nursing Administration I 4 hours
- NGR 6724 Nursing Administration II 5 hours
- NGR 6840 Statistical Methods in Nursing Research 3 hours
- HSA XXXX Elective 3 hours
- NGR 6971 Thesis OR 3 hours
- NGR 8813 Research Utilization Project 3 hours
The baccalaureate degree will be awarded at the end of the fourth semester when program requirements for the BSN are met and students have completed a minimum of 120 hours of credit. Students will then be reclassified as graduate students. The MSN will be awarded on completion of the total program of study. Students who do not meet ongoing program requirements or decide not to continue in the program may withdraw from the RN-MSN track and complete course work for the BSN degree.

Sample Plan of Study for the RN-MSN Track

Semester 1 - Fall
- NUR 3065 Health Assessment
- 3 hours
- NUR 3809 Transitional Concepts in Nursing I
- 3 hours
- NUR 4836 Professional Development Seminar
- 3 hours

Semester 2 - Spring
- NUR 5810 Research Methods in Nursing
- 3 hours
- NUR 4635C Scientific Theories of Nursing VI
- 6 hours

Validated Credit
28 Semester Hours

Semester 3 - Summer
- NGR 5195 Issues in Nursing and Health Care Policy
- 3 hours
- HSA/BA XXXX Elective
- 3 hours

Semester 4 - Fall
- NGR 5720 Organizational Dynamics
- 3 hours
- NUR 5198 Information Systems and Computer Applications
- 3 hours
- NUR 4838L Directed Nursing Practicum in Administration
- 2 hours

BSN Awarded

Semester 5 - Spring
- NGR 5110 Theoretical Bases in Nursing
- 3 hours
- NGR 6723 Nursing Administration
- 4 hours

Semester 6 - Summer
- NGR 6722 Financial Management and Resource Development
- 3 hours
- NGR 6840 Statistical Methods in Nursing Research
- 3 hours

Semester 7 - Fall
- NGR 6724 Nursing Administration II
- 3 hours
- HSA XXXX Graduate Elective
- 3 hours

Semester 8 - Spring
- NGR 6971/6813 Thesis/Project
- 3 hours

MSN Awarded

Additional Information
Information about tuition, fees, and length of nursing program can be obtained from the National League for Nursing Accrediting Commission, 350 Hudson Street, New York, NY 10014; phone: (800) 669-9656, ext. 153.
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.

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 advisors, 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 TOEFL score of 550.

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 36-42 hours. Each student completes a core of eight courses (24 hours), an advanced curriculum of three courses (9 hours) selected in consultation with the advisor, and a capstone experience equivalent to one course (3 hours). Those students without practical administrative experience in the public sector must complete an internship (3 hours). Finally, a research report option is available for students wishing to complete a more substantial research project than might be accommodated in the other courses.

Minimum Core Requirements

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>PAD 6053</td>
<td>Public Administrators in the Governance Process</td>
<td>3</td>
</tr>
<tr>
<td>PAD 6035</td>
<td>Public Administration in the Policy Process</td>
<td>3</td>
</tr>
<tr>
<td>PAD 6700</td>
<td>Analytic Techniques for Public Administrators I</td>
<td>3</td>
</tr>
<tr>
<td>PAD 6701</td>
<td>Analytic Techniques for Public Administrators II</td>
<td>3</td>
</tr>
<tr>
<td>PAD 6037</td>
<td>Public Organization Management</td>
<td>3</td>
</tr>
<tr>
<td>PAD 6227</td>
<td>Public Budgeting and Financial Management</td>
<td>3</td>
</tr>
<tr>
<td>PAD 6417</td>
<td>Human Resource Management</td>
<td>3</td>
</tr>
<tr>
<td>PAD 6335</td>
<td>Strategic Planning and Management</td>
<td>3</td>
</tr>
</tbody>
</table>

Advanced Curriculum
An advanced curriculum of at least three 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 advisor.

Capstone Experience
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. This course will be graded on a pass/fail basis.
Internship 3 Semester Hours
Required of students with less than one year of continual full-time paid employment in a public or nonprofit sector supervisory or exempt position, the internship will provide an opportunity to apply theory and methodology in a practical setting. The student will be required to submit a summary and critique paper to the departmental internship coordinator at the end of the internship.

Exit Requirements
Students must achieve a GPA of 3.0 in all courses listed under minimum core requirements.

Research Report (Optional) 6 Semester Hours
Six semester hours of credit may be earned by completing an independent investigatory research report which results in a report acceptable to the department’s graduate committee. Three of the six hours credit for the research report may substitute for three hours of the advanced curriculum requirement. This option is available only by permission of the graduate program coordinator.

Basic Requirements (Core, Advanced Curriculum, Capstone Experience) 36 hours
Basic Requirements plus Internship 39 hours
Basic Requirements plus Research Report 39 hours
Basic Requirements plus Internship plus Research Report 42 hours

Minimum Hours Required for M.P.A. 36-42 Semester Hours

School of Social Work

Dennis Poole, Ph.D. ................................................................. Program Coordinator
Office: TR 542, Phone: (407) 823-2114, e-mail: dpoole@ucfvm.cc.ucf.edu

Master of Social Work

The master's degree program in Social Work (M.S.W.) is focused on the study of preventive, developmental, supportive, and remedial interventions aimed at reducing the impact of social problems on children, adults, and families. This advanced degree in social work prepares students for advanced social work practice.

The UCF program prepares students for clinical specialist practice functions, particularly in urban settings. Clinical Specialist Practice Functions consist of (a) strengthening client social functioning through individual, family, and group interventions, and (b) preventing psychosocial problems.

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 required verbal and quantitative 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, English or communication, culture, statistics, psychology, and sociology.

A medical history report on the UCF health form.

A typed Personal Statement. Directions for completing this statement may 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 TOEFL test results of 550 or higher.

Students in the program 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 potential to meet the academic demands of the program and 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. A student admitted into advanced standing moves directly into second-year specialization study.

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
Applicants may be considered for admission as part-time students only in the advanced standing program. Careful planning is required to ensure that all requirements will be met. Part-time students must follow a specific educational plan that provides for the appropriate sequencing of courses. Part-time study must be completed within the time specified by the School of Social Work.

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.
Degree Requirements

Prerequisites: 18 Semester Hours

Introductory college-level courses or equivalents are required before admission into the program.

<table>
<thead>
<tr>
<th>Biology</th>
<th>English or Communication</th>
</tr>
</thead>
<tbody>
<tr>
<td>Psychology</td>
<td>Statistics</td>
</tr>
<tr>
<td>Sociology</td>
<td>Culture</td>
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</tbody>
</table>

Foundation: Generalist Social Work Practice  30 Semester Hours

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Semester Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>SOW 5305</td>
<td>Social Work Practice I: Generalist Practice</td>
<td>3 hours</td>
</tr>
<tr>
<td>SOW 5306</td>
<td>Social Work Practice II: Interventions</td>
<td>3 hours</td>
</tr>
<tr>
<td>SOW 5105</td>
<td>Human Behavior and Social Environment I: Individuals</td>
<td>3 hours</td>
</tr>
<tr>
<td>SOW 5106</td>
<td>Human Behavior and Social Environment II: Social Systems</td>
<td>3 hours</td>
</tr>
<tr>
<td>SOW 5404</td>
<td>Social Work Research</td>
<td>3 hours</td>
</tr>
<tr>
<td>SOW 5432</td>
<td>Evaluating Social Work</td>
<td>3 hours</td>
</tr>
<tr>
<td>SOW 5235</td>
<td>Social Welfare Policies and Services</td>
<td>3 hours</td>
</tr>
<tr>
<td>SOW 5132</td>
<td>Diverse Client Populations</td>
<td>3 hours</td>
</tr>
<tr>
<td>SOW 5532</td>
<td>Field Education I: Generalist Practice (224 clock hours)</td>
<td>3 hours</td>
</tr>
<tr>
<td>SOW 5533</td>
<td>Field Education II: Interventions (224 clock hours)</td>
<td>3 hours</td>
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</tbody>
</table>

Advanced: Clinical Specialist  30 Semester Hours

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Semester Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>SOW 6348</td>
<td>Clinical Practice with Individuals</td>
<td>3 hours</td>
</tr>
<tr>
<td>SOW 6324</td>
<td>Clinical Practice with Groups</td>
<td>3 hours</td>
</tr>
<tr>
<td>SOW 6812</td>
<td>Clinical Practice with Families</td>
<td>3 hours</td>
</tr>
<tr>
<td>SOW 6123</td>
<td>Psychosocial Pathology and Differential Diagnosis</td>
<td>3 hours</td>
</tr>
<tr>
<td>SOW 6246</td>
<td>Policy Analysis and Social Change</td>
<td>2 hours</td>
</tr>
<tr>
<td>SOW 6914</td>
<td>Advanced Research Project in Clinical Practice</td>
<td>2 hours</td>
</tr>
<tr>
<td>SOW 6535</td>
<td>Field Education III: Clinical Practice—Individuals, and Families (304 clock hours)</td>
<td>4 hours</td>
</tr>
<tr>
<td>SOW 6536</td>
<td>Field Education IV: Clinical Practice—Groups (304 clock hours)</td>
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</tr>
<tr>
<td>SOW 6824</td>
<td>Practice Elective</td>
<td>3 hours</td>
</tr>
</tbody>
</table>

Minimum Hours Required for M.S.W.: 60 Semester Hours

- Approved general elective in consultation with student's advisor and M.S.W. program coordinator.
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” represents “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 meets 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.

Example of Course Identifier

<table>
<thead>
<tr>
<th>Prefix (first digit)</th>
<th>Level Code (second digit)</th>
<th>Century Digit (third digit)</th>
<th>Decade Digit (fourth digit)</th>
<th>Unit Digit</th>
<th>Lab Code</th>
</tr>
</thead>
<tbody>
<tr>
<td>SYG</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sociology, General</td>
<td>1</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>Social Problems</td>
</tr>
<tr>
<td>Freshman level at this institution</td>
<td>Entry-level General Sociology</td>
<td>Survey Course</td>
<td></td>
<td>No laboratory component in this course</td>
<td></td>
</tr>
</tbody>
</table>
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 256.

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 post-secondary 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 the Office of Enrollment and 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 (904) 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.

<table>
<thead>
<tr>
<th>Special Grad</th>
<th>Grad and Prof</th>
</tr>
</thead>
<tbody>
<tr>
<td>Directed Independent Studies</td>
<td>5907</td>
</tr>
<tr>
<td>Directed Research</td>
<td>5917</td>
</tr>
<tr>
<td>Special Topics/Seminars</td>
<td>5937</td>
</tr>
<tr>
<td>Internships, Practica, Clinical Practice</td>
<td>5944</td>
</tr>
<tr>
<td>Study Abroad</td>
<td>5957</td>
</tr>
<tr>
<td>Research Report</td>
<td>6909</td>
</tr>
<tr>
<td>Treatise (Thesis or Research Report)</td>
<td>6971</td>
</tr>
<tr>
<td>Thesis—Specialist</td>
<td>6973</td>
</tr>
<tr>
<td>Doctoral Research</td>
<td>7919</td>
</tr>
<tr>
<td>Doctoral Special Topics/Seminars</td>
<td>7939</td>
</tr>
<tr>
<td>Doctoral Dissertation</td>
<td>7980</td>
</tr>
</tbody>
</table>

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. See the "List of College/Department Indicators" on page 258.
### Alphabetical List of Course Prefixes

<table>
<thead>
<tr>
<th>Prefix</th>
<th>Course</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACG</td>
<td>Accounting General</td>
</tr>
<tr>
<td>ACO</td>
<td>Accounting: Occupational Technical</td>
</tr>
<tr>
<td>ADE</td>
<td>Adult Education</td>
</tr>
<tr>
<td>ADV</td>
<td>Advertising</td>
</tr>
<tr>
<td>AFH</td>
<td>African History</td>
</tr>
<tr>
<td>AFR</td>
<td>Air Force ROTC</td>
</tr>
<tr>
<td>AMH</td>
<td>American History</td>
</tr>
<tr>
<td>AML</td>
<td>American Literature</td>
</tr>
<tr>
<td>ANT</td>
<td>Anthropology</td>
</tr>
<tr>
<td>APA</td>
<td>Applied Accounting</td>
</tr>
<tr>
<td>APB</td>
<td>Applied Biology</td>
</tr>
<tr>
<td>ARE</td>
<td>Art Education</td>
</tr>
<tr>
<td>ARH</td>
<td>Art History</td>
</tr>
<tr>
<td>ART</td>
<td>Art</td>
</tr>
<tr>
<td>ASH</td>
<td>Asian History</td>
</tr>
<tr>
<td>AST</td>
<td>Astronomy</td>
</tr>
<tr>
<td>AMM</td>
<td>Aviation Management</td>
</tr>
<tr>
<td>BCH</td>
<td>Biochemistry</td>
</tr>
<tr>
<td>BCN</td>
<td>Building Construction</td>
</tr>
<tr>
<td>BOT</td>
<td>Botany</td>
</tr>
<tr>
<td>BSC</td>
<td>Introductory Biology</td>
</tr>
<tr>
<td>BTE</td>
<td>Business Teacher Education</td>
</tr>
<tr>
<td>BUL</td>
<td>Business Law</td>
</tr>
<tr>
<td>CAP</td>
<td>Computer Applications</td>
</tr>
<tr>
<td>CBH</td>
<td>Comparative Psychology and Animal Behavior</td>
</tr>
<tr>
<td>CCE</td>
<td>Civil Construction Engineering</td>
</tr>
<tr>
<td>CCJ</td>
<td>Criminology and Criminal Justice</td>
</tr>
<tr>
<td>CDA</td>
<td>Computer Design/Architecture</td>
</tr>
<tr>
<td>CEG</td>
<td>Civil Geotechnical Structures</td>
</tr>
<tr>
<td>CES</td>
<td>Civil Engineering Structure</td>
</tr>
<tr>
<td>CET</td>
<td>Computer Engineering Technology</td>
</tr>
<tr>
<td>CGN</td>
<td>Civil Engineering</td>
</tr>
<tr>
<td>CGS</td>
<td>Computer General</td>
</tr>
<tr>
<td>CHI</td>
<td>Chinese</td>
</tr>
<tr>
<td>CHM</td>
<td>Chemistry</td>
</tr>
<tr>
<td>CHS</td>
<td>Chemistry - Specialized</td>
</tr>
<tr>
<td>CIS</td>
<td>Computer and Information Systems</td>
</tr>
<tr>
<td>CJT</td>
<td>Criminal Justice Technology</td>
</tr>
<tr>
<td>CLA</td>
<td>Classical and Ancient Studies</td>
</tr>
<tr>
<td>CLP</td>
<td>Clinical Psychology</td>
</tr>
<tr>
<td>COC</td>
<td>Computer Concepts</td>
</tr>
<tr>
<td>COE</td>
<td>Cooperative Education</td>
</tr>
<tr>
<td>COM</td>
<td>Communications</td>
</tr>
<tr>
<td>COP</td>
<td>Computer Programming</td>
</tr>
<tr>
<td>COT</td>
<td>Computer Theory</td>
</tr>
<tr>
<td>CPO</td>
<td>Comparative Politics</td>
</tr>
<tr>
<td>CRM</td>
<td>Computer Resources/Management</td>
</tr>
<tr>
<td>CRW</td>
<td>Creative Writing</td>
</tr>
<tr>
<td>CWR</td>
<td>Civil Water Resources</td>
</tr>
<tr>
<td>CYP</td>
<td>Communication Psychology</td>
</tr>
<tr>
<td>DAA</td>
<td>Dance Activities</td>
</tr>
<tr>
<td>DAE</td>
<td>Dance Education</td>
</tr>
<tr>
<td>DEP</td>
<td>Development Psychology</td>
</tr>
<tr>
<td>EAB</td>
<td>Experimental Analysis of Behavior</td>
</tr>
<tr>
<td>EAS</td>
<td>Engineering: Aerospace</td>
</tr>
<tr>
<td>ECM</td>
<td>Engineering: Computer Mathematics</td>
</tr>
<tr>
<td>ECO</td>
<td>Economics</td>
</tr>
<tr>
<td>ECP</td>
<td>Economic Problems and Policy</td>
</tr>
</tbody>
</table>

### Prefix | Course                                      |
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>ECS</td>
<td>Economic Systems and Development</td>
</tr>
<tr>
<td>EDA</td>
<td>Education: Administration</td>
</tr>
<tr>
<td>EDE</td>
<td>Education: Elementary</td>
</tr>
<tr>
<td>EDF</td>
<td>Education: Foundation</td>
</tr>
<tr>
<td>EDG</td>
<td>Education: General</td>
</tr>
<tr>
<td>EDH</td>
<td>Education: Higher</td>
</tr>
<tr>
<td>EDM</td>
<td>Education: Middle School</td>
</tr>
<tr>
<td>EDP</td>
<td>Education: Psychology</td>
</tr>
<tr>
<td>EDS</td>
<td>Education: Supervision</td>
</tr>
<tr>
<td>EEC</td>
<td>Education: Early Childhood</td>
</tr>
<tr>
<td>EED</td>
<td>Education: Emotional Disorders</td>
</tr>
<tr>
<td>EEL</td>
<td>Engineering: Electrical</td>
</tr>
<tr>
<td>EES</td>
<td>Environmental Engineering Science</td>
</tr>
<tr>
<td>EET</td>
<td>Electrical Electronic Technology</td>
</tr>
<tr>
<td>EEX</td>
<td>Education: Exceptional Child - Care</td>
</tr>
</tbody>
</table>

#### Competencies

- EGC: Guidance and Counseling
- EGM: Engineering: Mechanical
- EGN: Engineering: General
- EGS: Engineering: Support
- EIN: Engineering: Industrial
- ELD: Education: Specific Learning Disabilities
- EMA: Engineering: Materials
- EME: Education: Technology and Media
- EML: Engineering: Mechanical
- EMR: Education: Mental Retardation
- ENC: English Composition
- ENG: English - General
- ENL: English Literature
- ENU: Engineering: Nuclear
- ENV: Engineering: Environmental
- ENY: Entomology
- EPH: Education: Physical and Multiple Handicapped
- ESE: Education: Secondary
- ESI: Engineering Systems - Industrial
- ESL: English as a Second Language
- EST: Electronic Specialty Technology
- ETC: Engineering Tech: Civil
- ETG: Engineering Tech: General
- ETI: Engineering Tech: Industrial
- ETM: Engineering Tech: Mechanical
- EUH: European History
- EVI: Education: Visually Impaired - Blind
- EVS: Environmental Science
- EVT: Education: Vocational Technical
- EXP: Experimental Psychology
- FIL: Film
- FIN: Finance
- FLE: Foreign Language Education
- FOL: Foreign and Biblical Languages
- FOT: Foreign and Biblical Languages in Translation
- FRE: French Language
- FRW: French Literature (Writings)
- FSS: Food Service Systems
- GEA: Geography: Regional Areas
- GEB: General Business
- GEO: Geography
- GER: German Language
- GEW: German Literature (Writings)
<table>
<thead>
<tr>
<th>Prefix</th>
<th>Course</th>
</tr>
</thead>
<tbody>
<tr>
<td>GLY</td>
<td>Geology</td>
</tr>
<tr>
<td>HBR</td>
<td>Modern Hebrew Language</td>
</tr>
<tr>
<td>HBT</td>
<td>Hebrew Language Translation</td>
</tr>
<tr>
<td>HFT</td>
<td>Hotel and Restaurant</td>
</tr>
<tr>
<td>HLP</td>
<td>Health Education</td>
</tr>
<tr>
<td>HMW</td>
<td>Modern Hebrew Literature (Writings)</td>
</tr>
<tr>
<td>HSA</td>
<td>Health Services Administration</td>
</tr>
<tr>
<td>HSC</td>
<td>Health Science</td>
</tr>
<tr>
<td>HUM</td>
<td>Humanities</td>
</tr>
<tr>
<td>HUN</td>
<td>Human Nutrition</td>
</tr>
<tr>
<td>IDH</td>
<td>Interdisciplinary Honors</td>
</tr>
<tr>
<td>INP</td>
<td>Industrial and Applied Psychology</td>
</tr>
<tr>
<td>INR</td>
<td>International Relations</td>
</tr>
<tr>
<td>ISM</td>
<td>Information Systems Management</td>
</tr>
<tr>
<td>ISS</td>
<td>Interdisciplinary Social Sciences</td>
</tr>
<tr>
<td>ITA</td>
<td>Italian Language</td>
</tr>
<tr>
<td>ITW</td>
<td>Italian Literature (Writings)</td>
</tr>
<tr>
<td>JOU</td>
<td>Journalism</td>
</tr>
<tr>
<td>JPN</td>
<td>Japanese</td>
</tr>
<tr>
<td>JST</td>
<td>Judaic Studies</td>
</tr>
<tr>
<td>LAE</td>
<td>Language Arts and English Education</td>
</tr>
<tr>
<td>LAH</td>
<td>Latin American History</td>
</tr>
<tr>
<td>LAT</td>
<td>Latin</td>
</tr>
<tr>
<td>LEI</td>
<td>Leisure</td>
</tr>
<tr>
<td>LIN</td>
<td>Linguistics</td>
</tr>
<tr>
<td>IS</td>
<td>Library Science</td>
</tr>
<tr>
<td>LIT</td>
<td>Literature</td>
</tr>
<tr>
<td>MAA</td>
<td>Mathematics - Analysis</td>
</tr>
<tr>
<td>MAC</td>
<td>Mathematics - Calculus and Precalculus</td>
</tr>
<tr>
<td>MAD</td>
<td>Mathematics - Discrete</td>
</tr>
<tr>
<td>MAE</td>
<td>Mathematics Education</td>
</tr>
<tr>
<td>MAN</td>
<td>Management</td>
</tr>
<tr>
<td>MAP</td>
<td>Mathematics - Applied</td>
</tr>
<tr>
<td>MAR</td>
<td>Marketing</td>
</tr>
<tr>
<td>MAS</td>
<td>Mathematics: Algebraic Structures</td>
</tr>
<tr>
<td>MAT</td>
<td>Mathematics</td>
</tr>
<tr>
<td>MCB</td>
<td>Microbiology</td>
</tr>
<tr>
<td>MET</td>
<td>Meteorology</td>
</tr>
<tr>
<td>MGF</td>
<td>Mathematics: General and Finite</td>
</tr>
<tr>
<td>MHF</td>
<td>Mathematics: History and Foundations</td>
</tr>
<tr>
<td>MIS</td>
<td>Military Science</td>
</tr>
<tr>
<td>MLS</td>
<td>Medical Laboratory Science</td>
</tr>
<tr>
<td>MMC</td>
<td>Mass Media Communication</td>
</tr>
<tr>
<td>MRE</td>
<td>Medical Records</td>
</tr>
<tr>
<td>MTG</td>
<td>Mathematics: Topology and Geometry</td>
</tr>
<tr>
<td>MUC</td>
<td>Music: Composition</td>
</tr>
<tr>
<td>MUE</td>
<td>Music Education</td>
</tr>
<tr>
<td>MUG</td>
<td>Music Conducting</td>
</tr>
<tr>
<td>MUH</td>
<td>Music: History/Musicology</td>
</tr>
<tr>
<td>MUH</td>
<td>Music: Music Literature</td>
</tr>
<tr>
<td>MUN</td>
<td>Music: Music Ensembles</td>
</tr>
<tr>
<td>MUS</td>
<td>Music</td>
</tr>
<tr>
<td>MUT</td>
<td>Music: Theory</td>
</tr>
<tr>
<td>MVP</td>
<td>Music: Applied - Percussion</td>
</tr>
<tr>
<td>MVS</td>
<td>Music: Applied - Strings</td>
</tr>
<tr>
<td>MVW</td>
<td>Music: Applied - Voice</td>
</tr>
<tr>
<td>MVB</td>
<td>Music: Applied - Brasses</td>
</tr>
<tr>
<td>MK</td>
<td>Music: Applied - Keyboard</td>
</tr>
<tr>
<td>MVO</td>
<td>Music: Applied - Other Instruments</td>
</tr>
<tr>
<td>MVI</td>
<td>Music: Applied - Percussion</td>
</tr>
<tr>
<td>MVW</td>
<td>Music: Applied - Voice</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Prefix</th>
<th>Course</th>
</tr>
</thead>
<tbody>
<tr>
<td>MWW</td>
<td>Music: Applied - Woodwinds</td>
</tr>
<tr>
<td>NGR</td>
<td>Nursing - Graduate</td>
</tr>
<tr>
<td>NUR</td>
<td>Nursing</td>
</tr>
<tr>
<td>NUU</td>
<td>NursingUniversals</td>
</tr>
<tr>
<td>OCE</td>
<td>Oceanography</td>
</tr>
<tr>
<td>OST</td>
<td>Office Systems Technology</td>
</tr>
<tr>
<td>PAD</td>
<td>Public Administration</td>
</tr>
<tr>
<td>PCB</td>
<td>Process Cell Biology</td>
</tr>
<tr>
<td>PCO</td>
<td>Psychology for Counseling</td>
</tr>
<tr>
<td>PEL</td>
<td>Physical Education Acts (GEN) - Object</td>
</tr>
<tr>
<td>PEL</td>
<td>Physical Education Acts (GEN) - Perform</td>
</tr>
<tr>
<td>PEN</td>
<td>Physical Education Acts (GEN) - Water, Snow, Ice</td>
</tr>
<tr>
<td>PEO</td>
<td>Physical Education Acts (PROFNL) - Object</td>
</tr>
<tr>
<td>PEO</td>
<td>Physical Education Acts (PROFNL) - Perf.</td>
</tr>
<tr>
<td>PEQ</td>
<td>Physical Education Acts (PROFNL) - Water, Snow, Ice</td>
</tr>
<tr>
<td>PET</td>
<td>Physical Education Theory</td>
</tr>
<tr>
<td>PGY</td>
<td>Photography</td>
</tr>
<tr>
<td>PHH</td>
<td>Philosophy, History of</td>
</tr>
<tr>
<td>PHI</td>
<td>Philosophy</td>
</tr>
<tr>
<td>PHM</td>
<td>Philosophy of Man and Society</td>
</tr>
<tr>
<td>PHS</td>
<td>Physics - Specialized</td>
</tr>
<tr>
<td>PHT</td>
<td>Physical Therapy</td>
</tr>
<tr>
<td>PHY</td>
<td>Physics</td>
</tr>
<tr>
<td>PHZ</td>
<td>Physics Continued</td>
</tr>
<tr>
<td>PLA</td>
<td>Paralegal/Legal Asst./Legal Admin.</td>
</tr>
<tr>
<td>POS</td>
<td>Political Science</td>
</tr>
<tr>
<td>POT</td>
<td>Political Theory</td>
</tr>
<tr>
<td>PPE</td>
<td>Psychology of Personality</td>
</tr>
<tr>
<td>PSB</td>
<td>Psychobiology</td>
</tr>
<tr>
<td>PSC</td>
<td>Physical Sciences</td>
</tr>
<tr>
<td>PSY</td>
<td>Psychology</td>
</tr>
<tr>
<td>PUP</td>
<td>Public Policy</td>
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<tr>
<td>PUR</td>
<td>Public Relations</td>
</tr>
<tr>
<td>RAT</td>
<td>Radiation Therapy</td>
</tr>
<tr>
<td>REA</td>
<td>Reading</td>
</tr>
<tr>
<td>RED</td>
<td>Reading Education</td>
</tr>
<tr>
<td>REE</td>
<td>Real Estate</td>
</tr>
<tr>
<td>REL</td>
<td>Religion</td>
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<td>RET</td>
<td>Respiratory Therapy</td>
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<td>RMI</td>
<td>Risk Management and Insurance</td>
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<td>RTE</td>
<td>Radiological Sciences</td>
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<td>RTV</td>
<td>Radio-Television</td>
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<td>RUS</td>
<td>Russian Language</td>
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<td>SCE</td>
<td>Science Education</td>
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<tr>
<td>SED</td>
<td>Speech Education</td>
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<tr>
<td>SLS</td>
<td>Student Life Skills</td>
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<td>SOP</td>
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<td>Speech Pathology and Audiology</td>
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<td>SPW</td>
<td>Spanish Literature (Writings)</td>
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<td>SSE</td>
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### Course Descriptions

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<thead>
<tr>
<th>Prefix</th>
<th>Course</th>
<th>College Abbreviation</th>
<th>Department</th>
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<tbody>
<tr>
<td>STA</td>
<td>Statistics</td>
<td>AS</td>
<td>R/TV Radio/TV</td>
</tr>
<tr>
<td>STD</td>
<td>Student Development</td>
<td>AS</td>
<td>SOC/AN Sociology &amp; Anthropology</td>
</tr>
<tr>
<td>SUR</td>
<td>Surveying</td>
<td>AS</td>
<td>STAT Statistics</td>
</tr>
<tr>
<td>SYA</td>
<td>Sociology Analysis</td>
<td>AS</td>
<td>THEA Theatre</td>
</tr>
<tr>
<td>SYD</td>
<td>Sociology of Demography and Area of Studies</td>
<td>AS</td>
<td>WOM Women's Studies</td>
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<tr>
<td>SYG</td>
<td>Sociology, General</td>
<td>AS</td>
<td>BAACCT Accounting</td>
</tr>
<tr>
<td>SYO</td>
<td>Sociology - Social Organizations</td>
<td>BA</td>
<td>BUS Business</td>
</tr>
<tr>
<td>SYP</td>
<td>Sociology - Social Processes</td>
<td>BA</td>
<td>ECON Economics</td>
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<tr>
<td>TAX</td>
<td>Taxation</td>
<td>BA</td>
<td>FIN Finance</td>
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<tr>
<td>THE</td>
<td>Theatre</td>
<td>BA</td>
<td>HOSP Hospitality Management</td>
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<tr>
<td>TPA</td>
<td>Theatre Production and Administration</td>
<td>BA</td>
<td>MAN Management</td>
</tr>
<tr>
<td>TPP</td>
<td>Theatre Performance and Performance Training</td>
<td>BA</td>
<td>MAR Marketing</td>
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<tr>
<td>TTE</td>
<td>Transportation and Traffic Engineering</td>
<td>BA</td>
<td>ED E PE Exceptional &amp; Physical Ed</td>
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<tr>
<td>URP</td>
<td>Urban and Regional Planning</td>
<td>ED</td>
<td>ED F Educational Foundations</td>
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<tr>
<td>VIC</td>
<td>Visual Communication</td>
<td>ED</td>
<td>ED S Educational Services</td>
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<td>ZOO</td>
<td>Zoology</td>
<td>ED</td>
<td>EDU Education</td>
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<td>ED</td>
<td>IP Instructional Programs</td>
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<td>EN</td>
<td>AFROTC Air force ROTC-Aerospace</td>
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<td>EN</td>
<td>AROTC Military Science-ArmyROTC</td>
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<td>EN</td>
<td>CEE Civil &amp; Environmental</td>
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<td>ECE Electrical &amp; Computer</td>
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<td>EN</td>
<td>ENT Engineering Technology</td>
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<td>IEMS Industrial &amp; Management</td>
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<td>MMSE Mechanical/Matrls/Aerosp</td>
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<td>HPA</td>
<td>CJ Criminal Justice</td>
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<td>COMD Communicative Disorders</td>
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<td>H&amp;PT Health Professions &amp; PT</td>
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<td>HIM Health Information Managt</td>
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<td>HPA</td>
<td>HPA Health &amp; Public Affairs</td>
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<td>HPA</td>
<td>LEGL Legal Studies</td>
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<td>HPA</td>
<td>M&amp;M Molecular &amp; Microbiology</td>
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<tr>
<td></td>
<td></td>
<td>HPA</td>
<td>NURS Nursing</td>
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<td>HPA</td>
<td>PUB Public Administration</td>
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<td></td>
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**List of College/Department Indicators**

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<td>AS</td>
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<tr>
<td>AS</td>
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<td>AS</td>
<td>FILM</td>
<td>Motion Picture Technology</td>
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<tr>
<td>AS</td>
<td>HIST</td>
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<tr>
<td>AS</td>
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<td>LANG</td>
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Course Offerings

Availability of Courses
The University does not offer all of the courses listed in the catalog each year. Consult the Schedule of Classes to determine which courses are offered each semester.

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

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. Continuation of ACG 3361. Overhead and joint cost allocation, capital budgeting and analysis. EOQ analysis, decentralization, and quantitative decision analysis.

ACG 5506 BA-ACCT 3(3,0)

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, ECO 3401. 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, ACG 4651. 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 accounting 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 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 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 7599 BA-ACCT 3(3,0)
Directed Research Project in Auditing: PR: Admission to doctoral program and ACG 7599, or C.I. Highly individualized research project on a specific auditing research issue. Includes proposals development, methodology, data gathering, analysis, and reporting results.

ACG 7599 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.
<table>
<thead>
<tr>
<th>COURSE</th>
<th>TITLE</th>
<th>PREREQUISITES</th>
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<tbody>
<tr>
<td>AMH 5116</td>
<td>Colloquium in U.S. Colonial History: PR: Senior Standing or C.I.</td>
<td>Reading and discussion of the literature on selected topics in U.S. history.</td>
</tr>
<tr>
<td>AMH 5137</td>
<td>Colloquium in U.S. Revolutionary Period: PR: Senior Standing or C.I.</td>
<td>Reading and discussion of the literature on selected topics in the Revolutionary Era, 1763-1789.</td>
</tr>
<tr>
<td>AMH 5149</td>
<td>Colloquium in Early U.S. History, 1789-1815: PR: Senior standing or C.I.</td>
<td>Reading and class discussion of the literature on selected topics of the early national period.</td>
</tr>
<tr>
<td>AMH 5169</td>
<td>Colloquium Age of Jackson: PR: Senior Standing or C.I. Intensive reading and class discussion on selected topics of the Jacksonian age.</td>
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<tr>
<td>AMH 5176</td>
<td>Colloquium in Civil War and Reconstruction: PR: Senior Standing or C.I.</td>
<td>Intensive reading and class discussion on selected topics of the Civil War and Reconstruction era.</td>
</tr>
<tr>
<td>AMH 5219</td>
<td>Colloquium in Late 19th Century U.S.: PR: Senior Standing or C.I.</td>
<td>Reading and class discussion of the literature on selected topics of late 19th-century U.S.</td>
</tr>
<tr>
<td>AMH 5391</td>
<td>Colloquium in U.S. Cultural History: PR: Senior Standing or C.I.</td>
<td>Students will read and discuss a common or diverse body of the significant literature in the field.</td>
</tr>
<tr>
<td>AMH 5407</td>
<td>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.</td>
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</tr>
<tr>
<td>AMH 5446</td>
<td>Colloquium in U.S. Frontier: PR: Senior Standing or C.I. Reading and class discussion of the literature on selected topics of frontier history.</td>
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<tr>
<td>AMH 5515</td>
<td>Colloquium in U.S. Diplomatic History: PR: Senior Standing or C.I.</td>
<td>A survey of the historical literature of American foreign policy. May be repeated for credit when content is different.</td>
</tr>
<tr>
<td>AMH 5566</td>
<td>Colloquium: Women in American History: Intensive reading and class discussion on selected topics of Women in American History from colonial time to the present.</td>
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<tr>
<td>AMH 5937</td>
<td>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.</td>
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<tr>
<td>AMH 6939</td>
<td>Seminar in U.S. History: May be repeated for credit when content is different.</td>
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<tr>
<td>AMH 5156</td>
<td>AS-ENG 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.</td>
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<tr>
<td>ANT 5479</td>
<td>AS-SOC/AN Comparative Cultural Analysis: The dynamics of cultural processes in a multi-ethnic setting.</td>
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<tr>
<td>ARE 5251</td>
<td>ED-IP Art for Exceptionalities: Concepts, principles, and methods of integrating art processes into the education of the physically, emotionally, and mentally handicapped.</td>
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<tr>
<td>ARE 5255</td>
<td>ED-IP Arts in Recreation: Art activities and experiences appropriate for use in playground, leisure services, occupational orientation and other recreational areas.</td>
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<tr>
<td>ARE 5454</td>
<td>ED-IP Found Arts: PR: C.I. Materials available for instruction in the public schools will be explored in depth in relation to their appropriateness and productive qualities.</td>
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<tr>
<td>ARE 5648</td>
<td>ED-IP Contemporary Visual Arts Education: PR: ARE 4443 or C.I. Continued study of current programs and innovations in public school Visual Arts Programs.</td>
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<tr>
<td>ARE 6195</td>
<td>ED-IP Teaching Art Appreciation with Interdisciplinary Strategies: PR: Graduate status and public school teaching experience. Focuses on the examination of art appreciation examples and concepts toward planning curriculum (interdisciplinary for the study of art history, criticism, and aesthetics).</td>
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<tr>
<td>ARE 6666</td>
<td>ED-IP Arts Advocacy: The study and development of plans to produce arts advocacy programs for the public school system.</td>
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<tr>
<td>ARH 5451</td>
<td>AS-Art 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.</td>
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</tr>
<tr>
<td>ARH 5454</td>
<td>AS-Art Found Arts: PR: C.I. Materials available for instruction in the public schools will be explored in depth in relation to their appropriateness and productive qualities.</td>
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<tr>
<td>ARH 5478</td>
<td>AS-Art Contemporary Women Artists: PR: 6 credits of art courses or C.I. An in-depth study on contemporary women artists from a feminist perspective.</td>
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<tr>
<td>ARH 5934</td>
<td>AS-Art 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.</td>
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<tr>
<td>ART 5109C</td>
<td>AS-Art Multi-Cultural Crafts Design: The content of this course will include an appreciation for and the production of Western and Non-Western art forms.</td>
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<tr>
<td>Course Code</td>
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<tr>
<td>BOT 5495C</td>
<td>AS-BIOL</td>
<td>Bryology: PR: BOT 4303C or C.I. A lecture-laboratory survey course on the diversity and classification of mosses, liverworts, and hornworts, with special emphasis on those found in Florida.</td>
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<tr>
<td>BOT 5623C</td>
<td>AS-BIOL</td>
<td>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.</td>
</tr>
<tr>
<td>BOT 5705C</td>
<td>AS-BIOL</td>
<td>Plant Biosystematics: PR: Graduate standing or C.I. Evolutionary processes among plant taxa and populations utilizing cytology, morphology, biochemistry, breeding systems and co-evolution.</td>
</tr>
<tr>
<td>BOT 6146C</td>
<td>AS-BIOL</td>
<td>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.</td>
</tr>
<tr>
<td>BSC 5034</td>
<td>AS-BIOL</td>
<td>Biology and Society: PR: C.I. Biological concepts applied to current human problems food production, pollution, diseases, energy, life support systems, and natural ecosystems. Designed for teachers.</td>
</tr>
<tr>
<td>BSC 5408L</td>
<td>AS-BIOL</td>
<td>Advanced Biology Laboratory Techniques: PR: BS degree, C.I. This course will emphasize those biological techniques and resources necessary for students about to begin thesis research. Individual and small group instruction in current laboratory techniques, literature searches, and hands-on practice of techniques will be stressed. May not be repeated for credit.</td>
</tr>
<tr>
<td>BSC 5939</td>
<td>AS-BIOL</td>
<td>Biology for AP Teachers: Participants will perform and evaluate the 12 required labs, analyze the design and grading of the Exam, and develop a representative program.</td>
</tr>
<tr>
<td>BSC 6950</td>
<td>AS-BIOL</td>
<td>Biological Research Resources: PR: Graduate status. Research methodology including literature resources, problem conceptualization, research proposals, data collection, and analysis and presentation of findings.</td>
</tr>
<tr>
<td>BTE 6171</td>
<td>ED-IP</td>
<td>Business Education Curriculum: PR: Basic Teacher Certificate or C.I. Curriculum planning and development; objectives, innovations, problems, and issues in contemporary business programs.</td>
</tr>
<tr>
<td>BTE 6425</td>
<td>ED-IP</td>
<td>Advanced Business Instruction Techniques: PR: Graduate standing or C.I. Research, methods, and materials related to current practices in business education.</td>
</tr>
<tr>
<td>BTE 6426</td>
<td>ED-IP</td>
<td>Office Simulation Techniques: PR: Basic Teacher Certificate or C.I. Methods of office simulation for teachers at the developmental and performance levels.</td>
</tr>
<tr>
<td>BTE 6935</td>
<td>ED-IP</td>
<td>Seminar in Business Education: PR: Graduate standing or C.I. Current problems, issues, and trends in business education.</td>
</tr>
<tr>
<td>BTE 6946</td>
<td>ED-IP</td>
<td>Practicum Business Education: PR: Graduate standing. Techniques, materials, and instructional media; evaluation and new trends of instruction in all areas of business education.</td>
</tr>
<tr>
<td>BUL 5125</td>
<td>BA-ACCT</td>
<td>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.</td>
</tr>
<tr>
<td>CAP 5415</td>
<td>AS-COMP</td>
<td>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.</td>
</tr>
<tr>
<td>CAP 5610</td>
<td>AS-COMP</td>
<td>Machine Learning: PR: CAP 4530 or C.I. Origin/evaluation of machine intelligence, machine learning concepts and their applications in problem solving, planning and &quot;expert systems&quot;; symbolic role of human and computers.</td>
</tr>
<tr>
<td>CAP 5636</td>
<td>AS-COMP</td>
<td>Advanced Artificial Intelligence: PR: CAP 4630. Artificial theory of knowledge representation, &quot;expert systems,&quot; memory organization, problem solving, planning, vision, and natural language.</td>
</tr>
<tr>
<td>CAP 5725</td>
<td>AS-COMP</td>
<td>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.</td>
</tr>
<tr>
<td>CAP 6411</td>
<td>AS-COMP</td>
<td>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.</td>
</tr>
<tr>
<td>CAP 6412</td>
<td>AS-COMP</td>
<td>Advanced Computer Vision: PR: CAP 5410. Computational theories of perception, shape from X' techniques, multi-resolution image analysis, 3-D model based vision, perceptual organization, spatiotemporal model, knowledge-based vision systems.</td>
</tr>
<tr>
<td>CAP 6613</td>
<td>ED-IP</td>
<td>Utilizing Microcomputers in Education: Instruction in microcomputers emphasizing applications of software in the classroom and for school recordkeeping.</td>
</tr>
<tr>
<td>CAP 6640</td>
<td>AS-COMP</td>
<td>Computer Understanding of Natural Language: PR: CAP 5601. A study of the different approaches to build programs to &quot;understand&quot; natural language. The theory of parsing, knowledge representation, memory, and inference will be studied.</td>
</tr>
<tr>
<td>CAP 6671</td>
<td>AS-COMP</td>
<td>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.</td>
</tr>
<tr>
<td>CAP 6676</td>
<td>AS-COMP</td>
<td>Knowledge Representation: PR: CAP 5636. Topics covered include terminological languages, logist approaches, ontologies, ontological and conceptual relativity, processes, intangibles, time, building large knowledge bases, and complexity analysis.</td>
</tr>
<tr>
<td>CAP 6701</td>
<td>AS-COMP</td>
<td>Computer Graphics 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.</td>
</tr>
<tr>
<td>CCJ 5015</td>
<td>HPA-CJ</td>
<td>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.</td>
</tr>
<tr>
<td>CCJ 5105</td>
<td>HPA-CJ</td>
<td>Foundations of Law Enforcement: PR: C.I. Examines police role in modern society and law enforcement policy.</td>
</tr>
</tbody>
</table>
CCJ 5305 HPA-CJ 3(3,0)
Foundations of Corrections: PR: C.I. Provides an overview of correctional process in U.S., including philosophical foundations and contemporary practices.

CCJ 5406 HPA-CJ 3(3,0)
Research and Technology Implementation: Changing roles of social and physical sciences as related to the objectives and administration of public safety agencies.

CCJ 5456 HPA-CJ 3(3,0)
The Administration of Justice: This course provides an overview of the criminal justice system and a critical analysis of formal and informal processing of offenders by criminal justice agencies.

CCJ 5467 HPA-CJ 3(3,0)
Justice and Safety System Manpower: Processes essentials to administration to human resources in criminal justice and public safety agencies; structure and processes for acquisition, training, and maintenance of personnel.

CCJ 5704 HPA-CJ 3(3,0)
Research Methods in Criminal Justice: An examination of the philosophy and techniques of research as applied in the Criminal Justice field.

CCJ 6106 HPA-CJ 3(3,0)
Policy Analysis in Criminal Justice: This course is designed to familiarize students with the causes and consequences of public policy with an emphasis on criminal justice policy.

CCJ 6217 HPA-CJ 3(3,0)
Law and Social Control: This course will examine the types of behavior the state has sought to control and the means employed to exert such control.

CCJ 6485 HPA-CJ 3(3,0)
Issues in Justice Policy: Examination of selected issues of public policy regarding the functions and roles of criminal justice agencies vis-à-vis other government departments or agencies and public purposes.

CCJ 6505 HPA-CJ 3(3,0)
The Juvenile Justice System: This course will focus on the development and philosophy of the Juvenile Justice System; the measurement of delinquency, theories and correlates of delinquency and prevention.

CCJ 6705 HPA-CJ 3(3,0)
Applied Criminal Justice Research: Upon successful completion of this course the student will gain an understanding of the major philosophical, theoretical, and conceptual approaches to evaluation research.

CCJ 6706 HPA-CJ 3(3,0)
Quantitative Methods and Computer Utilization in Criminal Justice: Application of statistical software to quantitative and qualitative methods in Criminal Justice.

CCJ 6730 HPA-CJ 3(3,0)
Planned Change and Innovation in Criminal Justice: This course will provide participants with an understanding of planned individual and organizational change so that they may become successful agents of such change.

CCJ 6934 HPA-CJ 3(3,0)
Criminal Justice, Crime, and 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 portrayal have on society and Criminal Justice.

CCJ 6938 HPA-CJ 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 Variable
Criminal Justice Practicum: Students will undertake a significant research project in a criminal justice agency.

CCJ 7457 HPA-CJ 3(3,0)
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 3(3,0)
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 3(3,0)
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 3(3,0)
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 3(3,0)
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 5501 AS-COMP 3(3,0)

CDA 6107 AS-COMP 3(3,0)
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 3(3,0)
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 3(3,0)
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 3(3,0)
Computer Networks Design and Distributed Processing: PR: CDA 5501 and COT 5611. Computer communications networks design considerations, network operating system, distributed processing.

CEG 5015 EN-CEE 3(3,0)
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: 3(3,0)
Geo-Environmental Engineering: PR: CEG 4101C. Geotechnical applications to environmental problems, groundwater flow, soil contamination and groundwater contaminant transport, geosynthetics and stability of landfill design, control of contaminated sites.

CEG 6065 EN-CEE: 3(3,0)
Soil Dynamics: PR: CEG 4101C. Comprehensive coverage in calculating the dynamic response of foundations, presenting a variety of contemporary techniques for fields and laboratory.

CEG 6115 EN-CEE: 3(3,0)
Foundation Engineering: PR: CEG 5015. Analysis and design of spread footings, mat foundations, retaining walls, sheeting and bracing systems and pile foundations.

CEG 6317 EN-CEE: 3(3,0)

CEN 5016 AS-COMP: 3(3,0)
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.

CES 5325 EN-CEE: 3(3,0)
Bridge Engineering: PR: CEG 4605; CEG 4702. Structural systems for bridges, loading, analysis by influence lines, slab and girder bridges, composite design, prestressed concrete, rating of existing bridges, specifications and economic factors.

CES 5606 EN-CEE: 3(3,0)
Advanced Steel Structures: PR: CEG 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: 3(3,0)
Advanced Reinforced Concrete: PR: CEG 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: 3(3,0)
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.

CES 6116 EN-CEE: 3(3,0)
Finite Element Structural Analysis: PR: CEG 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.

CES 6126 EN-CEE: 3(3,0)

CES 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 and axisymmetric problems of solid mechanics; applications to structural and geomechanics problems; programming.

CES 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 in structural engineering.

CES 6218 EN-CEE: 3(3,0)

CES 6220 EN-CEE: 3(3,0)
Wind and Earthquake Engineering: PR: CEG 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.

CES 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.

CES 6715 EN-CEE: 3(3,0)
Prestressed Concrete Structures: PR: CEG 4702 and CEG 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.

CES 6840 EN-CEE: 3(3,0)
Composite Steel Concrete Structures: PR: CEG 5606 and CEG 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.

CES 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 3365C, 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.

CGN 6655 EN-CEE: 3(3,0)
Regional Planning, Design, and Development: PR: ENV 4651. Project course dealing with planning, design, and development of regional systems, including projections, case studies, design alterations, environmental impact, etc.

CGS 5310 ED-EPE: 3(3,0)
Computer-Based Educational Systems: PR: COP 4020 or equivalent. The design and implementation of computer-based educational systems. Selected projects using high-level programming languages.

CHM 5225 AS-CHEM: 3(3,0)

CHM 5235 AS-CHEM: 3(3,0)
CHM 5305 AS-CHEM 3(3,0)
Applied Biological Chemistry: PR: CHM 2211. The identification from plants, synthesis, assessment of bioactivity, and design of pharmaceuticals and agrochemicals, as well as the impact of biotechnology in the chemical industry.

CHM 5450 AS-CHEM 3(3,0)
Polymer Chemistry: PR: CHM 2211. An introduction to the chemistry of synthetic polymers. Synthetic methods, polymerization mechanisms, characterization techniques, and polymer properties will be considered.

CHM 5451L AS-CHEM 2(0,6)
Polymer Chemistry Laboratory: PR: CHM 2211 AND CHM 3410. A laboratory course designed to introduce students to the major polymerization mechanisms. Polymer synthesized in the laboratory will be characterized using modern instrumental methods.

CHM 5580 AS-CHEM 3(3,0)

CHM 5711 AS-CHEM 2(2,0)
The Chemistry of Materials: PR: CHM 2211, CHM 4130C, and CHM 3411. Structure and properties of chemical products, with an emphasis on the correlation between molecular form and the functional properties deemed desirable for the product.

CHM 6440 AS-CHEM 2(2,0)
Kinetics and Catalysis: PR: CHM 3411 or equivalent. Classical kinetics with an emphasis on industrial applications and current catalysis methodologies.

CHM 6710 AS-CHEM 2(2,0)
Applied Analytical Chemistry: PR: CHM 3211, CHM 4130C, and CHM 3411 or equivalent. Concepts in molecular structure that integrate structural, physical, and chemical properties with aspects of industrial and analytical chemistry.

CHM 6938 AS-CHEM 1(1,0)
Graduate Seminar: PR: C.I. A topic of current chemical interest will be presented by students at a regularly scheduled departmental seminar. May be repeated for credit.

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)
Quality Assurance and 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 6651 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.

CIS 5101 AS-COMP 3(3,0)
Computational Techniques in Management Information Systems: PR: CCP 4710. Computers in management information systems: analysis, design approaches, processing methods and data management; use of state-of-the-art software in design and development.

CLP 4524, 5101 AS-PSYCH 3(3,0)
Advanced Abnormal Psychology: Consideration of classification, causation, management and treatment of emotional disorders. Review of theories and research in the field. Lecture/Laboratory.

CLP 6441 AS-PSYCH 3(3,0)
Introduction to Individual Psychological Assessment: PR: Graduate admission and C.I. Theory and techniques of psychological assessment with emphasis on intake interviewing, cognitive and personality assessment, and report writing. To be taken concurrently with CLP 6441L.

CLP 6441L AS-PSYCH 1(0,2)
Clinical Lab - Individual Assessment: PR: C.I. Practice in specific techniques in individual assessment. To be taken concurrently with CLP 6441.

CLP 6445 AS-PSYCH 3(3,0)
Psychological Theory and Assessment: PR: CLP 6441. Graduate admission and C.I. Theories of personality and techniques of personality assessment with primary emphasis on interviewing skills, objective and projective techniques, and report writing. To be taken concurrently with CLP 6445L.

CLP 6445L AS-PSYCH 1(0,2)
Clinical Lab - Personality Assessment: PR: C.I. Practice in specific techniques in personality assessment. To be taken concurrently with CLP 6445.
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits (Hrs)</th>
</tr>
</thead>
<tbody>
<tr>
<td>COT 5507</td>
<td>Operating Systems Design Principles: PR: COP 4600</td>
<td>3(3,0)</td>
</tr>
<tr>
<td></td>
<td>Operating Systems Techniques: PR: COP 5611</td>
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<td></td>
<td>Operating Systems Theory: PR: COP 5611</td>
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<td>Compiler Construction: PR: COP 5021</td>
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<td>Advanced Database Systems: PR: COP 5711</td>
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<td>Formal Languages and Automata Theory: PR: COP 4020</td>
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<td>Design and Analysis of Algorithms: PR: COP 4210</td>
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<td></td>
<td>Computational Methods/Applications: PR: COP 4500</td>
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</tbody>
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**OCCURRENCES**

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<thead>
<tr>
<th>Course Code</th>
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<th>Credits (Hrs)</th>
</tr>
</thead>
<tbody>
<tr>
<td>CLP 6456</td>
<td>AS-PSYCH Individual Counseling &amp; Theory and Practice: PR: Graduate admission and C.I.</td>
<td>3(2,2)</td>
</tr>
<tr>
<td>CLP 6456L</td>
<td>AS-PSYCH Clinical Lab - Counseling: PR: C.I. Practice in specific techniques in counseling.</td>
<td>1(0,2)</td>
</tr>
<tr>
<td>CLP 6457</td>
<td>AS-PSYCH Group Psychotherapy: PR: CLP 6456, Graduate admission and C.I. Group counseling: theory and process. Experiential group laboratory.</td>
<td>3(2,2)</td>
</tr>
<tr>
<td>CLP 6457L</td>
<td>AS-PSYCH Clinical Lab - Group Therapy: Practice in group counseling. To be taken concurrently with CLP 6457.</td>
<td>1(0,2)</td>
</tr>
<tr>
<td>CLP 6458</td>
<td>AS-PSYCH Behavior Therapy: PR: CLP 6456, graduate admission, and C.I. Introduction to the principles and procedures of behavior modification as a clinical intervention technique.</td>
<td>3(2,2)</td>
</tr>
<tr>
<td>CLP 6458L</td>
<td>AS-PSYCH Clinical Lab: Behavior Therapy: PR: C.I. Practice in specific techniques in behavior therapy. To be taken concurrently with CLP 6458.</td>
<td>1(0,2)</td>
</tr>
<tr>
<td>CLP 6459</td>
<td>AS-PSYCH Human Sexuality, Marriage, and Sex Therapies: PR: CLP 6456, graduate admission, and C.I. A survey of human sexuality, theory and practice of marriage and sex therapy. To be taken concurrently with CLP 6459L.</td>
<td>3(3,0)</td>
</tr>
<tr>
<td>CLP 6459L</td>
<td>AS-PSYCH Clinical Lab - Marriage and Sex Therapy: PR: CLP 6456, CLP 6456L, graduate admission, and C.I. Practice in specific techniques in marriage and sex therapy. To be taken concurrently with CLP 6459.</td>
<td>1(0,2)</td>
</tr>
<tr>
<td>CLP 6460</td>
<td>AS-PSYCH Introduction to Child, Adolescent, and Family Therapies: PR: CLP 6456; CLP 6456L, graduate admission, and C.I. A survey of theories and practices of child, adolescent, and family therapies. To be taken concurrently with CLP 6460L.</td>
<td>3(3,0)</td>
</tr>
<tr>
<td>CLP 6460L</td>
<td>AS-PSYCH Clinical Lab, Child, Adolescent, and Family Therapies: PR: CLP 6456; CLP 6456L, graduate admission, C.I. Practice in specific techniques in child, adolescent, and family therapies. To be taken concurrently with CLP 6460L.</td>
<td>1(0,2)</td>
</tr>
<tr>
<td>CLP 6932</td>
<td>AS-PSYCH 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.</td>
<td>3(3,0)</td>
</tr>
<tr>
<td>COM 6121</td>
<td>AS-COMM Communication Management: Analysis and development with reference to particular media. Organizational theory, structure, and behavior. Management principles and operations.</td>
<td>3(3,0)</td>
</tr>
<tr>
<td>COM 6303</td>
<td>AS-COMM Communication Research I: Analysis of theory and methodology in communication research, with emphasis on persuasion, nonverbal communication, and interpersonal communication.</td>
<td>3(3,0)</td>
</tr>
<tr>
<td>COM 6304</td>
<td>AS-COMM Communication Research II: PR: Statistics and COM 6303. Planning and implementation of research in persuasion, nonverbal communication, and interpersonal communication.</td>
<td>3(3,0)</td>
</tr>
<tr>
<td>COM 6468</td>
<td>AS-COMM Communication and Conflict: Research seminar in the study of communication and conflict.</td>
<td>3(3,0)</td>
</tr>
</tbody>
</table>

**COP 5021**  
Program Analysis: PR: COP 4020 and COP 4210. Syntactic and semantic analysis of programs. Theoretical and practical limitations, attribute evaluation, data flow analysis, program optimization, intermediate representations code generation, Tools to automate analysis.  

**COP 5570**  
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**  
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**  
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**  
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**  

**COP 6621**  
Compiler Construction: PR: COP 5021. COT 5310. Techniques in the design and implementation of compilers. Optimization, code generation, error recovery, attributed grammars. A project is required.  

**COP 6730**  

**COP 6731**  
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**  
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**  
Design and Analysis of Algorithms: PR: COP 4210 and COP 4110. Classification of algorithms, e.g., recursive, divide-and-conquer, greedy, etc. Data structures and algorithm design and performance. Time and space complexity analysis.  

**COT 5507**  
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.  

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<table>
<thead>
<tr>
<th>COURSE</th>
<th>PR</th>
<th>HOURS</th>
</tr>
</thead>
<tbody>
<tr>
<td>COT 5510   AS-COMP</td>
<td>Computational Methods/Linear Systems: PR: COT 4500 and MAS 3113. Mathematical models for linear systems, linear programming, the simplex method, integer and mixed-integer programming, introduction to nonlinear optimization and linearization.</td>
<td>3(3,0)</td>
</tr>
<tr>
<td>COT 5520   AS-COMP</td>
<td>Computational Geometry: CR: COT 5405. Geometric searching, point location, convex hulls, proximity problems, Voronoi diagrams, spanning trees, triangulation, intersection arrangement applications.</td>
<td>3(3,0)</td>
</tr>
<tr>
<td>COT 6300   AS-COMP</td>
<td>The Theory of Parsing and Translation: PR: COT 5310. Methods of top-down and bottom-up parsing, LL(k), recursive descent, precedence, bounded-context, SR(s,k), SLR(k), LALR(k), LR(k), parser compression and generation.</td>
<td>3(3,0)</td>
</tr>
<tr>
<td>COT 6410   AS-COMP</td>
<td>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.</td>
<td>3(3,0)</td>
</tr>
<tr>
<td>COT 6415   AS-COMP</td>
<td>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.</td>
<td>3(3,0)</td>
</tr>
<tr>
<td>COT 6505   AS-COMP</td>
<td>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.</td>
<td>3(3,0)</td>
</tr>
<tr>
<td>CPO 6091   AS-POLS</td>
<td>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.</td>
<td>3(3,0)</td>
</tr>
<tr>
<td>CRW 5020   AS-ENG</td>
<td>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.</td>
<td>3(3,0)</td>
</tr>
<tr>
<td>CRW 5932   AS-ENG</td>
<td>Teaching Creative Writing: PR: C.I. Creative writing practicum. May be repeated for credit.</td>
<td>3(2,1)</td>
</tr>
<tr>
<td>CRW 6025   AS-ENG</td>
<td>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.</td>
<td>3(3,0)</td>
</tr>
<tr>
<td>CWR 5205   EN-CEE</td>
<td>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.</td>
<td>3(3,0)</td>
</tr>
<tr>
<td>CWR 5545   EN-CEE</td>
<td>Water Resources Engineering: PR: CWR 4101C, CWR 4203C. Systems identification and solution to complex water allocation problems, and other hydraulic engineering designs and operations using economic analysis and operations research techniques.</td>
<td>3(3,0)</td>
</tr>
<tr>
<td>CWR 6102   EN-CEE</td>
<td>Advanced Hydrology: PR: CWR 4101 or C.I. Single site and regional frequency analysis; modeling hydrologic systems; lumped and distributed event models for urban and natural drainage basins; continuous simulation; real-time forecasting.</td>
<td>3(3,0)</td>
</tr>
<tr>
<td>CWR 6125   EN-CEE</td>
<td>Groundwater Hydrology: PR: CWR 4203C or equivalent. Theories of groundwater movement, geological factors, analysis and design techniques, etc. Emphasis on practical considerations.</td>
<td>3(3,0)</td>
</tr>
<tr>
<td>CWR 6126   EN-CEE</td>
<td>Groundwater Modeling: PR: CWR 6125. Review of contemporary computer-based groundwater flow models and their application to environmental engineering problems.</td>
<td>3(3,0)</td>
</tr>
<tr>
<td>CWR 6235   EN-CEE</td>
<td>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.</td>
<td>3(3,0)</td>
</tr>
<tr>
<td>CWR 6236   EN-CEE</td>
<td>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.</td>
<td>3(3,0)</td>
</tr>
<tr>
<td>CWR 6535   EN-CEE</td>
<td>Modeling Water Resources Systems: PR: CWR 4101C and CWR 4203C. Contemporary mathematical models for water quantity and quality considerations including computer-based hydraulic and hydrologic models.</td>
<td>3(3,0)</td>
</tr>
<tr>
<td>CYP 6949   AS-PSYCH</td>
<td>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.</td>
<td>3(2,20)</td>
</tr>
<tr>
<td>DEP 5057   AS-PSYCH</td>
<td>Developmental Psychology: PR: Graduate admission or C.I. Psychological aspects of development including intellectual, social, and personality factors.</td>
<td>3(3,0)</td>
</tr>
<tr>
<td>EAB 5765   AS-PSYCH</td>
<td>Applied Behavior Analysis with Children and Youth: PR: DEP 5057 and EXP 5445 or C.I. Advanced survey of principles, procedures, and techniques of applied behavior analysis, with special attention to applications with children and youth.</td>
<td>3(3,0)</td>
</tr>
<tr>
<td>EAS 5123   EN-MMAE</td>
<td>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.</td>
<td>3(3,0)</td>
</tr>
<tr>
<td>EAS 5157   EN-MMAE</td>
<td>V/Stol Aerodynamics and Performance: PR: EAS 4105; CR: EML 5060. Momentum theory, blade element theory, hover and forward flight, stability, aerelasticity.</td>
<td>3(3,0)</td>
</tr>
<tr>
<td>EAS 5302   EN-MMAE</td>
<td>Direct Energy Conversion: PR: EML 3101 and EML 4142. Direct methods of energy conversion; particular emphasis on fuel cells, thermoelectrics, thermonics, solar energy, photovoltaics and magnetohydrodynamics. Analysis and systems design.</td>
<td>3(3,0)</td>
</tr>
<tr>
<td>EAS 5515   EN-MMAE</td>
<td>Rocket Propulsion: PR: EAS 4134 or EML 4703. Analysis and performance of rocket motors, propulsion and thermochemistry of chemical propellants: liquid and solid propellant rockets.</td>
<td>3(3,0)</td>
</tr>
<tr>
<td>EAS 6138   EN-MMAE</td>
<td>Advanced Gas Dynamics: PR: EML 5713 or C.I. CR: EML 5060. Analysis of steady and unsteady transonic, supersonic and hypersonic flows. Shock waves, nozzles, diffusers, and high speed wind tunnels.</td>
<td>3(3,0)</td>
</tr>
<tr>
<td>EAS 6165   EN-MMAE</td>
<td>Turbulent Flow: PR: EML 5060 and EML 5713 or C.I. Phenomena and methods of characterizing turbulence; spatial and temporal velocity</td>
<td>3(3,0)</td>
</tr>
</tbody>
</table>
correlation; energy spectra; transition prediction; turbulent boundary layer equations; hot wire and LDV measurement techniques.

EAS 6405 EN-MMAE 3(3,0)

EAS 6507 EN-MMAE 3(3,0)
Topics of Astro Dynamics: PR: EML 5271 or C.I. Spacecraft attitude dynamics and control. Orbital mechanics. Optimal control of aerospace vehicles. Emphasis is on recent developments and applications.

ECM 5135 EN-EECE 3(3,0)

ECM 5741C EN-EECE 3(2,3)
Microcomputer-based Monitoring and Control Systems: PR: EEL 3342; EEL 4767C or C.I. Machine language programming; software development aids; systems design; interfacing considerations.

ECM 6235 EN-EECE 3(3,0)

ECO 5005 BA-ECON 3(3,0)
Economic Concepts: PR: Acceptance into the graduate program. Introduction to micro and macro economic analysis.

ECO 5415 BA-ECON 3(3,0)
Statistics for Business and Economics: PR: 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.

ECO 6115 BA-ECON 3(3,0)
Economic Analysis of the Firm: PR: 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.

ECO 6206 BA-ECON 3(3,0)
Aggregate Economic Conditions and Analysis: PR: Graduate standing and ECO 5005 or equivalent. An analysis of aggregate economic conditions including the determination of output, employment, and income levels.

ECO 6226 BA-ECON 3(3,0)
Seminar in Money, Banking, and Monetary Policy: PR: Graduate standing and ECO 5005 or equivalent. Study of the structural foundation and policy-making activities of the monetary authorities.

ECO 6266 BA-ECON 3(3,0)
Business Cycles and Forecasting: PR: ECO 5005 and ECO 6416 or equivalents, graduate standing. Use of economic tools for measuring changes in aggregate economic activity, changes in production and prices, and the use of statistical techniques.

ECO 6305 BA-ECON 3(3,0)
History of Economic Thought: PR: Graduate standing and ECO 5005 or equivalent. A study of the leading ideas of the major contributors to the development of economic thought.

ECO 6416 BA-ECON 3(3,0)
Statistical Methods for Business Decisions: PR: 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.

ECO 6424 BA-ECON 3(3,0)
Econometrics: PR: 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.

ECO 6505 BA-ECON 3(3,0)
Public Finance and Fiscal Policy: PR: Graduate standing and ECO 6115 or equivalent. Analysis of the role of government and the effects of spending, taxing, and borrowing on the economy.

ECO 6705 BA-ECON 3(3,0)
Seminar in International Economics: PR: Graduate standing and ECO 6115 or equivalent. An inquiry into the theory of international trade and finance, commercial policy, and economic integration.

ECO 7115 BA-ECON 3(3,0)
Microeconomic Theory: PR: Graduate standing and ECO 6115 or equivalent. Advanced treatment of demand, production cost, market theory under varying competitive conditions.

ECO 7206 BA-ECON 3(3,0)
Macroeconomic Theory: PR: Graduate standing and masters-level macroeconomics. Includes sectoral components of the economy; fluctuation and stabilization policies and special macro topics.

ECP 6205 BA-ECON 3(3,0)
Labor Economics: PR: 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.

ECP 6405 BA-ECON 3(3,0)
Industrial Organization and Performance: PR: Graduate standing and ECO 6115. A study of the performance of various types of market structure and practice relative to price and efficiency.

ECP 6605 BA-ECON 3(3,0)
Economics of Urban and Regional Problems: PR: Graduate standing and ECO 6115. Economic analysis of the problems arising from and associated with the growth and development of cities and regions.

ECP 6705 BA-ECON 3(3,0)
Managerial Economics: PR: Graduate standing and ECO 6115 or equivalent. The use of economic tools and methods of reasoning applied to a wide range of business and economic problems.

ECS 6006 BA-ECON 3(3,0)
Seminar in Comparative Economic Systems: PR: Graduate standing and ECO 5005 or equivalent. An examination of factors that influence economic systems, patterns of resource allocation, and income distribution in differing economic environments.

ECS 6015 BA-ECON 3(3,0)
Economic Development: PR: Graduate standing and ECO 5005 or equivalent. Analysis of theories and problems of growth and development with special attention to resource scarcity, population growth, and interaction of foreign trade and internal development.

EDA 6061 ED-EDS 3(3,0)
Organization and Administration of Schools: PR: Basic Teacher Certificate or C.I. Introduction to and overview of educational administration including governance, finance communications and information management, personnel evaluation.

EDA 6106 ED-EDS 3(3,0)
Trends in Educational Administration: PR: Master's degree and/or Rank II certification including a course in school organization. Examines exemplary organization patterns in school administration. Study of patterns of functions in selected outstanding school organizations.
<table>
<thead>
<tr>
<th>COURSE</th>
<th>EDA</th>
<th>PR</th>
<th>credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDA 6232 ED-ED S</td>
<td>Legal Aspects of School Operation: PR: Basic Teacher Certificate or C.I. Study of state and federal laws affecting the operation of public schools emphasizing individual rights and responsibilities of students, faculty, and administrators.</td>
<td></td>
<td>3(3,0)</td>
</tr>
<tr>
<td>EDA 6240 ED-ED S</td>
<td>Educational Financial Affairs: PR: Basic Teacher Certificate or C.I. Theoretical and practical approaches to managing school business affairs at central office and individual school levels.</td>
<td></td>
<td>3(3,0)</td>
</tr>
<tr>
<td>EDA 6260 ED-ED S</td>
<td>Educational Systems Planning and Management: PR: Basic Teacher Certificate or C.I. Application of current educational management and behavioral theory for systems approaches in schools and educational facilities.</td>
<td></td>
<td>3(3,0)</td>
</tr>
<tr>
<td>EDA 6300 ED-ED S</td>
<td>Community School Administration: PR: C.I. The relationships between the school and the community with special emphasis on community needs and the development of a total community school program.</td>
<td></td>
<td>3(3,0)</td>
</tr>
<tr>
<td>EDA 6502 ED-ED S</td>
<td>Organization and Administration of Instructional Programs: PR: Basic Teacher Certificate or C.I. Study of school organization, administration, and management with emphasis toward organizational theory, leadership, evaluation, and change and improvement strategies.</td>
<td></td>
<td>3(3,0)</td>
</tr>
<tr>
<td>EDA 6540 ED-ED S</td>
<td>Organization and Administration of Higher Education: PR: C.I. Purposes, organizations, and administration of two-year and four-year institutions of higher education in the United States. Public and private colleges are studied.</td>
<td></td>
<td>3(3,0)</td>
</tr>
<tr>
<td>EDA 6931 ED-ED S</td>
<td>Contemporary Issues in Educational Leadership: A capstone course intended to stimulate inspection, analysis, and dialogue regarding contemporary issues and tensions facing educational leaders and educational systems.</td>
<td></td>
<td>3(3,0)</td>
</tr>
<tr>
<td>EDA 6946 ED-ED S</td>
<td>Internship: PR: C.I. Normally, the Educational Leadership internship is completed during the latter part of the degree program. Application must be made in semester prior to internship through the student's advisor.</td>
<td></td>
<td>1-6</td>
</tr>
<tr>
<td>EDA 7101 ED-ED S</td>
<td>Organizational Theory in Education: PR: Advanced graduate status or C.I. Overview of sociological and behavioral theories that are applicable to administration of various educational organizations.</td>
<td></td>
<td>3(3,0)</td>
</tr>
<tr>
<td>EDA 7192 ED-ED S</td>
<td>Educational Leadership: PR: Advanced graduate status or C.I. An analysis of the interactive process and functioning of groups; development of skills essential for effective educational leadership; and the change process.</td>
<td></td>
<td>4(4,0)</td>
</tr>
<tr>
<td>EDA 7195 ED-ED S</td>
<td>Politics, Governance, and Financing of Educational Organizations: PR: Advanced graduate status or C.I. The study of policy development as a political process; governance issues; and financial issues in education.</td>
<td></td>
<td>4(4,0)</td>
</tr>
<tr>
<td>EDA 7205 ED-ED S</td>
<td>Planning, Research, and Evaluation Systems in Educational Administration: PR: Advanced graduate status or C.I. The study of research and evaluation methodologies, system theory, and planning and design strategies in educational administration.</td>
<td></td>
<td>4(4,0)</td>
</tr>
<tr>
<td>EDA 7225 ED-ED S</td>
<td>Educational Personnel, Contracts, and Negotiations: PR: Advanced graduate status or C.I. Program and completion of a course in school law. Readings, discussions, and research pertaining to administration of educational personnel and contracts with emphasis on collective bargaining, negotiations, and grievance resolution.</td>
<td></td>
<td>4(4,0)</td>
</tr>
<tr>
<td>EDA 7235 ED-ED S</td>
<td>Seminar in School Law: PR: C.I. Seminar to explore various legal aspects related to the administration and organization of American education and to enable the individual to research in-depth selected legal topics.</td>
<td></td>
<td>3(3,0)</td>
</tr>
<tr>
<td>EDA 7236 ED-ED S</td>
<td>Legal Issues in Higher Education: PR: Advanced graduate status or C.I. Addresses legal framework of public and private institutions of higher education with emphasis on case law related to organization, governance, faculty, students, curriculum, and environment.</td>
<td></td>
<td>3(3,0)</td>
</tr>
<tr>
<td>EDA 7260 ED-ED S</td>
<td>Educational Facilities: PR: C.I. Administration of educational facilities such as surveys, finance plans and specifications, equipment, contracts, construction procedures, maintenance and custodial services.</td>
<td></td>
<td>3(3,0)</td>
</tr>
<tr>
<td>EDA 7274 ED-ED S</td>
<td>Seminar: Applications of Technology to Educational Leadership: PR: EDA 6260 or C.I. Study of administrative and leadership technology applications at the school building or district level.</td>
<td></td>
<td>3(4,0)</td>
</tr>
<tr>
<td>EDA 7919 ED-ED S</td>
<td>Dissertation Research: PR: C.I.</td>
<td></td>
<td>1-6</td>
</tr>
<tr>
<td>EDA 7930 ED-ED S</td>
<td>Seminar in School Administration: PR: C.I. Discussion of problems in school administration, patterns of curriculum organization, and research projects.</td>
<td></td>
<td>3(3,0)</td>
</tr>
<tr>
<td>EDA 7943 ED-ED S</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>
<td></td>
<td>3(3,0)</td>
</tr>
<tr>
<td>EDA 7980 ED-ED S</td>
<td>Dissertation: PR: Admission to candidacy.</td>
<td></td>
<td>1-20</td>
</tr>
<tr>
<td>EDE 6541 ED-IP</td>
<td>Individualized Instruction in the Elementary School: PR: Regular Certificate or C.I. Study of basic philosophy, organizational patterns, techniques, materials, and activities related to individualizing instruction in the elementary school classroom.</td>
<td></td>
<td>3(3,0)</td>
</tr>
<tr>
<td>EDE 6205 ED-IP</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>
<td></td>
<td>3(3,0)</td>
</tr>
<tr>
<td>EDF 5245 ED-ED F</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>
<td></td>
<td>3(3,0)</td>
</tr>
<tr>
<td>EDF 5259 ED-ED F</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>
<td></td>
<td>3(3,0)</td>
</tr>
<tr>
<td>EDF 6155 ED-ED F</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>
<td></td>
<td>3(3,0)</td>
</tr>
<tr>
<td>EDF 6233 ED-ED F</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>
<td></td>
<td>3(3,0)</td>
</tr>
</tbody>
</table>
EDF 6236  ED-ED F  3(3,0)
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.

EDF 6259  ED-ED F  3(3,0)
Strategies of Classroom Management: Study of strategies of classroom management that result in optimum learning and a minimum of behavior problems.

EDF 6401  ED-ED F  3(3,0)
Statistics for Educational Data: PR: EDF 6481 or C.I. Design of educational evaluation; analysis of data, descriptive and inferential statistics, interpretation of results.

EDF 6432  ED-ED F  3(3,0)
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.

EDF 6447  ED-ED F  3(3,0)
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.

EDF 6481  ED-ED F  3(3,0)
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.

EDF 6486  ED-ED F  3(3,0)
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.

EDF 6517  ED-ED F  3(3,0)
History and Philosophy of American Education: PR: C.I. A critical analysis of the conceptual and operative educational systems developed in the United States.

EDF 6608  ED-ED F  3(3,0)
Social Factors in American Education: Analysis of general and specific aspects of American education as they relate to social and behavioral sciences.

EDF 6886  ED-ED F  3(3,0)
Multicultural Education: A survey of multicultural education; analysis of the relationship between cultural transmission, cultural pluralism, and the learning process within American schools.

EDF 7232  ED-ED F  3(3,0)
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.

EDF 7403  ED-ED F  3(3,0)
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.

EDF 7463  ED-ED F  3(3,0)
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.

EDF 7475  ED-ED F  3(3,0)
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.

EDG 5325  ED-ED F  3(3,0)
Techniques for the Developing Professional in Education: PR: C.I. Analysis, study, development, and use of techniques for enhanced instruction in the educational setting.

EDG 5337  ED-ED F  3(3,0)
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.

EDG 5745  ED-ED F  3(3,0)
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.

EDG 6941  ED-ED F  2-8(0,11)
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.

EDG 6946  ED-ED F  3(3,0)
Contemporary Issues in Education: An analysis of current trends in education and their impact on educational programs.

EDG 6947  ED-ED F  3(3,0)
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.

EDG 6953  ED-ED F  3(3,0)
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.

EDG 6956  ED-ED F  3(3,0)
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.

EDG 6964  ED-ED F  1-8(0,8)
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.)

EDG 6964  ED-ED F  1-2
Practicum, Clinical Practice: PR: C.I.

EDG 7221  ED-ED F  3(3,0)
Advanced Curriculum Theory: PR: EDG 6223 or C.I. An analysis of the research base which supports the various dimensions of the curriculum field.

EDG 7356  ED-ED F  3(3,0)
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.

EDG 7356  ED-ED F  3(3,0)
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.
EDG 7919  ED-ED F  1-6
Dissertation Research: PR: C.I.

EDG 7939  ED-ED F  1-6
Special Topics/Seminars: PR: Doctoral level

EDG 7880  ED-ED F  1-20
Dissertation: PR: Admission to Candidacy.

EDH 6053  ED-ED S  3(3,0)
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.

EDH 6061  ED-ED S  3(3,0)
Contemporary Problems in Community Colleges: PR: EDH 6204 or C.I. Analysis of the critical issues facing community colleges today and in the near future.

EDH 6065  ED-ED S  3(3,0)
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.

EDH 6204  ED-ED S  3(3,0)
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.

EDH 6215  ED-ED S  3(3,0)
Community College Curriculum: PR: C.I. Examination of the background, development, function, and goals of the curriculum of the community college.

EDH 6305  ED-ED S  3(3,0)
Teaching and Learning in the Community College: PR: EDF 7232. Focuses on teaching effectiveness in the community college.

EDH 6505  ED-ED S  3(3,0)
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.

EDM 5235  ED-ED F  3(3,0)
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.

EDP 6056  ED-ED S  3(3,0)
Advanced Educational Psychology: PR: Graduate admission and C.I. Principles of educational psychology for teaching, intervention, and educational services in schools.

EDS 5356  ED-ED S  3(2,1)
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.

EDS 6050  ED-ED S  3(3,0)
Supervision of Instruction: Effective supervisory principles and practices which can be used for instructional improvement.

EDS 6053  ED-ED S  3(3,0)
Trends in Educational Supervision: PR: Basic supervision course or C.I. Examination and analysis of the trends, issues, and problems in educational supervision.

EDS 6100  ED-ED S  3(3,0)
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.

EED 6123  ED-ED S  3(3,0)
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.

EED 6130  ED-ED S  3(3,0)
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.

EED 7111  ED-ED S  3(2,1)
Administration and Supervision of Staff Development: PR: Basic Teacher Certificate or C.I. Role and procedures for the supervisor or administrator in staff development. Assessment of staff development needs and delivery systems are stressed.

EED 5205  ED-IP  3(3,0)
Programs and Trends in Early Childhood Education: PR: 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.

EED 5208  ED-IP  3(3,0)
Creative Activities in Early Childhood: PR: Regular Certificate or C.I. Organization of instruction in early childhood education; use of creative activities involving music, art, literature and educational toys, integration of activities, and basic skills curriculum (K-3). Concurrent laboratory experiences.

EED 6268  ED-IP  3(3,0)
Play Development, Intervention, and Assessment: Explores play development, facilitation, intervention, and assessment.

EED 6406  ED-IP  3(3,0)
Guiding and Facilitating Social Competence: Provides students with techniques to facilitate and guide the behavior and emotional growth of young children.

EED 6071  ED-EPE  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-EPE  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)

EEL 5245C  EN-ECE  3(2,1)

EEL 5332C  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.
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>EEL 5352</td>
<td>Semiconductor Material and Device Characterization: PR: EEL 3306 or C.I. Semiconductor material characterization resistivity, mobility, doping carrier lifetime, device properties, threshold voltage, interface charge of MOS devices, optical and surface characterization of films.</td>
<td>3(3,0)</td>
</tr>
<tr>
<td>EEL 5353</td>
<td>Semiconductor Device Modelling and Simulation: PR: EEL 3307. Large signal and small signal model development for semiconductor diodes, BJTs, and MOSFETs. Parameter extraction, numerical algorithm, and SPICE simulation are included.</td>
<td>3(3,0)</td>
</tr>
<tr>
<td>EEL 5355C</td>
<td>Fabrication of Solid-State Devices: PR: EEL 3306. Fabrication of microelectronic devices, processing technology, ion implantation and diffusion, device design, and layout. Laboratory includes device processing technology.</td>
<td>4(3,3)</td>
</tr>
<tr>
<td>EEL 5357</td>
<td>CMOS Analog and Digital IC Design: PR: EEL 3306 and EEL 4309. The objective of this course is to present the principles and techniques of the design of analog and digital circuits that are to be implemented in a CMOS technology.</td>
<td>3(3,0)</td>
</tr>
<tr>
<td>EEL 5432</td>
<td>Satellite Remote Sensing: PR: EEL 3470 or PHY 4324. Fundamentals of satellite remote sensing, orbits and geometry, radiative transfer theory, microwave and infrared sensing techniques, ocean, ice and atmosphere geophysical measurements.</td>
<td>3(3,0)</td>
</tr>
<tr>
<td>EEL 5434</td>
<td>Microwave Circuits and Devices: PR: EEL 4436 or EEL 5555C. Planar transmission lines; passive microwave circuits; active circuit design using Gunn, IMPATT, FETS, RTDS, etc.; microwave integrated circuits.</td>
<td>3(3,0)</td>
</tr>
<tr>
<td>EEL 5441</td>
<td>Introduction to Wave Optics: PR: EEL 4440 or PHY 4424 or C.I. Electromagnetic foundation of light waves as applied to reflection, diffraction, interference, polarization, coherence, and guided waves.</td>
<td>3(3,0)</td>
</tr>
<tr>
<td>EEL 5448</td>
<td>Fundamentals of Optoelectronic Devices: PR: Graduate standing or C.I. Operation, methods of fabrication, applications, and limitations of various optoelectronic devices including quantum well semiconductor devices.</td>
<td>3(3,0)</td>
</tr>
<tr>
<td>EEL 5450C</td>
<td>Thin Film Optics: PR: PHY 4424 or EEL 4440 and EEL 5441 or EEL 5451. Principles of thin film optics and its applications in optical, electro-optical, and laser systems.</td>
<td>3(2,1)</td>
</tr>
<tr>
<td>EEL 5451L</td>
<td>Electro-Optics Laboratory: PR: EEL 4440 or EEL 5441 or C.I. Study of laboratory techniques for optical measurements and performance of measurements on electro-optic devices to determine operational characteristics.</td>
<td>3(1,4)</td>
</tr>
<tr>
<td>EEL 5453</td>
<td>Geometrical Optics: PR: C.I. or G.S. Fundamentals of Geometrical Optics, Geometrical Theory of Image Formation, Optical System Layout.</td>
<td>3(3,0)</td>
</tr>
<tr>
<td>EEL 5462C</td>
<td>Antenna Analysis and Design: PR: EEL 3470 or equivalent. Fundamentals of antennas; dipoles, loops, arrays, apertures, and horns. Analysis and design of various antennas.</td>
<td>3(3,1)</td>
</tr>
<tr>
<td>EEL 5513</td>
<td>Digital Signal Processing Applications: PR: EEL 4750. The design and practical consideration for implementing Digital Signal Processing Algorithms including Fast Fourier Transform techniques, and some.</td>
<td>3(3,0)</td>
</tr>
<tr>
<td>EEL 5517</td>
<td>Surface Acoustic Wave Devices and Systems: PR: EEL 3552C. Course discusses SAW technology which includes the physical phenomenon, transducer design and synthesis, filter design and performance parameters. Actual devices and communication systems are presented.</td>
<td>3(3,0)</td>
</tr>
<tr>
<td>EEL 5642</td>
<td>Random Processes I: PR: EEL 3552C and STA 3032. Elements of probability theory, random variables, and stochastic processes.</td>
<td>3(3,0)</td>
</tr>
<tr>
<td>EEL 5655C</td>
<td>RF and Microwave Communications: RF and microwave active circuits microstrip amplifier, oscillator, and mixer design and fabrication. Receiver design, noise, familiarization with network and spectrum analyzers.</td>
<td>3(2,2)</td>
</tr>
<tr>
<td>EEL 5663</td>
<td>Fiber Optics Communication: PR: EEL 3552C, EEL 3470. Use of Fiber Optics as a communication channel. Principles of Fiber optics. Mode theory, transmitters, modulators, sensors detectors and demodulators.</td>
<td>3(3,0)</td>
</tr>
<tr>
<td>EEL 5670</td>
<td>Computer Aided Logical Design: PR: EEL 4787C. Design, analysis and synthesis of sequential logic circuits and systems. Data path and controller design using a hardware description language.</td>
<td>3(3,0)</td>
</tr>
<tr>
<td>EEL 5678</td>
<td>High Performance Computer Architecture: PR: EEL 4767. Engineering of high performance computer systems. Memory, processor and control sub-systems design tradeoffs. Virtual and cache memory. Pipelining, vector computing.</td>
<td>3(3,0)</td>
</tr>
<tr>
<td>EEL 5741C</td>
<td>Microcomputer-based Monitoring and Control Systems: PR: EEL 3542, EEL 4767C, or C.I. Machine language programming, software development aids; systems design; interfacing considerations.</td>
<td>3(2,3)</td>
</tr>
<tr>
<td>EEL 5762</td>
<td>Performance Analysis of Computer and Communications Systems: PR: EEL 4767C, STA 3032. Stochastic modeling and discrete-event simulation; Markov chains; networks of queues; Semi-Markov models; application to multiprocessor systems, switching and multi-user communications.</td>
<td>3(3,0)</td>
</tr>
<tr>
<td>EEL 5771C</td>
<td>Engineering Applications of Computer Graphics: PR: EGN 3420 or C.I. Computer graphics in engineering applications. Laboratory assignments.</td>
<td>3(2,3)</td>
</tr>
<tr>
<td>EEL 5820</td>
<td>Image Processing: PR: MAP 2302, EGN 3420, EEL 4750 or C.I. Two-dimensional signal processing techniques; pictorial image representation; spatial filtering; image enhancement and encoding; segmentation and feature extraction; introduction to image understanding techniques.</td>
<td>3(3,0)</td>
</tr>
</tbody>
</table>
EEL 5825 EN-ECE 3(3,0)
Pattern Recognition: PR: MAP 2302, EGN 3420. Graph-theoretic
and syntactic methods of pattern analysis. Decision functions; optimum
decision criteria; training algorithms; feature extraction; unsupervised
learning; data reduction and potential functions.

EEL 5874 EN-ECE 3(3,0)
Expert Systems and Knowledge Engineering: PR: EEL 4872 or
C.I. Introduction to expert systems in engineering. Expert systems tools
and interviewing techniques. This course is hands-on and project
oriented.

EEL 5881 EN-ECE 3(3,0)
Software Engineering I: PR: EGN 3420, EEL 4851 or C.I. Design,
implementation, and testing of computer software for Engineering ap­
plications.

EEL 5891 EN-ECE 3(3,0)
Continuous System Simulation I: PR: EEL 3657 or C.I. Use of state­
space techniques, numerical integration, and CSSL programs. Labora­
tory assignments.

EEL 6208 EN-ECE 3(3,0)
Advanced Machines: PR: EEL 4205. Theory of electric machines
using reference frame transformations. Basic principles of DC and AC
machines, including induction and synchronous, are included. Simulation
techniques for steady state and dynamic performance analysis will be used to analyze op­cation of electric machines with solid state drives.

EEL 6246 EN-ECE 3(3,0)
Power Electronics II: PR: EEL 5240. Advanced topics in power
electronics, soft-switching techniques, small-signal modeling of PWM
and resonant converters, control techniques, power factor correction
systems.

EEL 6255 EN-ECE 3(3,0)
Advanced Power Systems Analysis: PR: EEL 4216 or C.I. Continu­
ation of EEL 4216. Topics to include symmetrical and unsymmetrical
fault analysis, power system estimation and control and power sys­
tem stability.

EEL 6269 EN-ECE 3(3,0)
Advanced Topics in Power Engineering: PR: EEL 6255. A current
topic will be discussed such as power system transients, system
protection, T&D, and dielectric engineering.

EEL 6338 EN-ECE 3(3,0)
Advanced Topics in Microelectronics: PR: C.I. Covers advanced
topics in microelectronics such as semiconductor device physics,
semiconductor device fabrication, and semiconductor device model­ing.

EEL 6354 EN-ECE 3(3,0)
Advanced Semiconductor Device II: PR: EEL 3306. First course in
advanced semiconductor device physics and modeling. Main stream
devices including junctions diale, bipolar transistor, and metal-oxide
field-effect transistor.

EEL 6371 EN-ECE 3(3,0)
Advanced Electronics I: PR: EEL 5357 or EEL 5370. Models for
integrated-circuit active devices. Analysis and design of IC amplifiers.
Feedback amplifiers. Frequency response and stability. Compensation
of amplifiers.

EEL 6372 EN-ECE 3(3,0)
Advanced Topics in Electronics: PR: EEL 6371 or C.I. Advanced
and current topics in electronics such as power electronics and semi­
ciconductor integrated circuits.

EEL 6443 EN-ECE 3(3,0)
Electro-optics: PR: EEL 3470. EEL 5441. Principles, design and use of
birefringent and periodic electro-optic devices. Nonlinear and phase­
conjugate optics.

EEL 6446 EN-ECE 3(3,0)
Optical Systems Design: PR: EEL 5453 or C.I. Design principles of
lens and mirror optical systems; evaluation of designs using computer
techniques.

EEL 6457 EN-ECE 3(3,0)
Advanced Topics in Electro-Optics: PR: C.I. Current research topics
in electro-optics, such as optical computing, binary optics, ad­
vanced system design issues, novel laser systems.

EEL 6463 EN-ECE 3(3,0)
Antenna Analysis and Design II: PR: EEL 5462C. Moment method,
GTD, aperture antennas, reflectors, frequency independent antennas
and microstrip antennas.

EEL 6488 EN-ECE 3(3,0)
Electromagnetic Fields: PR: EEL 3470 or C.I. Maxwell's equations.
Boundary conditions. Propagation, reflection, and refraction of waves.
Guided waves. Radiation.

EEL 6492 EN-ECE 3(3,0)
Advanced Topics in Electromagnetics and Microwaves: PR: C.I.
Advanced and current topics in EM fields, antennas, and microwaves.

EEL 6502 EN-ECE 3(3,0)
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.

EEL 6504 EN-ECE 3(3,0)
Communications Systems Design: PR: EEL 6530. Information and
coding theory. Modern design. Binary and M-ary modulations. Intersymbol
interference and pulse shaping. DS and FS spread-spectrum sys­
tems.

EEL 6505 EN-ECE 3(3,0)
Multidimensional Digital Processing: PR: EEL 5513 or C.I. Multi­
dimensional signals and systems. Two-dimensional transforms and
filters. Image processing applications.

EEL 6530 EN-ECE 3(3,0)
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.

EEL 6537 EN-ECE 3(3,0)
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. Ap­
plied in communications and radar.

EEL 6543 EN-ECE 3(3,0)
squared estimation. Queueing theory. Spectral estimation. Applications
to communications and radar systems.

EEL 6558 EN-ECE 3(3,0)
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.

EEL 6560 EN-ECE 3(3,0)
Laser Engineering: PR: EEL 5441 or C.I. Principles of laser amplifica­
tion and oscillations; design of lasers; general characteristics of ex­
citation systems.
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Offering Code</th>
<th>Credit</th>
<th>Course Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>EEL 6550L</td>
<td>EN-ECE</td>
<td>3(1,3)</td>
<td>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.</td>
</tr>
<tr>
<td>EEL 6561</td>
<td>EN-ECE</td>
<td>3(3,0)</td>
<td>Fourier Optics: Application of Fourier transform theory to optical systems design. Development of optical correlation techniques. Holographic techniques and applications.</td>
</tr>
<tr>
<td>EEL 6564</td>
<td>EN-ECE</td>
<td>3(3,0)</td>
<td>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.</td>
</tr>
<tr>
<td>EEL 6565</td>
<td>EN-ECE</td>
<td>3(3,0)</td>
<td>Radiation and Detection: PR: C.I. Radiometry, Planck radiators, spectrometers, photon-counting statistics, detector noise analysis, detector mechanisms.</td>
</tr>
<tr>
<td>EEL 6590</td>
<td>EN-ECE</td>
<td>3(3,0)</td>
<td>Advanced Topics in Communications: PR: C.I. Advanced and current topics in communications, such as coding theory, information theory, spread spectrum, etc.</td>
</tr>
<tr>
<td>EEL 6617</td>
<td>EN-ECE</td>
<td>3(3,0)</td>
<td>Fundamentals of Modern Multivariable Control: PR: EEL 4657, EEL 5173, or C.I. Emphasis on stability and performance analysis in time and frequency domains and on design tools for optimal performance and robustness.</td>
</tr>
<tr>
<td>EEL 6619</td>
<td>EN-ECE</td>
<td>3(3,0)</td>
<td>Nonlinear Robust Control and Applications: PR: EEL 5173 and EEL 6621. Stability, performance and robustness of nonlinear systems with uncertainties. Lyapunov-based designs, recursive designs and nonlinear optimal designs.</td>
</tr>
<tr>
<td>EEL 6621</td>
<td>EN-ECE</td>
<td>3(3,0)</td>
<td>Nonlinear Control Systems: PR: EEL 5173. Phase plane descriptions of nonlinear phenomena, limit cycles, jump conditions, stability, describing functions, Liapunov and Popov theory, time and frequency domain analysis for nonlinear systems.</td>
</tr>
<tr>
<td>EEL 6662</td>
<td>EN-ECE</td>
<td>3(3,0)</td>
<td>Design of Robot Control Systems: PR: EEL 5173. Coordinate transformation, differential equation of motion, trajectory planning, trajectory control, classical controls, advanced controls, force control, constrained motions, and redundancy.</td>
</tr>
<tr>
<td>EEL 6674</td>
<td>EN-ECE</td>
<td>3(3,0)</td>
<td>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.</td>
</tr>
<tr>
<td>EEL 6680</td>
<td>EN-ECE</td>
<td>3(3,0)</td>
<td>Advanced Topics in Modern Control Systems: PR: C.I. Introduces students to present-day issues in control systems analysis, design, and implementation.</td>
</tr>
<tr>
<td>EEL 6707</td>
<td>EN-ECE</td>
<td>3(3,0)</td>
<td>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.</td>
</tr>
<tr>
<td>EEL 6743C</td>
<td>EN-ECE</td>
<td>3(2,3)</td>
<td>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.</td>
</tr>
<tr>
<td>EEL 6763</td>
<td>EN-ECE</td>
<td>3(3,0)</td>
<td>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.</td>
</tr>
<tr>
<td>EEL 6812</td>
<td>EN-ECE</td>
<td>3(3,0)</td>
<td>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.</td>
</tr>
<tr>
<td>EEL 6823</td>
<td>EN-ECE</td>
<td>3(3,0)</td>
<td>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.</td>
</tr>
<tr>
<td>EEL 6843</td>
<td>EN-ECE</td>
<td>3(3,0)</td>
<td>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.</td>
</tr>
<tr>
<td>EEL 6845</td>
<td>EN-ECE</td>
<td>3(3,0)</td>
<td>Intelligent Control: PR: C.I. Design and development of intelligent machine systems; decision theory; intelligence modeling; neural models; advanced techniques in intelligent control.</td>
</tr>
<tr>
<td>EEL 6857</td>
<td>EN-ECE</td>
<td>3(3,0)</td>
<td>Engineering Data Reduction: PR: C.I. Digital analysis of multidimensional data. Applications of multidimensional orthogonal transforms.</td>
</tr>
<tr>
<td>EEL 6875</td>
<td>EN-ECE</td>
<td>3(3,0)</td>
<td>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.</td>
</tr>
<tr>
<td>EEL 6876</td>
<td>EN-ECE</td>
<td>3(3,0)</td>
<td>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.</td>
</tr>
<tr>
<td>COURSE</td>
<td>DESCRIPTION</td>
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<tr>
<td>EEL 6879 EN-ECE</td>
<td>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.</td>
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<tr>
<td>EEL 6883 EN-ECE</td>
<td>3(3,0) Software Engineering II: PR: EEL 5881 or equivalent, C.I. Continuation of EEL 5881. Emphasis on term projects and case studies.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>EEX 6061 ED-PE</td>
<td>3(3,0) 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.</td>
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<tr>
<td>EEX 6065 ED-PE</td>
<td>3(3,0) 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.</td>
<td></td>
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</tr>
<tr>
<td>EEX 6107 ED-PE</td>
<td>3(3,0) 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.</td>
<td></td>
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<tr>
<td>EEX 6224 ED-PE</td>
<td>3(3,0) Observation and Assessment of Young Children: Study of formal and informal observation and assessment.</td>
<td></td>
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</tr>
<tr>
<td>EEX 6266 ED-PE</td>
<td>3(3,0) Assessment and Curriculum Prescriptions for the Exceptional Population: Addresses contemporary assessments and models for assessing exceptional children. Also addresses curriculum and prescription.</td>
<td></td>
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</tr>
<tr>
<td>EEX 6342 ED-PE</td>
<td>3(3,0) 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.</td>
<td></td>
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</tr>
<tr>
<td>EEX 6524 ED-PE</td>
<td>3(3,0) 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.</td>
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</tr>
<tr>
<td>EEX 6612 ED-PE</td>
<td>3(3,0) 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.</td>
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</tr>
<tr>
<td>EEX 6634 ED-PE</td>
<td>3(3,0) Supervised Teaching Practicum with Exceptional Children: PR: Bachelor’s degree, approved program, and C.I. Supervised observation and teaching of an exceptional student.</td>
<td></td>
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</tr>
<tr>
<td>EGC 5036 ED-ED $</td>
<td>3(3,0) Guiding Human Relationships: PR: Senior standing or basic teacher certificate. Human relationship skills which will enhance intra- and interpersonal relation skills in classrooms.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>EGC 6437 ED-ED $</td>
<td>3(3,0) 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.</td>
<td></td>
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</tr>
<tr>
<td>EGI 6051 ED-IP</td>
<td>3(3,0) Understanding the Gifted/Talented Student: A study of characteristics of the gifted/talented students; theories and research; identification procedures; special problems; educational forces.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>EGI 6245 ED-IP</td>
<td>4(4,0) 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.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Automated material handling systems, industrial robots, automated guided vehicles, automated storage and retrieval systems, economics, justification.

EIN 5035 EN-ENGR 3(3,0)
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.

EIN 5720 EN-IEMS 3(2,3)
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.

EIN 5840 EN-ENGR 3(3,0)
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.

EIN 5855C EN-IEMS 3(2,2)
Metrology: PR: EIN 4391C or C.I. Advanced topics in inspection and measurement with applications in engineering and manufacturing.

EIN 5856C EN-IEMS 3(2,2)
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.

EIN 6721C EN-IEMS 3(2,3)
Experimental Methods for High Performance Engine Manufacturing: PR: EGN 5270C; EIN 5247, 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.

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 5248C EN-IEMS 3(2,2)
Ergonomics: PR: C.I. Applications of anthropometry, functional anatomy, mechanics, 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 storyboarding techniques; query techniques; laboratory techniques; and field study approaches.

EIN 5255 EN-IEMS 3(3,0)
Interactive Simulation: PR: C.I. Introduction to significant topics relative to the development and use of interactive simulation for knowledge transfer in the technical environment.

EIN 5355 EN-IEMS 3(3,0)
Cost Engineering: Cost estimation and control of engineering systems throughout the product life cycle.

EIN 5368C EN-IEMS 3(2,2)

EIN 5361 EN-IEMS 3(3,0)
Engineering Logistics: Study of the logistics life cycle involving planning, analysis and design, testing, production, distribution, and support.

EIN 5388 EN-IEMS 3(3,0)
Forecasting: PR: STA 5156. Industrial applications of forecasting methods with emphasis on microcomputer-based packages.

EIN 5392C 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 5415C EN-IEMS 3(2,2)
Tool Engineering and Manufacturing Analysis: PR: EIN 4411. Tool materials and design, tolerance technology, theory of metal cutting, and machineability.

EIN 5602C EN-IEMS 3(2,2)
Expert Systems in Industrial Engineering: Overview of basic concepts, architecture and construction of expert systems in IE. Intelligent simulation training systems, case studies and problems. Laboratory exercises.

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 5636 EN-IEMS 1(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 5637 EN-IEMS 3(3,0)
Taguchi's Quality by Design: Taguchi methods for design of experiments and quality improvement.

EIN 6140 EN-IEMS 3(3,0)
Project Engineering: PR: 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 6215 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 5355, and EIN 6140. 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) Productivity Engineering: Basic concepts and tools including measurement, evaluation, planning, and improvement. Latest models and techniques pertinent to both the manufacturing and service sectors are introduced.

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) Advanced and Nontraditional Manufacturing Processes: PR: EIN 4391 or C.I. Latest methods and developments in manufacturing process engineering.

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: PR: Graduate standing. 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 6247 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/Al in Industrial Engineering: PR: EIN 5602C or equivalent. Reading and discussing current topics in expert systems/Al as applied to IE. Current literature in intelligent simulation training systems.


EIN 6647 EN-IEMS 3(2,2) Intelligent Simulation: The use of intelligent objects in building simulation models to achieve a goal by altering the scenarios during problem solution.

EIN 6649 EN-IEMS 3(2,2) Intelligent Simulation Training System Design: 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) Manufacturing Engineering Seminar: PR: C.I. Presentation of latest manufacturing engineering technological advancements and related topics.

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 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-EPE 3(0,1) 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-EPE 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 5106 EN-MMAE 3(3,0) Metallurgical Thermodynamics: PR: EGN 3343 and EGN 3395. Laws of thermodynamics, phase equilibria, reactions between condensed and gaseous phases, reaction equilibria in condensed solution and phase diagrams.

EMA 5108 EN-MMAE 3(3,0) 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 3(3,0) Introduction to Ceramic Materials: PR: EGN 3355. Uses, structure, physical and chemical properties, and processing of ceramic materials. Discussions will include recent developments for high technology applications.

EMA 5326 EN-MMAE 3(3,0) Corrosion Science and Engineering; PR: EGN 3363. Electrochemical principles and applications to detecting and monitoring corrosion processes. Various forms of corrosion, their causes and control. Techniques of corrosion protection.

EMA 5504 EN-MMAE 3(2,2) Modern Characterization of Materials: PR: EMA 5104 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 3(2,2) Scanning Electron Microscopy: PR: EMA 5104 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 3(3,0) Biomaterials: PR: EGN 3365. Properties of natural biological materials and their relation to microstructure, biocompatibility, specific applications in orthopedic, cardiovascular, visual, neural, and reconstruction implants.

EMA 5610 EN-MMAE 3(3,0) 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 3(3,0) High Temperature Materials: PR: EMA 5104 or C.I. Desired material properties for high temperature applications, physical metallurgy of such materials, corrosion, hot corrosion and oxidation properties, aerodynamic and land-based gas turbine requirements.

EMA 6126 EN-MMAE 3(3,0) 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 3(3,0) 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 3(3,0) 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 3(3,0) Diffusion in Solids: PR: EMA 5104 and EML 5050 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 3(3,0) 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 6516 EN-MMAE 3(3,0) 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 6605 EN-MMAE 3(3,0) 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 6626 EN-MMAE 3(3,0) 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 6628 EN-MMAE 3(3,0) Materials Failure Analysis: PR: EMA 5104 or C.I. Comprehensive overview of the general procedures for failure analysis, failure theories, causes of failure, fractography of different failure, and modern analytical tools.

EME 5051 ED-EDS 3(3,0) Technologies of Instruction and Information Management: Theories and practices in utilizing instructional media and information technology. Emphasis on new and emerging technologies and their effects on the school and media program.

EME 5052 ED-EDS 3(3,0) 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-EDS 3(3,0) 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-EDS 3(3,0) 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-EDS 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 5208 ED-EDS 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-EDS 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-EDS 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 5910 ED-EDS 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 6063 ED-EDS 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-EDS 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-EDS 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-EDS 3(3,0)

EME 6208 ED-EDS 3(3,0)

EME 6209 ED-EDS 3(3,0)

EME 6313 ED-EDS 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-EDS 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-EDS 3(3,0)
Distance Education: Technology Process Product: 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 6607 ED-EDS 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-EDS 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-EDS 3(3,0)
Role of the Media Specialist in Curriculum and Instruction: PR: 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-EDS 3(3,0)
Planned Change in Instructional Technology: PR: EME 6705 or EME 6708. In-depth study of the processes of planned change and adoption/rejection of innovations in educational settings.

EME 6613 ED-EDS 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-EDS 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-EDS 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-EDS 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-EDS 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-EDS 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 skills and search strategies.

EME 6808 ED-EDS 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 on-line search procedures.
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>EML 5060</td>
<td>Mathematical Methods in Mechanical, Materials and Aerospace Engineering</td>
<td>3(3,0)</td>
<td>PR: EML 3034. Solution of PDEs for governing equations of heat transfer, ideal fluid flow, and mechanics.</td>
</tr>
<tr>
<td>EML 5066</td>
<td>Computational Methods in Mechanical, Materials and Aerospace Engineering</td>
<td>3(3,0)</td>
<td>PR: EML 3034. Error Norms, interpolation and extrapolation, quadratures and adaptive quadratures, solutions of linear and nonlinear systems of equations, functional approximation, solution of ODE's and MWR.</td>
</tr>
<tr>
<td>EML 5105</td>
<td>Gas Kinetics and Statistical Thermodynamics</td>
<td>3(3,0)</td>
<td>PR: EAS 4134 or EML 4703C. Molecular and statistical viewpoint of gases and thermodynamics; Boltzmann collision integral, partition functions, non-equilibrium flows.</td>
</tr>
<tr>
<td>EML 5131</td>
<td>Continuum Mechanics</td>
<td>3(3,0)</td>
<td>PR: EML 3500 or EML 4703C or EAS 4200 or C.I. Introduction to tensors; deformation and strain; stress; balance laws, applications in Newtonian fluid mechanics and isotropic linear elasticity.</td>
</tr>
<tr>
<td>EML 5152</td>
<td>Intermediate Heat Transfer</td>
<td>3(3,0)</td>
<td>PR: EML 4142, EML 5713, EML 5060 or C.I. An intermediate-level course dealing with heat and mass diffusion, boundary layer problems, and radiation from real bodies. Emphasis on combined modes, numerical methods.</td>
</tr>
<tr>
<td>EML 5211</td>
<td>Continuum Mechanics</td>
<td>3(3,0)</td>
<td>PR: EML 3500 or EML 4703C or EAS 4200 or C.I. Introduction to tensors; deformation and strain; stress; balance laws, applications in Newtonian fluid mechanics and isotropic linear elasticity.</td>
</tr>
<tr>
<td>EML 5224</td>
<td>Acoustics</td>
<td>3(3,0)</td>
<td>PR: EML 4220. 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.</td>
</tr>
<tr>
<td>EML 5228C</td>
<td>Modal Analysis</td>
<td>3(3,0)</td>
<td>PR: EML 3303, EML 4220, and EML 5060. Theoretical basis, measurement techniques, excitation, transducers, data acquisition. Detailed data analysis, modal parameter extraction, curve-fitting procedures. Modeling.</td>
</tr>
<tr>
<td>EML 5245</td>
<td>Tribology</td>
<td>3(3,0)</td>
<td>PR: EGN 3365C, EGN 3331, EGN 3353, or C.I. 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.</td>
</tr>
<tr>
<td>EML 5311</td>
<td>System Control</td>
<td>3(3,0)</td>
<td>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.</td>
</tr>
<tr>
<td>EML 5402</td>
<td>Turbomachinery</td>
<td>3(3,0)</td>
<td>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.</td>
</tr>
<tr>
<td>EML 5523C</td>
<td>Computer-Aided Design for Manufacture</td>
<td>3(2,3)</td>
<td>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.</td>
</tr>
<tr>
<td>EML 5546</td>
<td>Engineering Design with Composite Materials</td>
<td>3(3,0)</td>
<td>PR: EML 5237 or C.I. Mechanics of structural components of composite materials under static, thermal, vibratory loads. Instability. Lamina and laminate theory, energy methods, failure theories, and structural joining methods.</td>
</tr>
<tr>
<td>EML 5572</td>
<td>Probabilistic Methods in Mechanical Design</td>
<td>3(3,0)</td>
<td>PR: EML 3500, STA 3032. Uncertainty modeling in design. Use of probabilistic mathematics to assess strength, stiffness, toughness, and stability. Applications.</td>
</tr>
<tr>
<td>EML 5713</td>
<td>Intermediate Fluid Mechanics</td>
<td>3(3,0)</td>
<td>PR: EML 4703. Fluid kinematics; conservation equations; Navier-Stokes equations; boundary layer flow, inviscid flow, circulation and vorticity, low Reynolds number flow; turbulence.</td>
</tr>
<tr>
<td>EML 5807</td>
<td>Engineering Design Practice</td>
<td>3(2,2)</td>
<td>PR: EGN 1111 C or 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.</td>
</tr>
<tr>
<td>EML 58062</td>
<td>Boundary Element Methods in Engineering</td>
<td>3(3,0)</td>
<td>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.</td>
</tr>
<tr>
<td>EML 58085</td>
<td>Research Methods in MMAE</td>
<td>3(3,0)</td>
<td>PR: EML 5060 and EML 5211. Research project in a MMAE option under supervision of an advisor. A project report is due at the end of the semester. May not be repeated for credit.</td>
</tr>
<tr>
<td>EML 6104</td>
<td>Classical Thermodynamics</td>
<td>3(3,0)</td>
<td>PR: EML 3101 or C.I. A general postulative approach to classical macroscopic thermodynamics featuring states as fundamental constructs. Conditions of equilibrium, stability criteria, thermodynamic potentials. Maxwell relations and phase transitions.</td>
</tr>
</tbody>
</table>
EML 6124 EN-MMAE 3(3,0)

EML 6154 EN-MMAE 3(3,0)
Conduction Heat Transfer: PR: EML 5152 or C.I. Classical and numerical techniques applied to the solution of steady and transient conduction problems. Applications to the design of thermal systems.

EML 6155 EN-MMAE 3(3,0)
Convection Heat Transfer: PR: EML 5152, EML 5713, or C.I. Convection heat, mass and momentum transfer in laminar and turbulent flows. Applications to the design of thermal systems.

EML 6157 EN-MMAE 3(3,0)

EML 6158 EN-MMAE 3(3,0)

EML 6223 EN-MMAE 3(3,0)

EML 6226 EN-MMAE 3(3,0)
Analytical Dynamics: PR: EML 5271 or C.I. Kane method for kinematics and dynamics of particle and rigid bodies is developed and contrasted with Newton and Lagrange methods. Multibody dynamics.

EML 6227 EN-MMAE 3(3,0)
Nonlinear Vibration: PR: EML 5060 and EML 5271 or C.I. Robust, reliable algorithms for simulation of nonlinear phenomena; phase planes; limit cycles; stability; period-multiplying bifurcations; strange attractors; Poincare maps; Floquet theory; Lyapunov exponents; applications to mechanical and aerospace systems.

EML 6305C EN-MMAE 3(2,2)
Experimental Mechanics: PR: EML 4304, EML 5237 or C.I. Selected topics in strain measurements, photoelasticity, holographic interferometry; laser speckle measurement; acoustic emission, measurement of correlation and coherence functions.

EML 6547 EN-MMAE 3(3,0)
Engineering Fracture Mechanics in Design: PR: EML 5527 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.

EML 6653 EN-MMAE 3(3,0)
Theory of Elasticity: PR: EML 5237 or C.I. Review of stress and strain; solution by tensor stress and potential functions, axisymmetric problems; wave propagation.

EML 6712 EN-MMAE 3(3,0)
Mechanics of Viscous Flow: PR: EML 5060, EML 5713 or C.I. Principal concepts and methods for viscous fluid motion. Incompressible and compressible boundary layer analysis for laminar and turbulent flows.

EML 6725 EN-MMAE 3(3,0)
Computational Fluid Dynamics and Heat Transfer I: PR: EML 5152 or C.I. Finite Difference methods; error and stability analysis; applications to model equations and further developments; matrix methods.

EML 6726 EN-MMAE 3(3,0)
Computational Fluid Dynamics and Heat Transfer II: PR: EML 6725. Development of governing equations; turbulence modeling; numerical solution of Euler and potential equations, Navier-Stokes equations, and boundary layer equations; grid generation.

EML 6608 EN-MMAE 3(3,0)

EMR 6362 ED-EPE 3(3,0)
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.

ENC 5214 AS-ENG 3(3,0)
Production and Publication Methods: Theory and practice of production and publication methods for technical writers.

ENC 5219 AS-ENG 3(3,0)

ENC 5257 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 5327 AS-ENG 3(3,0)
Modern Rhetorical Theory: With special attention to the 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: Sr or Graduate standing. A study of the theory and practice of computer-driven hypertext.

ENC 5617 AS-ENG 3(3,0)
Technical Writing: 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.
**OFFERINGS**

**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 5226**  AS-ENG  3(3,0)  
English Renaissance Poetry and Prose: PR: Senior standing or C.I. The course will examine selected poetry and prose of Wyatt, Surrey, Sidney, Spenser, Marlowe, Raleigh, Daniel, Shakespeare, Chapman, Lyly, and others.

**ENL 5237**  AS-ENG  3(3,0)  
Eighteenth Century Studies: Reading, analysis, and discussion of literature in English, 1660-1800.

**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-CEE  3(3,0)  

**ENV 5116C**  EN-CEE  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-CEE  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-CEE  3(3,0)  
Hazardous Waste Management: PR: EGN 3704 or C.I. Engineering planning and analysis associated with the handling, storage, treatment, transportation, and disposal of hazardous wastes.

**ENV 5410**  EN-CEE  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-CEE  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-CEE  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-CEE  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-CEE  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-CEE  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-CEE  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-CEE  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-CEE  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-CEE  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-CEE  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, water-waste industrial water, or hazardous waste treatment.

**ENV 6519**  EN-CEE  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-CEE  3(3,0)  
Industrial Waste Treatment: PR: ENV 4561. Theories, methods, unit operations of management, reduction, treatment, disposal of industrial wastes.

**ENV 6616**  EN-CEE  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-JP  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.
Corrective Actions for performing discrete systems simulation, including network modeling, task analysis, and writing performance objectives for developing courses of study.

Implementation and optimization applications in production planning, staffing, engineering and control: PR: STA 4312 or STA 5316. Simpex and Revised Simpex Method; interior-point methods; large-scale optimization; decomposition algorithms; upper bounds; linearization; parametric LP; goal programming.

Experiential Design and Taguchi Methods: PR: STA 5156 or STA 4232. Introduction to Taguchi Concepts and Methodologies, use of design of experiments for quality design and improvement.


Linear Programming and Extensions: PR: STA 4312 or STA 5316. Simplex and Revised Simplex Method; interior-point methods; large-scale optimization; decomposition algorithms; upper bounds; linearization; parametric LP; goal programming.

Network Analysis and Integer Programming: PR: STA 4312. Modeling and solution methods for problems that can be formulated in terms of flow in networks and for discrete optimization problems.


Systems Engineering: PR: STA 5316 or STA 5316. Integration and application of systems science, operations research, systems methodologies, and systems management for the design, production, and maintenance of efficient, reliable systems.

ESI 6941 EN-EMS 6(2,10)
Operations Research Practicum: PR: C.I. Involves full-time participation and experience in an organization conducting operations research analyses.

EVT 5247 AS-HIST 3(3,0)
Colloquium in Europe from 1919-1939

EVT 5285 AS-HIST 3(3,0)
Colloquium in Europe Since World War II

EVT 5371 AS-HIST 3(3,0)
Colloquium in Spanish History

EVT 5546 AS-HIST 3(3,0)
Colloquium: British History: PR: Graduate status. Selected topics in British history. May be repeated for credit when content is different. There is no standard syllabus because content is different with each offering.

EVT 5579 AS-HIST 3(3,0)
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.

EVT 5595 AS-HIST 3(3,0)
Colloquium in Czarist Russia: PR: Senior standing or graduate status. Selected topics on the literature of Russia under the Czars prior to 1917.

EVT 5608 AS-HIST 3(3,0)
Colloquium European Intellectual History: PR: Senior standing or C.I. Reading and class discussion of the literature on selected topics of European intellectual history.

EVT 5939 AS-HIST 3(3,0)
Seminar in European History: May be repeated for credit when content is different.

EVT 5260 ED-IP 2-4(2-4,0)
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.

EVT 5315 ED-IP 2-3(2-3,0)
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.

EVT 5561 ED-IP 2-3(2-3,0)
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.

EVT 5817 ED-IP 2-4(2-4,0)
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.

EVT 6264 ED-IP 3(3,0)
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 the 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 5057 or C.I. Examination of theories and research concerning the acquisition and retention of behavior, as well as motivational factors which influence learning and behavior.

EXP 6126 AS-PSYCH 3(3,0)
Psychoacoustics: PR: Graduate standing. The psychology, physics, and physiology of hearing and the auditory system.

EXP 6255 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 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 6528 or C.I. Principles and guidelines of advanced human-computer interaction as they apply to a variety of complex human-Machine Systems.

EXP 6538 AS-PSYCH 3(3,0)
Teaching Seminar: PR: C.I. Orientation to and supervision in teaching assigned courses.

EXP 6546 AS-PSYCH 8(0,12)
Human Factors Internship: PR: EXP 5256, EXP 6257, PSY 6216, PSY 5217, 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 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 nonfinancial 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.

FIN 7813  BA-FIN  3(3,0)
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.

FIN 7816  BA-FIN  3(3,0)
Investment Theory: PR: Admission to business doctoral program, FIN 7807, QMB 7555, and C.I. Extensive coverage of theoretical and empirical literature dealing with modem investment thought, portfolio theory, capital market equilibrium, and related topics.

FIN 7915  BA-FIN  3(3,0)
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.

FIN 7930  BA-FIN  3(3,0)
Seminar in Finance: PR: FIN 7813, FIN 7816, and C.I. Study of private sector financial theory, policy, empires, and decision making.

FLE 5870  AS-LANG  3(3,0)
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.

FLE 5875  AS-LANG  3(3,0)
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.

FSS 6365  BA-HOSP  3(3,0)
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.

GEB 6115  BA-MAR  3(3,0)
Enterprise: PR: Graduate standing. Seminar on topics concerning the entrepreneurship process in small and large organizations, including needs assessment, sources and methods of innovation, financing, and barriers to entrepreneurship.

GEB 6365  BA-FIN  3(3,0)
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.

GEB 7910  BA-ECON  3(3,0)
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.

GEB 7932  BA-ECON  3(3,0)

HFT 6240  BA-HOSP  3(3,0)
Managing Hospitality and Guest Services Organizations: PR: Graduate standing. Analysis of the unique problems of managing organizations in hospitality and guest services industry.

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 and 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 and Tactics: Guest Services 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 and Tactics: Travel and 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 and 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: Graduate standing or C.I. 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.

HSA 6108 HPA-H&PT 3(3,0)
Health Care Organization and Management II: PR: HSA 6107, HSA 6148, HSC 6911. Emphasis on planning, development, marketing approaches, and problem solving using computer methods.

HSA 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 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.

HSC 5995 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 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 6247 HPA-H&PT 3(3,0)
Health Science Curriculum Development: PR: Graduate status or C.I. Developing an instructional plan for health science curriculum including goal and task analysis, performance objectives, varied learning experiences, and student evaluation.

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 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 6516 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.

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-EDS 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 credits.)

IDS 6934 ED-EDS 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-EDS 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.
<table>
<thead>
<tr>
<th>COURSE</th>
<th>NUMBER</th>
<th>DEPARTMENT</th>
<th>TITLE</th>
<th>PR</th>
<th>CREDITS</th>
</tr>
</thead>
<tbody>
<tr>
<td>IDS 6939</td>
<td>ED-IP</td>
<td>3(3,0)</td>
<td>Reforming Curriculum in Mathematics and Science Education</td>
<td>Graduate standing and valid Florida Teaching Certificate or C.I.</td>
<td>Emphasizes the reform movement including technology, history of curriculum, curriculum theory, and standards documents.</td>
</tr>
<tr>
<td>INP 5825</td>
<td>AS-PSYCH</td>
<td>3(3,0)</td>
<td>Human-computer Interface (HCI) design: A team approach</td>
<td>Graduate standing or C.I.</td>
<td>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.</td>
</tr>
<tr>
<td>INP 6058</td>
<td>AS-PSYCH</td>
<td>3(3,0)</td>
<td>Job and Task Analysis</td>
<td>C.I.</td>
<td>A review of current theory and practice in the collection, quantification, analysis, manipulation and summarization of position, job and task data.</td>
</tr>
<tr>
<td>INP 6215</td>
<td>AS-PSYCH</td>
<td>3(3,0)</td>
<td>Assessment Centers and Leadership</td>
<td>Graduate admission and C.I.</td>
<td>Survey of assessment center technology and application with emphasis on leadership theory and practice.</td>
</tr>
<tr>
<td>INP 6317</td>
<td>AS-PSYCH</td>
<td>3(3,0)</td>
<td>Organizational Psychology and Motivation</td>
<td>Graduate admission and C.I.</td>
<td>Review of theories, research and application of psychological principles to organizational settings and human motivation.</td>
</tr>
<tr>
<td>INP 6605</td>
<td>AS-PSYCH</td>
<td>3(3,0)</td>
<td>Training and Performance Appraisal</td>
<td>Graduate admission and C.I.</td>
<td>Survey of theories, research and practice in the areas of industrial/organizational training and performance appraisal.</td>
</tr>
<tr>
<td>INP 6939</td>
<td>AS-PSYCH</td>
<td>3(3,0)</td>
<td>Current Topics and Applied Problems in Industrial/Organizational Psychology</td>
<td>Graduate admission and C.I.</td>
<td>Survey of current topics in industrial/organizational psychology with emphasis on applied problems.</td>
</tr>
<tr>
<td>INP 6946</td>
<td>AS-PSYCH</td>
<td>3(1,6)</td>
<td>Industrial Psychology Practicum I</td>
<td>Graduate admission and C.I.</td>
<td>Supervised placement in an applied setting.</td>
</tr>
<tr>
<td>INP 6947</td>
<td>AS-PSYCH</td>
<td>3(3,0)</td>
<td>Industrial Psychology Practicum II</td>
<td>Graduate admission and C.I.</td>
<td>Supervised research in industry. (May be repeated for credit.)</td>
</tr>
<tr>
<td>INR 6007</td>
<td>AS-POLS</td>
<td>3(3,0)</td>
<td>Seminar in International Politics</td>
<td>Supervised</td>
<td>Introduces the student to the advances in international relations theory and research through a broad sampling of approaches and methods.</td>
</tr>
<tr>
<td>INR 6086</td>
<td>AS-POLS</td>
<td>3(3,0)</td>
<td>International Public Policy</td>
<td>Graduate standing</td>
<td>Examines endogenous and exogenous variables involved in selected issues in the arena of international public policy.</td>
</tr>
<tr>
<td>ISM 5021</td>
<td>BA-MAN</td>
<td>3(3,0)</td>
<td>Introduction to Management Information Systems</td>
<td>Acceptance into the graduate program</td>
<td>Designed to provide the student with the fundamentals of business data processing and management information systems used by organizations in a modern society.</td>
</tr>
<tr>
<td>ISM 6121</td>
<td>BA-MAN</td>
<td>3(3,0)</td>
<td>Systems Analysis and Development</td>
<td>MAN 5050</td>
<td>Study and application of systems concepts for the improvement of organizational work and information systems.</td>
</tr>
<tr>
<td>ISM 6305</td>
<td>BA-MAN</td>
<td>3(3,0)</td>
<td>Information Resources Management</td>
<td>ISM 5021, MAN 5050</td>
<td>An advanced study of information system management including system planning, project selection and management, and organizational information management policies.</td>
</tr>
<tr>
<td>ISM 6395</td>
<td>BA-MAN</td>
<td>3(3,0)</td>
<td>Seminar - Management Information System</td>
<td>ISM 6305, ISM 6121</td>
<td>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.</td>
</tr>
<tr>
<td>LAE 5195</td>
<td>ED-IP</td>
<td>3(3,0)</td>
<td>CFWP Teacher Consultant</td>
<td>C.I.</td>
<td>This course is designed for Fellows of the CFWP Summer Institute who will plan, practice, and present writing inservice components to public schools.</td>
</tr>
<tr>
<td>LAE 5295</td>
<td>ED-IP</td>
<td>1-3(1-3,0)</td>
<td>Writing Workshop I</td>
<td>C.I.</td>
<td>Students will engage in exploration and practice of effective writing strategies. May include teaching small groups of students. May be repeated for credit.</td>
</tr>
<tr>
<td>LAE 5319</td>
<td>ED-IP</td>
<td>3(3,0)</td>
<td>Methods of Elementary School Language Arts</td>
<td>EDG 4323</td>
<td>Principles, procedures, organization and current practices in reading, writing, listening, and talking.</td>
</tr>
<tr>
<td>LAE 5337</td>
<td>ED-IP</td>
<td>3(3,0)</td>
<td>Literacy Strategies for Middle and Secondary Teaching</td>
<td>Graduate standing or C.I.</td>
<td>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.</td>
</tr>
<tr>
<td>LAE 5357</td>
<td>AS-ENG</td>
<td>3(3,0)</td>
<td>English Composition and Literature for Teachers of Advanced Placement</td>
<td>Graduate standing and C.I.</td>
<td>A two-week summer institute for secondary school teachers preparing to teach Advanced Placement courses.</td>
</tr>
<tr>
<td>LAE 5372</td>
<td>AS-ENG</td>
<td>3(2,1)</td>
<td>Theory and Practice in Composition</td>
<td>Senior</td>
<td>Intensive study of theories of composition, with practical experience in the writing laboratory and in composition classes.</td>
</tr>
<tr>
<td>LAE 5415</td>
<td>ED-IP</td>
<td>3(3,0)</td>
<td>Children's Literature In Elementary Education</td>
<td>C.I.</td>
<td>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.</td>
</tr>
<tr>
<td>LAE 5455</td>
<td>ED-IP</td>
<td>3(3,0)</td>
<td>Literature for Adolescents</td>
<td>Senior</td>
<td>Selecting and evaluating books for adolescents with emphasis on the use of literature in the development of young people.</td>
</tr>
<tr>
<td>LAE 5495</td>
<td>ED-IP</td>
<td>3(3,0)</td>
<td>Assessing Writing</td>
<td>C.I.</td>
<td>Students will explore a variety of strategies for assessing students' writing including holistic scoring, primary trait scoring, and portfolio assessment.</td>
</tr>
<tr>
<td>LAE 6296</td>
<td>ED-IP</td>
<td>3(3,0)</td>
<td>Writing Workshop II</td>
<td>C.I.</td>
<td>This course is designed for Fellows in CFWP Summer Institute. Students research topics about writing and participate in writing response groups.</td>
</tr>
<tr>
<td>LAE 6467</td>
<td>ED-IP</td>
<td>3(3,0)</td>
<td>Studies in Adolescent Literature</td>
<td></td>
<td>Analysis of major works in genre, examination of criticism, instructional strategies, and research in teaching adolescent literature.</td>
</tr>
<tr>
<td>LAE 6616</td>
<td>ED-IP</td>
<td>3(3,0)</td>
<td>Trends in Language Arts Education</td>
<td>Basic Teacher Certificate or C.I.</td>
<td>Historical development and trends; English usage systems; materials; instructional strategies.</td>
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<tr>
<td>Course Code</td>
<td>Subject</td>
<td>Title</td>
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<tr>
<td>LIT 6009</td>
<td>AS-ENG</td>
<td>Literary Genres: PR: Graduate standing.</td>
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<td></td>
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<td>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.</td>
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<tr>
<td>LIT 6105</td>
<td>AS-ENG</td>
<td>World Literature: PR: Graduate standing.</td>
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<td>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.</td>
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<tr>
<td>LIT 6365</td>
<td>AS-ENG</td>
<td>Movements in Literature: PR: Graduate studying.</td>
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<td>Study of a movement such as naturalism, romanticism, or classicism, or of a literary period such as the Baroque or the Southern Renaissance. May be repeated for credit when content is different.</td>
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<tr>
<td>LIT 6506</td>
<td>AS-ENG</td>
<td>Major Authors: PR: Graduate standing.</td>
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<td></td>
<td></td>
<td>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.</td>
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<tr>
<td>MAA 5210</td>
<td>AS-MATH</td>
<td>Complex Analysis: PR: MAA 4226, or C.I.</td>
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<td></td>
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<td>Analytic and harmonic functions; Cauchy's integral theorem; Cauchy's integral formula; Taylor and Laurent series; singularities and residue theory, conformal mapping.</td>
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<tr>
<td>MAA 5404</td>
<td>AS-MATH</td>
<td>Complex Variables: PR: MAC 2313 or C.I.</td>
<td>3(0)</td>
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<tr>
<td>MAA 5416</td>
<td>AS-MATH</td>
<td>Foundations of Analysis: PR: MAA 4226.</td>
<td>3(0)</td>
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<td></td>
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<td>Topological spaces, compactness results, connectedness, analytical and differentiable manifolds, topological groups, Lie groups, representation theory for classical groups, Green, Stoke and Gauss' theorems.</td>
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<tr>
<td>MAA 6306</td>
<td>AS-MATH</td>
<td>Real Analysis: PR: MAA 5210.</td>
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<td>Sets, function spaces, Lebesque measure, Lebesque-Steltjes measure, measurable functions, convergence notions, general measure and integration, Radon-Nikodym theorem.</td>
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<tr>
<td>MAA 6508</td>
<td>AS-MATH</td>
<td>Hilbert Spaces with Applications: PR: MAP 3302, MAS 3106, or C.I.</td>
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<td>Normed and inner product spaces; Hilbert spaces; orthonormal systems; linear operators and spectral decomposition; applications to differential and integral equations.</td>
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<tr>
<td>MAA 5205</td>
<td>AS-MATH</td>
<td>Combinatorics and Graph Theory II: PR: MAD 4203 or C.I.</td>
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<td>Polya's theory of counting; Latin squares and rectangles; block designs; coding theory; probabilistic methods; hypergraphs; applications.</td>
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<tr>
<td>MAA 6309</td>
<td>AS-MATH</td>
<td>Advanced Graph Theory I: A seminar devoted mainly to reading papers and presenting their content. Advanced areas of graph theory will be covered. Primarily for Ph.D. students in Mathematics and Computer Science.</td>
<td>3(0)</td>
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<tr>
<td>MAA 6608</td>
<td>AS-MATH</td>
<td>Finite Fields and Coding Theory: PR: MAS 5311 or C.I.</td>
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<td>General theory of fields, existence, construction and implementation of finite fields, polynomials over GF(p^n), solving equations: emphasizing fields of characteristic 2.</td>
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<tr>
<td>MAE 5318</td>
<td>ED-IP</td>
<td>3(3,0)</td>
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<tr>
<td><strong>Current Methods in Elementary School Mathematics:</strong> PR: EDG 4323. Strategies of instruction of computation and concepts of number, geometry, and measurement; instructional materials. (Meets Elementary Education certification requirements.)</td>
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<tbody>
<tr>
<td>MAE 5325</td>
<td>ED-IP</td>
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</tr>
<tr>
<td><strong>Teaching Mathematics in the Middle/Junior High School:</strong> PR: 12 s.h. of mathematics, including at least College Algebra. Consideration of the curriculum and instructional techniques appropriate for students in Middle/Junior High School.</td>
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<tbody>
<tr>
<td>MAE 5356</td>
<td>ED-IP</td>
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</tr>
<tr>
<td><strong>Teaching General Mathematics in the Secondary School:</strong> 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.</td>
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<tbody>
<tr>
<td>MAE 5395</td>
<td>ED-IP</td>
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<tr>
<td><strong>Teaching Measurement in Schools:</strong> Metric system, methods of developing different measurement skills and concepts, and curriculum changes needed to accommodate measurement.</td>
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<tr>
<td>MAE 5935</td>
<td>AS-MATH</td>
<td>3(3,0)</td>
</tr>
<tr>
<td><strong>Post-Secondary Mathematics:</strong> 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.</td>
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<tr>
<td>MAE 6145</td>
<td>ED-IP</td>
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</tr>
<tr>
<td><strong>Mathematics Curriculum, K-12:</strong> PR: At least 6 semester hours of graduate credit in mathematics education and C.I. Development of historical and current issues and forces in mathematics curriculum. New mathematics programs and contemporary curricular issues will be emphasized.</td>
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<tbody>
<tr>
<td>MAE 6337</td>
<td>ED-IP</td>
<td>3(3,0)</td>
</tr>
<tr>
<td><strong>Teaching Algebra in the Secondary School:</strong> 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.</td>
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<tr>
<td>MAE 6338</td>
<td>ED-IP</td>
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</tr>
<tr>
<td><strong>Teaching Geometry in the Secondary School:</strong> 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.</td>
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<th>COURSE</th>
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<tbody>
<tr>
<td>MAE 6517</td>
<td>ED-IP</td>
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</tr>
<tr>
<td><strong>Diagnosis/Remediation of Difficulties in Mathematics for the Classroom Teacher:</strong> PR: Basic Teacher Certificate or C.I. The study of techniques for diagnosis and remediation of difficulties in mathematics.</td>
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<th>COURSE</th>
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<tr>
<td>MAE 6641</td>
<td>ED-IP</td>
<td>3(2,1)</td>
</tr>
<tr>
<td><strong>Problem Solving and Critical Thinking Skills:</strong> PR: Regular Certificate or C.I. Development of procedures and practices necessary to implement critical thinking skills and problem solving techniques in the schools.</td>
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<tr>
<td>MAE 6656</td>
<td>ED-IP</td>
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</tr>
<tr>
<td><strong>Using Technology in the Instruction of K-12 Mathematics:</strong> PR: CAP 6613 or C.I. The application of computer technology to mathematics instruction including calculators, CAI, CMI, application software, simulators, and video disk technology.</td>
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<th>COURSE</th>
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<tr>
<td>MAE 6899</td>
<td>ED-IP</td>
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<tr>
<td><strong>Seminar in Teaching Mathematics:</strong> 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.)</td>
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<th>COURSE</th>
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<tbody>
<tr>
<td>MAE 7795</td>
<td>ED-IP</td>
<td>3(3,2)</td>
</tr>
<tr>
<td><strong>Seminar on Research in Mathematics Education:</strong> PR: Doctoral standing.</td>
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<th>COURSE</th>
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<tbody>
<tr>
<td>MAN 5050</td>
<td>BA-MAN</td>
<td>2(2,0)</td>
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<tr>
<td><strong>Management Concepts:</strong> PR: Acceptance into the graduate program. Theory and practice of managing organizations to include planning, organizational theory, human behavior, and control.</td>
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<th>COURSE</th>
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<tr>
<td>MAN 5501</td>
<td>BA-MAN</td>
<td>2(2,0)</td>
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<tr>
<td><strong>Introduction to Production/Operations Management:</strong> 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.</td>
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<td>MAN 6055</td>
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<tr>
<td><strong>Planning and Control Analysis:</strong> 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.</td>
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<tr>
<td>MAN 6075</td>
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<tr>
<td><strong>History of Management Thought:</strong> 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.</td>
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<td>MAN 6121</td>
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<tr>
<td><strong>Group Decisions and Analysis:</strong> 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.</td>
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<tr>
<td>MAN 6158</td>
<td>BA-MAN</td>
<td>3(3,0)</td>
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<tr>
<td><strong>Human Resources Management Issues:</strong> PR: MAN 6305 or C.I. A course providing advanced study in selected topics of current interest in human resource management.</td>
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<td>MAN 6245</td>
<td>BA-MAN</td>
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<tr>
<td><strong>Organizational Behavior and Development:</strong> 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.</td>
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<td>MAN 6296</td>
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<td><strong>Executive Leadership:</strong> 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.</td>
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<td>MAN 6299</td>
<td>BA-MAN</td>
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</tr>
<tr>
<td><strong>Creative and Innovative Management:</strong> 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.</td>
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<tr>
<th>COURSE</th>
<th>BA-MAN</th>
<th>3(3,0)</th>
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<tbody>
<tr>
<td>MAN 6305</td>
<td>BA-MAN</td>
<td>3(3,0)</td>
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<tr>
<td><strong>Personnel Resources Administration:</strong> 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.</td>
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<tr>
<th>COURSE</th>
<th>BA-MAN</th>
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<tbody>
<tr>
<td>MAN 6546</td>
<td>BA-MAN</td>
<td>3(3,0)</td>
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<tr>
<td><strong>Quantitative Models for Business Decisions:</strong> 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.</td>
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<tr>
<th>COURSE</th>
<th>BA-MAN</th>
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<tr>
<td>MAN 6547</td>
<td>BA-MAN</td>
<td>3(3,0)</td>
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</tbody>
</table>
| **Expert Systems for Business Application:** PR: Graduate standing and C.I. if non-Business student. An introduction and application of
OFFERINGS

the fundamentals of artificial intelligence (AI) knowledge-based expert systems technology to problem solution needs of business and other disciplines.

MAP 5655 BA-MAN 3(3,0)
Production/Operations Analysis: PR: MAN 5050, MAN 5501 or equivalents and MAN 6545. Study of the production/operations environment and the development of the organization's operations strategy.

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 7275 BA-MAN 3(3,0)
Organizational Behavior: In-depth review of the classic and modern organizational behavior research literature, which deals with management and group behavior in organizations.

MAN 7776 BA-MAN 3(3,0)
Business-level Strategic Management: PR: Ph.D. Foundation Course. In-depth review of the classic and modern business-level strategy research literature, which deals with how organizations compete in a single business segment.

MAN 7777 BA-MAN 3(3,0)
Corporate-level Strategic Management: PR: Ph.D. Foundation Course. In-depth review of the classic and modern corporate-level strategy research literature, which deals with management of an entire corporation.

MAP 6336 AS-MATH 3(3,0)

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 3105, 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 5407 AS-MATH 3(3,0)

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)

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.

MAP 6110 AS-MATH 3(3,0)
Measure and Probability: PR: MAA 5210 or C.I. Measure and integration, probability measures, random variables, distribution and characteristic functions. Convergence in LP, probability, distribution and with probability one.

MAP 6111 AS-MATH 3(3,0)
Mathematical Statistics: PR: MAP 6110 (Measure and Probability) or C.I. Strong laws of large numbers, consistency and asymptotic normality, complete and sufficient statistics, maximum likelihood and least squares, optimal estimators, hypothesis testing.

MAP 6112 AS-MATH 3(3,0)

MAP 6118 AS-MATH 3(3,0)
Introduction to Nonlinear Dynamics: PR: MAP 5336, Phy 3048 or equivalent, or C.I. Nonlinear differential equations; bifurcation theory; Hamiltonian dynamics; integrable systems and breakdown of integrability; chaos in conservative and dissipative systems.

MAP 6207 AS-MATH 3(3,0)

MAP 6356 AS-MATH 3(3,0)
Partial Differential Equations: PR: MAP 4364 or MAP 5435 or equivalent. First and second order linear equations; classification; analytical methods including Green's functions and integral representations; introduction to nonlinear equations; applications.

MAP 6385 AS-MATH 3(3,0)
Numerical Solutions of PDE: PR: MAP 6356, MAP 5356, or C.I. Numerical solution of linear and nonlinear partial differential equations of parabolic, elliptic and hyperbolic type using finite difference and spectral methods.

MAP 6408 AS-MATH 3(3,0)
Applied Mathematics II: PR: MAP 2302 and MAA 5405 or equivalent. Asymptotic series, asymptotic expansion of integrals, regular and singular perturbation expansions, boundary layer, multiple scales, WKB theory.

MAP 6419 AS-MATH 3(3,0)
Advanced Transform Methods: PR: MAP 6424 or C.I. Fourier analysis and sliding-window Fourier transform, sampling theory and its applications in signal analysis and optics, Radon transforms, the technique of back projection.

MAP 6420 AS-MATH 3(3,0)
Generalized Functions: PR: MAP 6506 or C.I. Spaces of test functions and their duals, calculus of distributions, convolution and tempered distributions, Fourier transforms of distributions, and applications to PDEs.
MAP 6241 AS-MATH 3(3,0)

MAP 6244 AS-MATH 3(3,0)
Transform Methods: PR: MAA 5405 or C.I. Laplace, Fourier, Hankel, and other integral transforms, inversion theorems; the Z transform; applications to physical problems.

MAP 6245 AS-MATH 3(3,0)
Advanced Complex Analysis and Applications: PR: MAA 5404 or C.I. Schwarz-Christoffel and Jaukowsky transformations, entire functions, Weierstrass factorization theorem and Blaschke’s product, meromorphic functions and Mittag-Leffler theorem.

MAP 6245 AS-MATH 3(3,0)
Approximation Techniques: PR: MAA 4227, MAA 5210 or C.I. Normed linear spaces; Weierstrass approximation theorem; Tchebycheff approximation by polynomials; trigonometric approximation; orthogonal expansions and least squares approximations.

MAP 6245 AS-MATH 3(3,0)
Orthogonal Polynomials and Digital Signal Processing: PR: MAA 6306, MAA 5404, or C.I. Orthogonal polynomials, Szego’s orthogonal polynomials, Toeplitz matrix, Caratheodory functions and Schur functions, Levinson algorithm, associated Szego polynomials.

MAP 6245 AS-MATH 3(3,0)
Wavelets and Their Applications: PR: MAP 4364, MAA 6508, or C.I. Continuous wavelet transforms, discrete wavelet transforms, frames, Zak transform, multi-resolution analysis, orthonormal bases of compactly supported wavelets, spline wavelets.

MAP 6256 AS-MATH 3(3,0)
Functional Analysis: PR: MAA 4226 or C.I. Normed vector spaces, linear operators, Banach Category theorem, Banach fixed point theorem, Hahn-Banach theorem and applications, open mapping and closed graph theorem with applications, Hilbert space, Gateaux and Frechet.

MAP 6256 AS-MATH 3(3,0)
Linear and Nonlinear Waves II: PR: MAP 5514 or C.I. Nonlinear shallow water waves and solitons, inverse scattering transform, Lie group methods, nonlinear dispersive waves, solitary waves and the nonlinear Schrodinger equations.

MAP 6256 AS-MATH 3(3,0)
Fractal Image Compression: PR: MTG 4302, MAA 5416, or MAA 6306, or C.I. Hausdorff metric H, Hutchinson maps, contraction maps on H, the collage theorem, measures and IFS with probabilities, fractal image compression, Huffman codes, addresses on fractals.

MAP 6256 AS-MATH 3(3,0)
Multivariate Splines and Surface Fitting: PR: MAP 5396 or C.I. Approximation of functions of several variables, tensor product splines, theory of multivariate splines, box splines, surface fitting, applications to statistics, computer graphics.

MAP 6256 AS-MATH 3(3,0)
Advanced Nonlinear Dynamics: PR: MAP 6118 or C.I. Solitons, inverse scattering transform, breakdown or integrability, analytic structure of dynamical systems, fractal aspects of turbulence.

MAP 6256 AS-MATH 3(3,0)
Advanced Topics in Partial Differential Equations: PR: MAP 6356 or C.I. Variational techniques, perturbation and asymptotic methods, hyperbolic systems, Lie group methods, parabolic, elliptic, or free boundary value problems, spectral analysis.

MAR 5056 BA-MAR 3(3,0)
Marketing Concepts: PR: Acceptance into the graduate program. Study of functions, institutions, and basic marketing of goods in the U.S. economy.

MAR 5941 BA-MAR 3(3,0)
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 with approval of the department chair.

MAR 6077 BA-MAR 3(3,0)
Contemporary Marketing Problems: PR: Graduate standing, MAR 6816, or C.I. Analysis of contemporary marketing problems resulting from social, economic, and political developments.

MAR 6406 BA-MAR 3(3,0)
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.

MAR 6456 BA-MAR 3(3,0)
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.

MAR 6616 BA-MAR 3(3,0)
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.

MAR 6816 BA-MAR 3(3,0)
Marketing Policy: PR: Graduate standing and MAR 5056 or equivalent. (Not open to undergraduate marketing majors.) Marketing policy formulation and decision making with respect to planning, pricing, promotion, and distribution.

MAR 6845 BA-MAR 3(3,0)
Services Marketing: PR: MAR 5055 or equivalent or C.I. Marketing services industries is the focus of study with particular emphasis on unique aspects of services marketing, the service marketing mix, and the implementation of service strategies.

MAS 5145 AS-MATH 3(3,0)
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.

MAS 5311 AS-MATH 3(3,0)
Abstract Algebra with Applications: PR: MAS 4301 or undergraduate abstract algebra. Group actions, the class equation, Sylow theorems, polynomial rings, Euclidian domains, principal ideal domains, field extensions, modules, and semi-simple rings.

MAS 5463 AS-MATH 3(3,0)

MCB 5205 HPA&M 3(3,0)
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.

MCB 5225 HPA&M 3(3,0)
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.
Theories and application of the principles of play in the counseling process with children. Including multicultural subgroups, persons of abuse, exceptional children, gay and lesbian people, etc.

MHS 6020, MHS 6401, 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 6430, ED-ED S 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 6431, ED-ED S 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 6450, ED-ED S 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 6480, ED-ED S Human Sexuality and Relationships: A basic course in understanding how human beings form intra- and interpersonal relationships and how sexuality develops.

MHS 6500, ED-ED S 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 6510, ED-ED S Advanced Group 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 6600, ED-ED S 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 6780, ED-ED S Ethical and Legal Issues: Studies of ethical standards and legal issues in counseling and other human service professions.

MHS 6800, ED-ED S Practicum in Counselor 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 6830, ED-ED S 1-6(1,1-6) Counseling Internship: PR: C.I. Supervised placement in setting appropriate for program track. (May be repeated for credit.)

MHS 6930, ED-ED S 3(3,0) Current Trends in Counselor Education: PR: MHS 5005 or MHS 6500 or C.I. Current trends affecting the rapid changes in the counseling field.

MCS 5487, HPA-M&M 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.


MCS 5554, HPA-M&M 3(3,0) Applied Microbiology: PR: MCB 3020C or C.I. Microbial biochemistry of industrial processes including: economics, screening, scale up, quality control and applied genetics.

MCS 6407C, HPA-M&M 5(3,4) Laboratory Methods in Molecular Biology: PR: PCB 4524 and MCB 4404, or C.I. Experimental techniques and design in laboratory biological research.

MCS 6417C, HPA-M&M 3(3,0) Microbial Metabolism: PR: C.I. Relationship between microbial metabolism and principal cellular activities, emphasizing transport, respiration, differentiation, and synthesis.

MHS 5005, ED-ED S 3(3,0) 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.

MHS 6020, ED-ED S 3(3,0) Mental Health Care Systems: PR: MHS 5005 or C.I. Foundations of mental health counseling including organizational, administration, fiscal, and accountability structures.

MHS 6070, ED-ED S 3(3,0) 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.

MHS 6220, ED-ED S 3(3,0) 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.

MHS 6221, ED-ED S 3(3,1) 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.

MHS 6400, ED-ED S 3(3,0) 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 6401, ED-ED S 3(1,2) Techniques of Counseling: PR: MHS 6400 or C.I. The nature of counseling and its relationships to theoretical concepts.

MHS 6420, ED-ED S 3(3,0) Counselling 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 6421, ED-ED S 3(3,0) Play Process in Counseling with Children: PR: SDS 6411 or C.I. Theories and application of the principles of play in the counseling process with children.
<table>
<thead>
<tr>
<th>COURSE</th>
<th>MMC 6407</th>
<th>AS-COMM</th>
<th>Visual Communication Theory: A study of the visual world as it relates to theories of visual interpretation.</th>
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</thead>
<tbody>
<tr>
<td>MMC 6445</td>
<td>AS-COMM</td>
<td>3(3,0)</td>
<td>Mass Media Research I: Quantitative approaches to mass communication research.</td>
</tr>
<tr>
<td>MMC 6446</td>
<td>AS-COMM</td>
<td>3(3,0)</td>
<td>Mass Media Research II: Qualitative approaches to mass communication research.</td>
</tr>
<tr>
<td>MMC 6557</td>
<td>AS-COMM</td>
<td>3(3,0)</td>
<td>Seminar in New Media: A study of the development and convergence of new technologies and their mediation.</td>
</tr>
<tr>
<td>MMC 6600</td>
<td>AS-COMM</td>
<td>3(3,0)</td>
<td>Media Effects and Audience Analysis: A study of the effects of communication on society emphasizing the research in media effects.</td>
</tr>
<tr>
<td>MMC 6605</td>
<td>AS-COMM</td>
<td>3(3,0)</td>
<td>Advertising and Society: A study of the social and ethical impact of advertising focusing on the development and presentation of advertising messages.</td>
</tr>
<tr>
<td>MMC 6607</td>
<td>AS-COMM</td>
<td>3(3,0)</td>
<td>Communication and Society: The importance of the mass media, their structure, role, and problems.</td>
</tr>
<tr>
<td>MUE 5595</td>
<td>ED-IP</td>
<td>3(3,0)</td>
<td>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.</td>
</tr>
<tr>
<td>MUE 6155</td>
<td>ED-IP</td>
<td>3(3,0)</td>
<td>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.</td>
</tr>
<tr>
<td>MUE 6946</td>
<td>ED-IP</td>
<td>3(0,14)</td>
<td>Practicum in Music Education: PR: Basic Teacher Certificate, MUE 5349 and MUE 6155, MUE 6610 and MUE 6530 or C.I. Field experience in teaching music. (May be repeated for credit.)</td>
</tr>
<tr>
<td>MUS 5526</td>
<td>AS-MUSIC</td>
<td>3(3,0)</td>
<td>Music and Technology: PR, Graduate Student. The emergence of technology in music including MIDI, CD ROM, and the high-tech music classroom.</td>
</tr>
<tr>
<td>MVB 5451</td>
<td>AS-MUSIC</td>
<td>2(1,0)</td>
<td>Trumpet V: PR: C.I. May be repeated for credit.</td>
</tr>
<tr>
<td>MVB 5452</td>
<td>AS-MUSIC</td>
<td>2(1,0)</td>
<td>French Horn V: PR: C.I. May be repeated for credit.</td>
</tr>
<tr>
<td>MVB 5453</td>
<td>AS-MUSIC</td>
<td>2(1,0)</td>
<td>Trombone V: PR: C.I. May be repeated for credit.</td>
</tr>
<tr>
<td>MVB 5454</td>
<td>AS-MUSIC</td>
<td>2(1,0)</td>
<td>Baritone V: PR: C.I. May be repeated for credit.</td>
</tr>
<tr>
<td>MVB 5455</td>
<td>AS-MUSIC</td>
<td>2(1,0)</td>
<td>Tuba V: PR: C.I. May be repeated for credit.</td>
</tr>
<tr>
<td>MVB 5456</td>
<td>AS-MUSIC</td>
<td>2(1,0)</td>
<td>Organ V: PR: C.I. May be repeated for credit.</td>
</tr>
<tr>
<td>MVO 5250</td>
<td>AS-MUSIC</td>
<td>1(1,0)</td>
<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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<tr>
<td>MVS 5451</td>
<td>AS-MUSIC</td>
<td>2(1,0)</td>
<td>Percussion V: PR: C.I. May be repeated for credit.</td>
</tr>
<tr>
<td>MVS 5451</td>
<td>AS-MUSIC</td>
<td>2(1,0)</td>
<td>Violin V: PR: C.I. May be repeated for credit.</td>
</tr>
<tr>
<td>MVS 5452</td>
<td>AS-MUSIC</td>
<td>2(1,0)</td>
<td>Viola V: PR: C.I. May be repeated for credit.</td>
</tr>
<tr>
<td>MVS 5453</td>
<td>AS-MUSIC</td>
<td>2(1,0)</td>
<td>Cello V: PR: C.I. May be repeated for credit.</td>
</tr>
<tr>
<td>MVS 5454</td>
<td>AS-MUSIC</td>
<td>2(1,0)</td>
<td>Bass V: PR: C.I. May be repeated for credit.</td>
</tr>
<tr>
<td>MVS 5455</td>
<td>AS-MUSIC</td>
<td>2(1,0)</td>
<td>Harp V: PR: C.I. May be repeated for credit.</td>
</tr>
<tr>
<td>MVS 5456</td>
<td>AS-MUSIC</td>
<td>2(1,0)</td>
<td>Guitar V: PR: C.I. May be repeated for credit.</td>
</tr>
<tr>
<td>MVV 5453</td>
<td>AS-MUSIC</td>
<td>2(1,0)</td>
<td>Voice V: PR: C.I. May be repeated for credit.</td>
</tr>
<tr>
<td>MVV 5454</td>
<td>AS-MUSIC</td>
<td>2(1,0)</td>
<td>Flute V: PR: C.I. May be repeated for credit.</td>
</tr>
<tr>
<td>MVV 5455</td>
<td>AS-MUSIC</td>
<td>2(1,0)</td>
<td>Oboe V: PR: C.I. May be repeated for credit.</td>
</tr>
<tr>
<td>MVV 5456</td>
<td>AS-MUSIC</td>
<td>2(1,0)</td>
<td>Clarinet V: PR: C.I. May be repeated for credit.</td>
</tr>
<tr>
<td>MVV 5457</td>
<td>AS-MUSIC</td>
<td>2(1,0)</td>
<td>Bassoon V: PR: C.I. May be repeated for credit.</td>
</tr>
<tr>
<td>MVV 5458</td>
<td>AS-MUSIC</td>
<td>2(1,0)</td>
<td>Saxophone V: PR: C.I. May be repeated for credit.</td>
</tr>
<tr>
<td>NGR 5002C</td>
<td>HPA-NURS</td>
<td>2(3,1)</td>
<td>Advanced Health Assessment: PR: Basic Health Assessment course; current RN license in FL, Bac. Degree in Nsg. Concepts and skills of advance physical/behavior health assessment over the life-span.</td>
</tr>
<tr>
<td>NGR 5110</td>
<td>HPA-NURS</td>
<td>3(3,0)</td>
<td>Theoretical Bases in Nursing: PR: Baccalaureate Degree in Nursing. Exploration and analysis of the philosophical, conceptual and theoretical bases of Nursing.</td>
</tr>
<tr>
<td>NGR 5141</td>
<td>HPA-NURS</td>
<td>3(3,0)</td>
<td>Pathophysiological Bases for Advanced Nursing Practice: PR: Baccalaureate Degree in Nursing. Critical examination of the physiological and pathophysiological mechanisms affecting individuals.</td>
</tr>
<tr>
<td>NGR 5155</td>
<td>HPA-NURS</td>
<td>3(3,0)</td>
<td>Health Promotion Across the Life Span: PR: Baccalaureate Degree in Nursing. Application of theories and models of health promotion, education, motivation, assessment and planning. Promotion and maintenance of health from conception to death.</td>
</tr>
</tbody>
</table>
NGR 5195 HPA-NURS 3(3,0)
Issues in Nursing and Health Care Policy: PR: Baccalaureate Degree in Nursing. Study of selected legal, ethical, socio-cultural, and policy issues related to advanced nursing practice and health care delivery systems.

NGR 5720 HPA-NURS 3(3,0)
Organizational Dynamics: PR: Baccalaureate Degree in Nursing. Analysis of theories and models of health care organizational systems. Emphasis on nursing administration roles.

NGR 5810 HPA-NURS 3(3,0)
Research Methods in Nursing: PR: Undergraduate statistics course; Baccalaureate Degree in Nursing. Study of research designs, qualitative and quantitative methods commonly used in nursing research. Proposal development and research utilization.

NGR 6192 HPA-NURS 3(3,0)
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.

NGR 6600C HPA-NURS 4(2,2)
Family Nurse Practitioner I: PR: NGR 5110, NGR 5141, NGR 5000C, and admission to MSN program. Foundation of the specialized role of the family nurse practitioner. Application of principles of case management with selected individuals and groups.

NGR 6601C HPA-NURS 4(1,3)
Family Nurse Practitioner II: PR: NGR 5810, NGR 6192, NGR 6600C, and NGR 5185. Theoretical and clinical bases for early diagnosis and therapeutic intervention of health care problems of individuals and families throughout the lifespan.

NGR 6602C HPA-NURS 4(1,3)
Family Nurse Practitioner III: PR: NGR 6601C, NGR 5195. Theoretical and clinical bases for management of high-risk problems within families and target populations.

NGR 6603L HPA-NURS 1-4(0,1,4)
Family Nurse Practitioner Practicum: PR: NGR 6602C. Supervised advanced clinical practice in the role of the family nurse practitioner in a variety of clinical settings.

NGR 6722 HPA-NURS 3(3,0)

NGR 6723 HPA-NURS 4(2,2)
Nursing Administration I: PR: Admission to MSN program, NGR 5110, NGR 5720. Theories and principles of nursing administration. Nursing care delivery systems, program evaluation, staffing, personnel management, issues and trends.

NGR 6724 HPA-NURS 5(2,3)
Nursing Administration II: PR: NGR 6723, NGR 6722. Continuation of Nursing Administration I.

NGR 6813 HPA-NURS Variable
Research Utilization Project: PR: NGR 6840. Development of a project which evaluates nursing research findings for applicability to practice.

NGR 6840 HPA-NURS 3(3,0)

PAD 5041 HPA-PUB 3(3,0)
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.

PAD 5336 HPA-PUB 3(3,0)
Introduction to Urban Planning: Issues of urbanization, regional development, land use and comprehensive planning, environmental planning, and social planning.

PAD 5337 HPA-PUB 3(3,0)
Urban Design: Planning techniques such as planned unit developments, capital improvements planning, and growth management, and planning methods, including needs assessment and graphic design.

PAD 5338 HPA-PUB 3(3,0)
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.

PAD 5426 HPA-PUB 3(3,0)
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.

PAD 5427 HPA-PUB 3(3,0)
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.

PAD 5806 HPA-PUB 3(3,0)
Local Government Operations: Operational Functions of municipal and county governments and the role of the chief executive officer.

PAD 5807 HPA-PUB 3(3,0)
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.

PAD 5850 HPA-PUB 3(3,0)
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.

PAD 6035 HPA-PUB 3(3,0)
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.

PAD 6037 HPA-PUB 3(3,0)
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.

PAD 6053 HPA-PUB 3(3,0)
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.

PAD 6062 HPA-PUB 3(3,0)
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.

PAD 6227 HPA-PUB 3(3,0)
Public Budgeting and Financial Management: 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.
<table>
<thead>
<tr>
<th>COURSE</th>
<th>EFFECTIVE</th>
<th>HOURS</th>
<th>TITLE</th>
</tr>
</thead>
<tbody>
<tr>
<td>PAD 6307</td>
<td>HPA-PUB</td>
<td>3(3,0)</td>
<td>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.</td>
</tr>
<tr>
<td>PAD 6327</td>
<td>HPA-PUB</td>
<td>3(3,0)</td>
<td>Public Program Evaluation Techniques: Techniques and skills utilized in the evaluation of public programs.</td>
</tr>
<tr>
<td>PAD 6335</td>
<td>HPA-PUB</td>
<td>3(3,0)</td>
<td>Strategic Planning and Management: PR: PAD 6037, PAD 6053, PAD 6700 (may be taken concurrently), or C.I. An examination and analysis of planning, goal setting, and strategic management in public sector organizations.</td>
</tr>
<tr>
<td>PAD 6353</td>
<td>HPA-PUB</td>
<td>3(3,0)</td>
<td>Environmental Program Management Research: Research of environmental programs, problems, issues, and policies to prepare persons working for or entering government service for environmental program staff or management responsibilities.</td>
</tr>
<tr>
<td>PAD 6417</td>
<td>HPA-PUB</td>
<td>3(3,0)</td>
<td>Human Resource Management: Administrator as manager and motivator of public employees with particular emphasis on organizational behavior and contemporary public service legislation.</td>
</tr>
<tr>
<td>PAD 6700</td>
<td>HPA-PUB</td>
<td>3(3,0)</td>
<td>Analytic Techniques for Public Administration I: Statistical methodology and use of computers as a tool for decision making in the public sector.</td>
</tr>
<tr>
<td>PAD 6701</td>
<td>HPA-PUB</td>
<td>3(3,0)</td>
<td>Analytic Techniques for Public Administration II: PR: Completion of PAD 6700. Applied analytical tools for administrators in the public sector. Practical use of computers in policy and decision making.</td>
</tr>
<tr>
<td>PAD 6716</td>
<td>HPA-PUB</td>
<td>3(3,0)</td>
<td>MIS for Public Managers: PR: C.I. Use of systems concept and computers in contemporary public sector management information systems.</td>
</tr>
<tr>
<td>PAD 6934</td>
<td>HPA-PUB</td>
<td>3(3,0)</td>
<td>Special Issues in Public Administration: Substantive and theoretical issues confronting the broad spectrum of contemporary public administration. May be repeated for credit when content is different.</td>
</tr>
<tr>
<td>PAD 6946</td>
<td>HPA-PUB</td>
<td>3(3,0)</td>
<td>Internship: PR: C.I.</td>
</tr>
<tr>
<td>PCB 5026</td>
<td>HPA-M&amp;M</td>
<td>3(3,0)</td>
<td>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.</td>
</tr>
<tr>
<td>PCB 5045C</td>
<td>AS-BIOL</td>
<td>4(3,2)</td>
<td>Conservation Biology: PR: PCB 3043 and PCB 3063. Scientific basis of conversation; conservation of ecosystems, populations, exploited species, and endangered species. Weekend field trips are required.</td>
</tr>
<tr>
<td>PCB 5235</td>
<td>HPA-M&amp;M</td>
<td>3(3,0)</td>
<td>Immunopathology: PR: PCB 3233. In-depth overview of diseases due to deficiencies or over-reactivity of the immune system.</td>
</tr>
<tr>
<td>PCB 5239</td>
<td>HPA-M&amp;M</td>
<td>3(3,0)</td>
<td>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.</td>
</tr>
<tr>
<td>PCB 5326C</td>
<td>AS-BIOL</td>
<td>5(3,2)</td>
<td>Ecosystems of Florida: PR: PCB 3043, PCB 3043L or equivalent. Ecosystems of Florida will be discussed to include geography, climate, climate, nutrient cycling, community structure and conservation.</td>
</tr>
<tr>
<td>PCB 5485</td>
<td>AS-BIOL</td>
<td>3(3,0)</td>
<td>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.</td>
</tr>
<tr>
<td>PCB 5806</td>
<td>HPA-M&amp;M</td>
<td>3(3,0)</td>
<td>Endocrinology: PR: PCB 4723 and BCH 4053 or C.I. Mechanisms of action of hormones; interrelationship between the nervous and endocrine systems.</td>
</tr>
<tr>
<td>PCB 6049</td>
<td>AS-BIOL</td>
<td>2(2,0)</td>
<td>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.</td>
</tr>
<tr>
<td>PCB 6355</td>
<td>AS-BIOL</td>
<td>3(3,0)</td>
<td>Environmental Physiology: PR: Physiology and ecology or C.I. The effects of major environmental factors on the physiology of plants and animals.</td>
</tr>
<tr>
<td>PCB 6585C</td>
<td>AS-BIOL</td>
<td>5(3,6)</td>
<td>Advanced Genetics: PR: PCB 3063 or C.I. Recent advances in genetics, stressing molecular and developmental trends.</td>
</tr>
<tr>
<td>PCB 6675C</td>
<td>AS-BIOL</td>
<td>4(3,2)</td>
<td>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.</td>
</tr>
<tr>
<td>PCB 6721</td>
<td>AS-BIOL</td>
<td>3(3,0)</td>
<td>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.</td>
</tr>
<tr>
<td>PET 5355</td>
<td>HPA-H&amp;PT</td>
<td>3(3,0)</td>
<td>Exercise Physiology and Health: In-depth study of adaptations of cardiovascular and respiratory systems during varying degrees of exercise.</td>
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<tr>
<td>PET 6086</td>
<td>ED-E PE</td>
<td>3(3,0)</td>
<td>Exercise Intervention and Risk Hazards: Prevention of select major risk hazards through exercise intervention.</td>
</tr>
<tr>
<td>PET 6088</td>
<td>ED-E PE</td>
<td>3(3,0)</td>
<td>Wellness Development in Children: An analysis of wellness characteristics and concepts as they affect the wellness of children.</td>
</tr>
<tr>
<td>PET 6089</td>
<td>ED-E PE</td>
<td>3(3,0)</td>
<td>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.</td>
</tr>
<tr>
<td>PET 6238C</td>
<td>ED-E PE</td>
<td>3(2,1)</td>
<td>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.</td>
</tr>
<tr>
<td>PET 6357C</td>
<td>ED-E PE</td>
<td>3(3,2)</td>
<td>Environmental Exercise Physiology: A study of physiological adaptation resulting from prescribed physical activity programs.</td>
</tr>
<tr>
<td>PET 6367</td>
<td>ED-E PE</td>
<td>3(3,0)</td>
<td>Physical Performance and Energy Supplies: The relation of nutrients to aerobic performance.</td>
</tr>
</tbody>
</table>
PET 6381 ED-EPE 3(3,0)
Physiology of Neuromuscular Mechanisms: Human body morphology and function critical in producing motion, strength, power, and endurance.

PET 6388 ED-EPE 3(3,0)
Exercise Physiology and Cardiovascular Disease Prevention: The physiology of exercise as it affects the onset of cardiovascular diseases.

PET 6389 ED-EPE 3(3,0)

PET 6416 ED-EPE 3(3,0)
Administration of Corporate Wellness Programs: Administrative implications for the development of a corporate wellness program.

PET 6515C ED-EPE 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-EPE 3(3,1)
Advanced Studies in Adapted Physical Education: PR: EEX 5050. Survey course that addresses the development, educational, and socialization needs of exceptional children. A minimum of 15 observation hours are required.

PET 6646 ED-EPE 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-EPE 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, inservice training, legislative issues, resource utilization.

PET 6655 ED-EPE 3(3,1)

PET 6910 ED-EPE 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-EPE 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 evolution 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.

PHC 6411 HPA-H&PT 3(3,0)
Health and Society: Understanding health and illness as defined by patients, providers, and other persons in the social system.

PHC 6420 HPA-H&PT 3(3,0)
Case Studies in Health Law: Health law including patient care, liability, malpractice, workmen's compensation, and legal responsibilities of health personnel.

PHT 5XXX HPA-H&PT 3(3,0)
Foundations of Physical Therapy II: PR: PHT 4XXX Foundations of Physical Therapy I. This course emphasizes the psychosocial aspects of disability. Focus on cultural diversity issues, communication skills, and different styles of learning and teaching.

PHT 5XXX HPA-H&PT 2(2,0)
Advanced Orthopedic Physical Therapy: PR: PHT 4316 Orthopedic Physical Therapy, PHT 4315L Orthopedic Physical Therapy Lab, CR: PHT 5XXX Advanced Orthopedic Physical Therapy Lab. Specific rehabilitative protocols regarding particular orthopedic injuries and illnesses are presented. Focus on the previous course work in therapeautic modalities, anatomy, physiology, and therapeutic exercises are incorporated.

PHT 5XXX HPA-H&PT 2(0,4)

PHT 5XXX HPA-H&PT 3(3,0)

PHT 5XXX HPA-H&PT 3(3,0)

PHT 5XXX HPA-H&PT 2(0,6)
Advanced Clinical Applications I: PR: PHT 4XXX Clinical Education I. Six weeks of full-time supervised clinical education in a physical therapy setting. All previous education objectives apply and are cumulative.

PHT 6XXX HPA-H&PT 3(3,0)

PHT 6XXX HPA-H&PT 2(2,0)
<table>
<thead>
<tr>
<th>COURSE</th>
<th>PR/CR</th>
<th>3(0,2)</th>
<th>3(3,0)</th>
<th>3(3,0)</th>
<th>3(2,0)</th>
<th>2(2,1)</th>
<th>3(3,0)</th>
<th>2(2,0)</th>
<th>2(0,4)</th>
<th>3(3,0)</th>
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<tbody>
<tr>
<td>PHT 6XXX HPA-H&amp;PT</td>
<td>Physical Therapy Integration I Lab: CR: PHT 6XXX Physical Therapy Integration I. Lab course focusing on examination and intervention techniques for the evaluation and treatment of patients with spinal cord injury and neurological diseases. Emphasis on patients with spinal cord injury and neurological diseases.</td>
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<tr>
<td>PHT 6XXX HPA-H&amp;PT</td>
<td>Health Promotion/Wellness in Physical Therapy: PR: PHT 3155 Physiology of Therapeutic Exercise, PHT 3155L Physiology of Therapeutic Exercise Lab. An investigation into and application of physical therapist's role in the wellness trends of today's medical system.</td>
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<tr>
<td>PHT 6XXXL HPA-H&amp;PT</td>
<td>Management of Physical Therapy Services: PR: PHT 6XXX Foundations of Physical Therapy I. Planning, organizing, delivering, and evaluating physical therapy services within a health care system, including quality management, third-party payers, DRGs, and legislative impact.</td>
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<td>PHT 6XXXC HPA-H&amp;PT</td>
<td>Prosthetics/Orthotics: This course will focus on the examination, evaluation, and physical therapy therapeutic intervention related to the training, exercise programs, and prosthetic fitting and training for the upper and lower extremity amputee. In addition, the course will focus on the needs of physical therapy clients who require splinting, bracing, or casting to maximize their rehabilitation potential.</td>
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<tr>
<td>PHT 6XXX HPA-H&amp;PT</td>
<td>Research Applications in Physical Therapy II: PR: PHT 6XXX Research Applications in Physical Therapy I. Students will proceed through the stages of the research process. Integration of the previous research courses and this course result in the culmination of the research project.</td>
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<tr>
<td>PHT 6XXXL HPA-H&amp;PT</td>
<td>Physical Therapy Integration II Lab: CR: PHT 6XXX Physical Therapy Integration II Lab. Lab course integrating knowledge learned from previous courses. A problem-solving approach to selected dysfunctions used.</td>
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<tr>
<td>PHT 6XXX HPA-H&amp;PT</td>
<td>Gender Health Issues in Physical Therapy: PR: PHT 6XXX Health Promotion/Wellness in Physical Therapy. Focuses on women's and men's health issues as they relate to the practice of physical therapy.</td>
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<tr>
<td>PHT 6XXX HPA-H&amp;PT</td>
<td>Male and female urinary incontinence, lymphedema, post mastectomy, HIV and AIDS, osteoporosis, and other selected topics are addressed.</td>
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</table>
PHY 5465C AS-PHYS 1(0.5,1.5) Wave Motion for Teachers: PR: C.I. Water waves, waves on strings, sound and vibrations.

PHY 5500C AS-PHYS 1(0.5,1.5) Thermal Physics for Teachers: PR: C.I. Engines, heat pumps, kinetic theory, phase changes, radiation, weather.


PHY 5601 AS-PHYS 1(1,0) Quantum Physics for Teachers: PR: C.I. Hydrogen atom, diatomic molecules, heat capacity transition rates.

PHY 5606 AS-PHYS 3(3,0) 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 Schrödinger equation, matrix formulation, and time independent perturbation theory.

PHY 5933 AS-PHYS 3(3,0) 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.


PHY 6347 AS-PHYS 2(3,0) Electrostatics II: PR: PHY 5346 or C.I. Dynamics of charged particles in electromagnetic fields. Antennas; radiation by moving charges; magnetohydrodynamics; multipole radiation and electrodynamics of materials.

PHY 6353 AS-PHYS 3(3,0) 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.

PHY 6355 AS-PHYS 3(3,0) 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.

PHY 6434 AS-PHYS 3(2.5, 0.5) 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.

PHY 6435 AS-PHYS 3(3,0) Nonlinear Guided Wave Optics: PR: PHY 5346, 6347, 6434. The physics and applications of nonlinear optical interactions in fibers and planar waveguides is discussed, including parametric processes, all-optical effects and solutions.


Seminar in American National Politics: Examines major aspects of the American system, including mass behavior, public opinion, and political institutions.

Women and Public Policy: PR: Graduate standing. Analyzes U.S. public policies with differential impact on women, including policies regarding employment, family, health, reproduction and sexuality. Strong theoretical emphasis.

Quantitative Methods in Political Research: PR: C.I. Methods of measuring and understanding political issues; conceptualization and measurement of political variables; techniques of data collection and quantitative analysis and computer usage.

Special Topics/Political Analysis: This course title covers all political analysis special topics courses which are not listed in the catalog with a course number. May be repeated for credit when content is different.

Seminar in Political Theory: An examination of analytic and normative theories of politics and society, using selected topics as a substantive focus.

Personality Theories: PR: G. A. or C.I. Critical theoretical models of personality development with applications to counseling, psychotherapy and psychological assessment.

Physiological Psychology: PR: PSB 3002 or C.I. An advanced survey of the physiological basis of behavior, emphasizing the relationship between the nervous system and behavior.

Advanced Abnormal and Clinical Psychopharmacology: PR: Graduate admission and C.I. Diagnosis of psychopathology and drug treatment of these disorders. Examination of the efficacy of psychoactive drugs.

Advanced Research Methodology I: PR: Graduate admission and C.I. Logic and procedures of psychological research and evaluation; applications of experimental and non-experimental techniques in analyzing psychological variables; review of relevant psychological research.

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.

Psychometric Theory: PR: PSY 6216. Theory of test construction, including test reliability and validity.

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.

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.

Directed Research: PR: PSY 6217, EXP 6257, PSY 6338, 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.

Research Report: PR: PSY 6916. Preparation of a written report of the project completed in PSY 6916. This report will be in the form of a research publication of technical report.

Research Planning Seminar I: Clinical graduate student initiation of thesis proposal formulation under faculty supervision.


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.

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.

Applied Statistical Business Decision Models: PR: Admission to Business doctoral program; ECO 5416 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.


Classroom Diagnosis and Development of Reading Proficiencies: PR: RED 5147 or equivalent Classroom diagnosis and corrective teaching in reading; instructional materials. Case study required.

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.

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.
OCCURRINGS

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Title</th>
<th>Units</th>
</tr>
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<tbody>
<tr>
<td>RED 6337</td>
<td>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.</td>
<td>3(3,0)</td>
</tr>
<tr>
<td>RED 6746</td>
<td>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.</td>
<td>3(3,0)</td>
</tr>
<tr>
<td>RED 6845</td>
<td>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.</td>
<td>3(3,0)</td>
</tr>
<tr>
<td>RED 6846</td>
<td>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.</td>
<td>3(3,0)</td>
</tr>
<tr>
<td>REE 6306</td>
<td>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.</td>
<td>3(3,0)</td>
</tr>
<tr>
<td>RET 6910</td>
<td>Research Methods in Cardiopulmonary Physiology: Introduction to methods used in scientific and medical research in cardiopulmonary physiology. Literature review, experimentation, and data analysis.</td>
<td>3(3,0)</td>
</tr>
<tr>
<td>RET 6915</td>
<td>Cardiac Rehabilitation: PR: HSC 6566. Lecture course emphasizing the principles underlying the formulation and implementation of a comprehensive cardiac rehabilitation and prevention program.</td>
<td>3(3,0)</td>
</tr>
<tr>
<td>SCE 5716</td>
<td>Methods in Elementary School Science: PR: EDG 4323. Organization of instruction in elementary school science including methods, evaluation, materials, strategies, and current practices.</td>
<td>3(3,0)</td>
</tr>
<tr>
<td>SCE 5825</td>
<td>Space Science for Educators: PR: Senior standing or C.I. Introduction to space science, manned space flight, and space education curriculum.</td>
<td>3(3,0)</td>
</tr>
<tr>
<td>SCE 6146</td>
<td>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.</td>
<td>3(2,1)</td>
</tr>
<tr>
<td>SCE 6237</td>
<td>Science Programs in Secondary School: PR: Basic Teacher Certificate or C.I. Study of historical development and current trends; analysis of science curricula, materials.</td>
<td>3(3,0)</td>
</tr>
<tr>
<td>SCE 6238</td>
<td>Inquiry in the Sciences: PR: Graduate standing or science certification. Teaching science by inquiry in the secondary school and development of inquiry lessons.</td>
<td>3(3,1)</td>
</tr>
<tr>
<td>SCE 6616</td>
<td>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.</td>
<td>3(3,0)</td>
</tr>
<tr>
<td>SDS 6040</td>
<td>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.</td>
<td>3(3,0)</td>
</tr>
<tr>
<td>SDS 6200</td>
<td>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.</td>
<td>3(2,1)</td>
</tr>
<tr>
<td>SDS 6330</td>
<td>Career Development: PR: EGC 5005, 6426, or 6055; EDF 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.</td>
<td>3(3,0)</td>
</tr>
<tr>
<td>SDS 6411</td>
<td>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.</td>
<td>3(3,0)</td>
</tr>
<tr>
<td>SDS 6426</td>
<td>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.</td>
<td>3(3,0)</td>
</tr>
<tr>
<td>SDS 6520</td>
<td>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.</td>
<td>3(3,0)</td>
</tr>
<tr>
<td>SDS 6624</td>
<td>The College Community and the Student: PR: Completion of Phase II of Education Professional Preparation or C.I. and EGC 5005. A study of the composition of student populations in American colleges and universities and the factors within the learning environment which support student development.</td>
<td>3(3,0)</td>
</tr>
<tr>
<td>SOP 5059</td>
<td>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.</td>
<td>3(3,0)</td>
</tr>
<tr>
<td>SOW 6105</td>
<td>Human Behavior and Social Environment I: Individual and study of human development and psychosocial functioning of individuals at various life stages with particular attention to implications of human diversity.</td>
<td>3(3,0)</td>
</tr>
<tr>
<td>SOW 6106</td>
<td>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.</td>
<td>3(3,0)</td>
</tr>
<tr>
<td>SOW 5132</td>
<td>Diverse Client Populations: Study of human diversity, focusing on the needs, resources, problems, and service issues of several identified minority client populations.</td>
<td>3(3,0)</td>
</tr>
<tr>
<td>SOW 5235</td>
<td>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.</td>
<td>3(3,0)</td>
</tr>
</tbody>
</table>
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)
Field Education II: Interventions: PR: SOW 5532. CR: SOW 5306. Continuation of SOW 5532 Field Education I in the same field agency for 224 clock hours.

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 and Differential Diagnosis: PR: All first-year courses in the MSW Program SOW 5305, 5105, 5404, 5235, 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, 5306, 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: Group therapy and support approaches to such problems as addictions, sexually transmitted diseases, spouse abuse, and batterers.

SOW 6348  HPA-SOWK  3(3,0)
Clinical Practice with Individuals: Behavioral, crisis, and psychosocial theories applied to such problems as adjustment, rape, suicide, elder and child abuse, homelessness, residential/shelter care, delinquency, and retardation.

SOW 6535  HPA-SOWK  4(0,4)
Field Education III: Clinical Practice-Individuals and Families: PR: SOW 5532 and SOW 5533. Supervised specialist practice in a field agency for 304 clock hours.

SOW 6536  HPA-SOWK  4(0,4)
Field Education IV: Clinical Practice-Groups: PR: SOW 6535. Continuation of SOW 6535, Field Education III, in the same field agency for 304 additional clock hours.

SOW 6612  HPA-SOWK  3(3,0)
Clinical Practice with Families: Family-focused models of intervention applied to such problems as resettlement/uprooting, divorce, single parenting, and blended families.

SOW 6655  HPA-SOWK  3(3,0)
Clinical Practice with Children and Adolescents: Social work practice and treatment of children and adolescents in family systems.

SOW 6914  HPA-SOWK  2(2,0)
Advanced Research Project in Clinical Practice: Clinical Practice in Urban Setting: PR: All first-year courses in the MSW Program. SOW 5305, 5105, 5404, 5235, 5306, 5106, 5432, 5132, 5533, 6348, 6612, 6123, 5246, 6535. Student-selected research on an issue of clinical practice in urban settings.

SPA 5120  HPA-COMD  4(3,3)
Physiological Acoustics: PR: SPA 4032: Graduate status or C.I. Lectures, readings, and experiments pertaining to the subjective perception 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)

SPA 5307  HPA-COMD  3(3,0)
Differential Diagnosis of Auditory Disorders: PR: SPA 4032; Graduate status of C.I. Clinical techniques in pure tone speech, acoustic impedance, and electrophysiologic response audiometry.

SPA 5327  HPA-COMD  4(0,4)
Aural Habilitation/Rehabilitation: PR: Graduate status or C.I. Principles and procedures involved in speech and language acquisition management, utilization of residual hearing, speech reading, and the use of hearing aids.

SPA 5404  HPA-COMD  3(3,0)
Language Disorders: Preschool: PR: Graduate status or C.I., LIN 4710C, SPA 4402C. 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.

SPA 5553L  HPA-COMD  1(0,4)
Differential Diagnosis in Speech and Language Laboratory: PR: 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 staffings.
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>SPA 5600</td>
<td>Administration and Management of Communicative Disorders Programs</td>
<td>3(3,0)</td>
<td>Methods and techniques for organization and administration of speech-language and hearing disorders in public school, hospital, rehabilitation center, and private practice facilities.</td>
</tr>
<tr>
<td>SPA 5805</td>
<td>Research in Communicative Disorders</td>
<td>3(3,0)</td>
<td>Introduces the student to empirical research in the area of communicative disorders. Emphasis is on hypothesis testing, methodology, analysis, and interpretation of results.</td>
</tr>
<tr>
<td>SPA 6132</td>
<td>Measurements in Speech Science</td>
<td>3(1,4)</td>
<td>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>
</tr>
<tr>
<td>SPA 6204</td>
<td>Advanced Studies In Communicative Disorders: Articulation</td>
<td>3(3,0)</td>
<td>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>
</tr>
<tr>
<td>SPA 6204L</td>
<td>Advanced Studies In Communicative Disorders: Articulation Laboratory</td>
<td>1(0,2)</td>
<td>Graduate status or C.I. Practical application of clinical skills in articulation disorders. May be repeated for credit.</td>
</tr>
<tr>
<td>SPA 6211</td>
<td>Voice Disorders</td>
<td>3(3,0)</td>
<td>PR: SPA 3101. Basic principles and practices in the treatment of organic voice pathologies including laryngectomy, cleft palate, and other disorders of the vocal mechanisms.</td>
</tr>
<tr>
<td>SPA 6211L</td>
<td>Voice Disorders Laboratory</td>
<td>1(0,2)</td>
<td>PR: Graduate status or C.I. Practical application of clinical skills in voice disorders.</td>
</tr>
<tr>
<td>SPA 6308</td>
<td>Auditory Evaluation and Assessment Procedures for Special Populations</td>
<td>4(4,0)</td>
<td>Graduate status or C.I. Audiometric testing and functional communicative assessment procedures for geriatric, pediatric, and other special populations.</td>
</tr>
<tr>
<td>SPA 6345</td>
<td>Amplification</td>
<td>4(4,0)</td>
<td>PR: Graduate status or C.I. Hearing aids, selective evaluation procedures, electroacoustic measurements, coupling techniques, and orientation and counseling.</td>
</tr>
<tr>
<td>SPA 6353</td>
<td>Hearing Conservation</td>
<td>4(4,0)</td>
<td>PR: SPA 4032, SPA 5120. Industrial audiometry, community noise abatement, and public school hearing conservation.</td>
</tr>
<tr>
<td>SPA 6403</td>
<td>Language Disorders: School Age</td>
<td>3(3,0)</td>
<td>PR: LIN 4710C, SPA 4402C, 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>
</tr>
<tr>
<td>SPA 6407</td>
<td>Seminar in Language</td>
<td>2(2,0)</td>
<td>PR: Graduate status or C.I. Examines innovative and disorder-specific evaluation and treatment in adult and pediatric language disorders.</td>
</tr>
<tr>
<td>SPA 6410</td>
<td>Language Problems in Adults: Aphasia and Other Symbolic Disorders</td>
<td>3(3,0)</td>
<td>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>
</tr>
<tr>
<td>SPA 6505</td>
<td>Clinical Practicum in Speech Pathology-Language</td>
<td>3(0,6)</td>
<td>PR: Graduate status or C.I. Advanced clinical practice in communicative disorders. May be repeated for credit when content is different.</td>
</tr>
<tr>
<td>SPA 6506</td>
<td>Clinical Practicum in Audiology</td>
<td>3(0,6)</td>
<td>PR: SPA 4032. Advanced clinical practice in communicative disorders. May be repeated for credit when content is different.</td>
</tr>
<tr>
<td>SPA 6526</td>
<td>Seminar in Speech Pathology</td>
<td>2(2,0)</td>
<td>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>
</tr>
<tr>
<td>SPA 6553C</td>
<td>Differential Diagnosis Speech Language</td>
<td>4(3,1)</td>
<td>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 staffings required.</td>
</tr>
<tr>
<td>SPA 6938</td>
<td>Special Topics/Seminars</td>
<td>1-6</td>
<td>May be repeated for credit.</td>
</tr>
<tr>
<td>SPC 6219</td>
<td>Modern Communication Theory</td>
<td>3(3,0)</td>
<td>Comparative analysis of theories and models of human communication, behavior systems, encoding and decoding processes, interaction variables, and social context.</td>
</tr>
<tr>
<td>SPC 6442</td>
<td>Small Group Communication</td>
<td>3(3,0)</td>
<td>A study of communication and its effect on small group behavior.</td>
</tr>
<tr>
<td>SPN 5502</td>
<td>Hispanic Culture of the United States</td>
<td>3(3,0)</td>
<td>PR: Graduate standing or C.I. An analysis of the Hispanic culture of the United States, past and present.</td>
</tr>
<tr>
<td>SPN 5505</td>
<td>Spanish Peninsular Culture and Civilization</td>
<td>3(3,0)</td>
<td>PR: Graduate standing or C.I. An analysis of the salient characteristics of Spanish culture and civilization.</td>
</tr>
<tr>
<td>SPN 5506</td>
<td>Spanish American Culture and Civilization</td>
<td>3(3,0)</td>
<td>PR: Graduate standing or C.I. An analysis of the salient characteristics of Spanish American culture and civilization.</td>
</tr>
<tr>
<td>SPN 5705</td>
<td>Introduction to Spanish Linguistics</td>
<td>3(3,0)</td>
<td>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 sociolects.</td>
</tr>
<tr>
<td>SPN 5825</td>
<td>Spanish Dialectology</td>
<td>3(3,0)</td>
<td>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.</td>
</tr>
<tr>
<td>SPN 5845</td>
<td>History of the Spanish Language</td>
<td>3(3,0)</td>
<td>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.</td>
</tr>
</tbody>
</table>

301
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(0,3)
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-Colombian 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 Galiano, Unamuno, Baroja, Azorin, and Machado.
Approximating response functions; first-order and second-order re-
stationary responses, density estimation.

Newton-Raphson and Fisher-scoring, conjugate gradient and quasi-
Newton methods, EM algorithm.

Response Surface and Mixture Experiments: PR: STA 5205. Approximating response functions; first-order and second-order re-
sponse surfaces; ridge systems; mixture problems, component pro-
portions, and the analysis of mixture data.

Sampling Theory and Applications: PR: STA 4321. Different tech-
niques of sampling, sampling for proportions, choosing sample size,
ratio estimates, effects of sampling and non-sampling errors.

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.

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.

Theoretical Statistics I: PR: MAC 3313. Distribution of random
variables, conditional probability and independence, some special distribu-
tions, distributions of functions of random variables, limiting distribu-
tions.

Theoretical Statistics II: PR: STA 6326. Point estimation, sufficient
statistics, completeness, exponential family, maximum likelihood esti-
mators, statistical hypotheses, best tests, likelihood ratio tests,
noncentral distributions.

Statistical Applications of Matrix Algebra: PR: MAC 3313 and STA
4164 or STA 5206. Basic theory of determinants, inverses, general-
ized inverses, eigenvalues and eigenvectors, partitioned matrices,
Diagonalization and decomposition theorems, least squares and sta-
tistical applications.

one and two sample problems; one and two way layouts; indepen-
dence problems, regression problems.

Statistical Methods for Industrial Practice: Variance components,
PCRs, autocorrelation structures, charting, EVOP, design strategies,
calibration, standards, and associated awards.

Multivariate Statistical Methods: PR: MAS 3105, STA 4163, and
STA 4322. Concepts of statistical relationships among several vari-
ables and methods for inference. Multivariate normal, Hotelling's T^2,
multivariate analysis of variance, canonical correlations and principal
components.

Applied Time Series Analysis: PR: STA 4322, MAS 3105: Stationarity,
autocorrelation, moving averages and autoregressive pro-
cesses. Non-stationary time series. Identification and estimation. Fore-
casting.

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.

Advanced Population: Examines the theories, methods, and infor-
mation utilized by demographers and focuses on techniques of appli-
cation of those skills.
SYA 6126 AS-SOC/IAN 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/IAN 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/IAN 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/IAN 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/IAN 3(3,0)

SYO 6515 AS-SOC/IAN 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/IAN 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/IAN 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/IAN 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/IAN 3(3,0)
Crime, Law, Inequality: PR: Graduate standing. Among the consequences of social stratification are criminality and treatment/protection by the legal system. This course examines literature concerning inequality and the sociology of law.

SYP 6563 AS-SOC/IAN 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/IAN 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.

TAX 6135 BA-ACCT 3(3,0)
Seminar in the Taxation of Corporations and Shareholders: PR: TAX 5015, graduate standing, and all foundation courses for the accounting program. Federal taxation relating to corporate organization, distributions, liquidations, accumulations, and reorganizations.

TAX 6205 BA-ACCT 3(3,0)
Seminar in the Taxation of Partnership Income: PR: TAX 5015, graduate standing, and all foundation courses for the accounting program. Federal and Florida estate and inheritance taxes; taxation of gifts and trusts.

TAX 6405 BA-ACCT 3(3,0)
Seminar in Tax Planning: PR: TAX 5015, graduate standing, and all foundation courses for the accounting program. Substantive provisions of federal tax law; tax planning from a business viewpoint; case studies of the effect of tax law on business decisions.

TAX 6845 BA-ACCT 3(3,0)
Seminar in Doctoral Tax Research: PR: Admission to doctoral program. ACG 7157, and C.I. A review and critical analysis of tax research literature, with emphasis on emerging issues, methodology, and data gathering.

TSL 6141 AS-LANG 3(3,0)
ESOL Strategies: This course will survey cross-cultural communication and understanding, testing and evaluation, curriculum and methods of teaching ESOL to meet the needs of limited English proficient students.

TSL 5345 ED-IP 3(3,0)
Methods of ESOL Teaching: This course is designed to develop understanding, knowledge and skills of the current methods used in the teaching of ESOL.

TSL 5825 ED-IP 3(3,0)
ESOL Cultural Diversity: This course is designed to identify major cultural groups represented by the LEP population in Florida schools and to understand their special needs.

TSL 6142 AS-LANG 3(3,0)
Critical Approaches to ESOL: Emphasis placed on current research in second language acquisition as it relates to the development of ESOL curriculum and materials.

TSL 6250 AS-LANG 3(3,0)
Applied Linguistics in ESOL: Applying linguistics, psycholinguistics, and sociolinguistics to teaching English as a second language with emphasis on pronunciation, intonation, structural analysis, morphophonemics, and decoding from print to sound.

TSL 6440 AS-LANG 3(3,0)
Problems in Evaluation in ESOL: This course provides for the development of sound assessment knowledge necessary to prepare students to apply second language assessment theories, principles, and current research.

TSL 6540 AS-LANG 3(3,0)
Issues in Second Language Acquisition: Focuses on second language acquisition theories, principles, and current research as they relate to language-minority students acquiring English as a Second Foreign language.
TSL 6640 AS-LANG 3(3,0)
Research in Second Language: PR: EDF 6481. This course focuses on research into language learning processes which serves as a knowledge base for effective teaching of language-minority students.

TSL 6940 AS-LANG 3(3,0)
ESOL Practicum: PR: C.I. Techniques and strategies for creating effective lesson plans for ESOL classroom activities.

TTE 5204 EN-CEE 3(3,0)
Traffic Engineering: PR: TTE 4004. Study of operator and vehicle characteristics, and design for street capacity, signals, signs, and markings.

TTE 5205 EN-CEE 3(3,0)

TTE 5215 EN-CEE 3(3,0)
Transportation Safety Analysis: PR: TTE 4004. Identification of the factors contributing to the accident occurrence and the evaluation of safety investments.

TTE 5700 EN-CEE 3(3,0)
Railroad Engineering: PR: TTE 4004 and C.I. The major technical factors in location, construction, maintenance, and operation of railroad transportation systems.

TTE 5805 EN-CEE 3(3,0)
Geometric Design of Transportation Systems: PR: TTE 4004. Study of geometric and construction design elements in the engineering of transportation systems.

TTE 5835 EN-CEE 3(3,0)
Pavement Design: PR: CEG 4101C. Pavement types, wheel loads, stresses in pavement components; design factors such as traffic configurations, environment, and economy.

TTE 6256 EN-CEE 3(3,0)
Traffic Operations: PR: EIN 2032; TTE 4004 and TTE 5204 or C.I. Fundamental theories and applications of traffic movements on streets and highways.

TTE 6270 EN-CEE 3(3,0)
Intelligent Transportation Systems: PR: TTE 4004 and TTE 5204 and C.I. Theories and applications of intelligent vehicle highway systems in transportation engineering.

TTE 6526 EN-CEE 3(3,0)
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.

TTE 6625 EN-CEE 3(3,0)
Mass Transportation Systems: PR: C.I. Planning, design, construction, operation, and administration of mass transportation systems.

ZOO 5456C AS-BIOL 4(2,6)
Ichthyology: PR: ZOO 2303C or C.I. Introduction to the biology of the fishes, their classification, evolution, and life histories.

ZOO 5463C AS-BIOL 4(2,6)
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 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.

UCF Daytona Beach Campus
1200 International Speedway Boulevard
Daytona Beach, FL 32120-2811
Phone: (904) 255-7423, ext. 4010

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.