



Graduate Catalog, 2002-2003

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# About UCF

## Overview

The University of Central Florida has come a long way since its inception in 1963. It is now UCF a thriving, multi-campus university, with 37,000 students and 76 graduate degree programs and 72 graduate certificate programs. In addition to its physical growth, UCF has become a prominent player in graduate education nationwide, offering innovative corporate partnerships, world-renowned faculty, and cutting-edge research. "About UCF" describes the University and its mission, introduces UCF's campuses, provides an overview of services and resources available to UCF students, and includes important University notices for all students. In addition, this section describes the people and offices that make up UCF the organization, including university, college, and school administration.

## About the University

The University of Central Florida officially began in July 1963; five years later, in the fall of 1968, classes were offered. 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 Kennedy Space Center, 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 eleven-campus State University System of Florida is that of a general purpose institution offering degree programs at all levels of instruction. In addition, the university has the responsibility of assisting in the economic development of the central Florida region, especially in the areas of high technology, electronics, and tourism.

## Mission Statement

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

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

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

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

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

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

**Education is more than classroom experience.** UCF students are involved in cooperative research and participate in artistic, social, cultural, political, and athletic activities. UCF provides academic diversity by bringing to its campus national and international leaders who expose students and the community to a wide range of views and issues. UCF achieves cultural diversity by using its multi-campus facilities to serve a diverse population of traditional and 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 (1866 Southern Lane, Decatur, Georgia 30033-4097; Telephone number 404-679-4501) to award master's, specialist, and doctoral degrees.

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)
- International Association for Management Education (AACSB)
- Computer Science Accreditation Commission (CSAC)
- National Council for Accreditation of Teacher Education (NCATE)
- National Association of School Psychologists
- Council for Accreditation of Counseling and Related Educational Programs
- Florida Department of Education
- Engineering Accreditation Commission (EAC) of the Accreditation Board for Engineering and Technology (ABET)
- Technology Accreditation Commission (TAC) of the Accreditation Board for Engineering and Technology (ABET)

- Joint Review Committee on Education in Radiologic Technology (JRCERT)
- National Accrediting Agency for Clinical Laboratory Sciences (NAACLS)
- Committee on Accreditation for Respiratory Care in conjunction with CAAHEP of AMA
- Council on Academic Accreditation in Audiology and Speech Language Pathology (CAA)
- American Health Information Management Association (AHIMA), in conjunction with CAAHEP of AMA
- National League for Nursing Accrediting Commission (NLNAC)
- Florida Board of Nursing
- American Chemical Society (ACS) Committee on Professional Training
- Council on Social Work Education (CSWE)
- Commission on Accreditation in Physical Therapy Education, American Physical Therapy Association
- National Association of Schools of Music (NASM)
- Accreditation Commission for Programs in Hospitality Management
- Accreditation Committee of the Human Factors and Ergonomics Society
- National Association of Schools of Public Affairs
- Accreditation Council for Cooperative Education

## Interdisciplinary Studies

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

## Locations

### 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 NBA Orlando Magic, WNBA Orlando Miracle, the Solar Bears, East Coast Hockey League Orlando Solar Seals, and the Arena Football League Orlando Predators.

### The Orlando Campus

The 1,445-acre campus is located 13 miles northeast of downtown Orlando. Seventy-nine permanent buildings valued at more than \$300 million, radiate outward from an academic core, where UCF's colleges, classrooms, and Library are located. More than \$45 million in new construction is under way, including a \$14 million College of Health and Public Affairs building. Facilities recently completed include the \$17 million Student Union and \$14 million School of Communication Building. UCF recreational facilities include lighted outdoor tennis and basketball courts, an outdoor swimming pool, golf driving range, disc golf range, volleyball and basketball courts, and multipurpose fields.

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 Cocoa and Daytona Beach branch campuses, at the UCF Downtown Center, and at instructional sites in Deland, Sanford, Leesburg, Clermont, Sumterville, Ocala, Levy County, Citrus County, Valencia West, Osceola County, Palm Bay, and South Orlando. Times and dates for all courses are listed in the Class Schedule available online at <http://www.ucf.edu>.

## UCF Brevard

James A. Drake, Regional Director

Clark Maxwell, Jr., Lifelong Learning Center (Bldg. 3)

1519 Clearlake Road, Cocoa, FL 32922

Mem Stahley, Associate Campus Director, (321) 632-1111, ext. 65567

Bernard Jensen, Associate Regional Director, (321) 632-0067

Web Address: <http://www.brevard.ucf.edu>

### Graduate programs are offered in:

- Business Administration (M.B.A.)
- Criminal Justice (M.A.)
- Elementary Education (M.A. and M.Ed.)
- Exceptional Education: Varying Exceptionalities (M.A. and M.Ed.)
- Educational Leadership (M.Ed.)
- Engineering (FEEDS/ITV)
- Health Services Administration (M.S.)
- Industrial Engineering and Management Systems (M.S.)
- Liberal Studies (M.A.)
- Public Administration (M.P.A.)
- Sociology (M.A.)
- Vocational Education (M.A., web-based)

### Graduate certificates are offered in:

- Domestic Violence
- Professional Writing
- Initial Teacher Professional Preparation
- Pre-Kindergarten Handicapped Endorsement
- Health Services Administration

UCF Cocoa is co-located on the Brevard Community College campus in Cocoa, with other centers, sites, and offerings in Palm Bay and Melbourne in Brevard County and at the Valencia Community College campus in Osceola County. twelve graduate programs offer course work for the master's degree.

On-campus services include admissions, registration/records, and financial aid, presently located in the Dobson Center (Bldg. 13). Business hours are Monday through Friday, 8:00 a.m. to 5:00 p.m. The colleges maintain offices for staff and faculty and provide on-site advisement in all programs offered at the Brevard County area campuses. The UCF-BCC Joint Use Library offers full library services, including access to all online and full-text university resources.

The Florida Solar Energy Center, located adjacent to the University Center, is a research institute of the State University System. The Florida Space Institute, located at Kennedy Space Center, offers university courses at the undergraduate and graduate level in relevant disciplines to expand Florida's space industry base. Other UCF offices and services on the Cocoa campus include: Student Government Association, Campus Life, cashiering services, a joint-use computer lab, and a bookstore.

A Brevard Community College parking sticker is required for parking lots on BCC campuses. Decals are free through the UCF Cocoa Administrative Support Office, Suite 147 of the Lifelong Learning Center, with a valid UCF ID and proof of registration.

## UCF Daytona Beach

Jack B. Rollins, Associate Vice President and Chief Administrative Officer of Area Campuses

P.O. Box 2811, 1200 International Speedway Blvd.

Daytona Beach, FL, 32120-2811

(904) 255-7423, ext. 4010

William J. Wetherell, Associate Campus Director

(904) 255-7423, ext. 4025

General information telephone number: (904) 254-4460

Web address: <http://www.daytona.ucf.edu>

### Graduate programs are offered in:

- Liberal Studies (M.A.)
- Business Administration (M.B.A.)
- Criminal Justice (M.S.)
- Educational Leadership (M.Ed., Ed.D.)
- Domestic Violence (certificate)
- Elementary Education (M.S.)
- Engineering (FEEDS/ITV-video)
- Exceptional Education
- Health Sciences: Health Services Administration (M.S. and certificate)
- Nursing (R.N. to M.S.N.)
- Psychology (M.A., clinical)
- Public Administration (M.P.A. and certificate)
- Social Work (M.S.W.)

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

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

## **UCF Downtown**

Cecelia H. Rivers, Assistant Vice President, (407) 317-7700

36 West Pine Street, Orlando, FL 32801

Web Address: <http://www.downtown.ucf.edu>

UCF Downtown is located in the heart of downtown Orlando, situated near Orlando's Church Street Station and Orlando City Hall. With six classrooms, including a 130-seat auditorium, 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 Downtown Center offers upper-division and graduate-level courses through the colleges of Health and Public Affairs, Arts and Sciences, Business Administration, Education, and Engineering.

A state-of-the-art computer lab provides the latest technology to aid student learning and enhance computer literacy. 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. 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.

A new Downtown Center for Entrepreneurship, housed at the center, provides education and training programs to support the successful development and operation of start-up technology businesses. Offered in partnership with the City of Orlando, the Central Florida Technology Incubator and UCF Downtown, the entrepreneurship center serves the Orlando area with a suite of programs designed to attract and keep homegrown high tech companies in the Orlando community. The Institute of Government, also located in the facility, further expands opportunities for professional development of government employees through ongoing workshops and seminars.

The Downtown Center 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.

## **UCF South Orlando**

Cecelia H. Rivers, Assistant Vice President

Orlando Central Park, (407) 856-6585

The South Orlando Center offers noncredit educational programs designed to meet the professional development needs of individuals and organizations throughout the South Orlando area. Offerings include seminars, workshops, conferences, symposia, and certificate programs that enable practitioners to seek professional advancement and/or personal enrichment. To substantiate the content of professional programs, as well as to offer credentials to verify a learner's successful completion, Continuing Education Units (CEUs) are offered to eligible participants. Programs are developed in cooperation with the academic colleges and institutes. University faculty and support services are utilized to bring maximum benefit to both nontraditional and traditional learners.

The South Orlando Center also offers graduate and undergraduate courses from each of the UCF colleges. Courses are offered in a variety of ways, including traditional face-to-face format, Interactive Television, WEB, and FEEDS.



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 computer lab is available for student use with full access to the internet and university on-line services. Admission and financial assistance information is available. Parking is free.

## Area Campuses, Centers, and Sites

The University of Central Florida serves an eleven-county area, including Brevard, Osceola, Orange, Seminole, Volusia, Flagler, Lake, Marion, Sumter, Citrus and Levy.

For more information, see <http://www.areacampuses.ucf.edu>

## Online@UCF

Visit our website at <http://online.ucf.edu/>

The UCF Virtual Campus provides opportunities for students to enroll in credit courses and select degree and certificate programs delivered over the Internet. Due to its strong technological background and resources, UCF provides such distributed learning for those who would not otherwise be able to attend courses at one of the physical UCF campuses. The instructional design of these courses maintains a high-quality learning environment for the nontraditional student. The course materials and methods were developed by UCF faculty to maximize the learner's achievement of course and program objectives. Web-based graduate programs are offered in:

- Industrial Chemistry, Forensic Science Track (M.S.)
- Educational Media (M.A.)
- Vocational Education and Industry Training (M.Ed. and M.A.)

Graduate Certificates are offered in:

- Community College Education
- Nonprofit Management
- Professional Writing
- Instructional/Educational Technology

Online courses are identified in the online Class Schedule Search (<https://connect.ucf.edu>) by the Instruction Mode. Use the drop-down list to search for the descriptive value of "World Wide Web (W)". Students who plan to enroll in any course with a web component must have access to the Internet, a web browser such as Netscape, basic web-browsing knowledge, ability to use e-mail, and basic computer skills such as word processing. Refer to the Learning Online website (<http://reach.ucf.edu/~coursdev/learning/>) for additional information.

UCF's virtual campus is supported and facilitated by the Center for Distributed Learning. The Center's mission is to provide support to students, faculty, and staff as new and existing technologies become increasingly available for distributed learning courses and programs. The Center serves as a clearinghouse for processes and resources, providing planning and marketing support for off-campus and distributed learning credit programs. The Center also coordinates the university's standards and accreditation changes resulting from web-based instruction. For more information, contact Steven E. Sorg, Assistant Vice President and Director of the Center, at [sorg@mail.ucf.edu](mailto:sorg@mail.ucf.edu) or call 407-823-4910. Web address: <http://distrib.ucf.edu/>

# Division of Continuing Education

J. Patrick Wagner, AVP/Director  
Phone (407) 882-0260; Fax (407) 882-0266

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.

## Off-Campus College Credit Programs

Phone (407) 882-0251; Fax (407) 882-0250

Web address: <http://www.dce.ucf.edu/credit>

This unit of the Division of Continuing Education provides support for UCF's colleges and academic departments that schedule courses and degree programs off campus at various area businesses and governmental agencies. Registration may be conducted on-site or via the Web for convenience of the participants. Registration for off-campus or open enrollment courses does not constitute admission to the university. Students interested in applying such courses as credit toward graduate certificate or degree programs must complete application for admission to the university as a nondegree (postbaccalaureate) or regular, degree-seeking student. These applications are available online at [www.graduate.ucf.edu](http://www.graduate.ucf.edu).

## Center for Multilingual Multicultural Studies

Myrna Creasman, Director, (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.

# UCF Campus Map

[Campus Map](#)

# University Administration

## State of Florida Board Cabinet

Jeb Bush	Governor
Frank T. Brogan	Lt. Governor
Katherine Harris	Secretary of State

Bob Butterworth	Attorney General
Robert F. Milligan	Comptroller
Tom Gallagher	Treasurer and Insurance Commissioner
Charlie Crist	Commissioner of Education
Charles Bronson	Commissioner of Agriculture
Jim Horne	Secretary of Education

## University of Central Florida Board of Trustees

Richard A. Nunis, Chairman	Orlando
Thomas H. Yochum, Vice Chairman	Orlando
Judith A. Albertson	Winter Park
Olga M. Calvet	Lake Buena Vista
Patrick T. Christiansen	Orlando
Geraldine M. Ferris	Winter Park
Phyllis A. Klock	Roswell, GA
Richard H. Lee	Oviedo
Ava L. Parker	Jacksonville
Marco A. Peña, Student Trustee	Orlando
Harris Rosen	Orlando
Conrad Santiago	Orlando
Richard J. Walsh	Orlando

## University of Central Florida Administration

President of the University	John C. Hitt
Chief of Staff	Beth Barnes
Provost and Vice President for Academic Affairs	Gary E. Whitehouse
Vice President for Administration and Finance	William F. Merck II
Vice President for Research	M.J. Soileau
Vice President for Student Development and Enrollment Services	Thomas Huddleston, Jr.
Vice President for University Relations	Daniel C. Holsenbeck
Vice President for Development and Alumni Relations and CEO, UCF Foundation	Robert Holmes, Jr.

## Office of the Provost and Vice President for Academic Affairs

Provost and Vice President for Academic Affairs	Gary E. Whitehouse
Vice Provost, Academic Programs	Frank E. Juge
Associate Vice President, Academic Administrative Systems	J. Edward Neighbor
Associate Vice President for Regional Campuses	Jack Rollins
Associate Vice President and Director, Brevard Campus	James A. Drake
Assistant Vice President, Academic Affairs	John F. Schell
Assistant Vice President, Academic Affairs	Lin Huff-Corzine
Assistant Vice President and Director for Continuing Education	Patrick Wagner
Assistant Vice President, Distributed Learning	Steven Sorg
Associate Vice President, Planning and Evaluation	Denise L. Young
Interim Director, Operational Excellence and Assessment Support	Julia Pet-Armacost
Interim Director, University Analysis and Planning Support	Robert L. Armacost
Director, International Studies	Mathilda E. Harris
Director, Institutional Research	Sabrina L. Andrews
Director, Florida-Canada Linkage Institute	Jean Kijek
Director, Florida-Eastern European Linkage Institute	Jean Kijek
Director, UCF Downtown	Cecelia Rivers
Director, Faculty Center for Teaching and Learning	Ida J. Cook, Interim
Dean, Honors College	Allyn M. Stearman
Director, Cooperative Education	Sheri Dressler
Vice Provost, Information Technologies and Resources	Joel L. Hartman
Director, Computer Services	William Branch
Director, University Libraries	Barry B. Baker
Director, Instructional Resources	Ruth Marshall
Director, Student Financial Assistance	Mary McKinney
University Registrar	Dennis Dulniak

## Office of Graduate Studies

Vice Provost and Dean	Patricia J. Bishop
Associate Dean	Ben B. Morgan, Jr.
Associate Director, Communications and Financial Support	Debra Winter
Technology Manager	Solan Cheng
Associate Director, Admissions	Tracy R. Jones
Associate Director, Student Services and Records	Joanne Muratori

Coordinator, Recruiting	Wendy L. Bolyard
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### Office of Research

Vice President for Research	M.J. Soileau
Assistant Vice President	Pallavoor Vaidyanathan
Assistant Vice President	Mark Yerkes
Security	Kay Mullally
Assistant Director, Information Services	Barbara Compton Abney
Director, Contract and Grant Management	Tom O’Neal
Administrative Services	Beverly Laakso
Interim Director, School of Optics/CREOL	Eric Van Stryland
Director, Florida Solar Energy Center	David Block
Executive Director, Institute for Simulation and Training	Dennis K. McBride

### Office of University Relations

Vice President for University Relations and Senior Counsel to the President	Daniel C. Holsenbeck
Associate Vice President for Univ. Relations and Director, News/Information	Dean McFall
Assistant Vice President for Univ. Relations and Director, Univ. Marketing	Jeanne Hartig
Assistant Vice President for Univ. Relations and Special Assistant to the President	Helen Donegan
Director, Federal Relations	Greg Schuckman
Director, Defense Transition Services Alzo J. Reddick Director, Univ. Economic Development	Edward Schons

## Office of Graduate Studies

The Office of Graduate Studies is responsible for providing leadership and vision for all graduate education at the University of Central Florida. Admissions, marketing and recruiting, enrollment management, student services and records, policies, appeals, and graduation of graduate students are important concerns of the office.

Working in conjunction with the Faculty Senate Committees and the college and graduate program coordinators, the Office of Graduate Studies is responsible for developing university-wide graduate plans and policies, coordinating graduate activities, distributing tuition support and fellowships to the colleges, coordinating the adoption of new graduate programs, coordinating the recruitment of graduate applicants, and admitting graduate students to the university. Although admissions decisions are made by the colleges and departments, students apply to the university through this office, which is responsible for processing all aspects of admission. The office also maintains and updates graduate student records indicating the status of students as they progress through their

academic programs. Any policy questions about graduate issues should be directed to the Office of Graduate Studies or the Graduate Council. Questions about operational procedures should be directed to individual college or graduate program coordinators or to the Office of Graduate Studies.

### **Mission Statement**

The Office of Graduate Studies provides leadership to create high-quality learning environments for graduate students and to achieve the university's goal of international prominence in key areas of graduate studies. Graduate Studies is an advocate for graduate education, working to mobilize and arrange the resources needed for enrollment and program growth. Graduate Studies tracks and analyzes emerging trends and changes in graduate education, both nationally and with our peer institutions. Graduate Studies provides support and guidance for interdisciplinary and cooperative programs. Graduate Studies is mindful of the need to retain the academic values of the graduate programs while acting as a partner in the social and economic well being of the community and state.

Graduate Studies collaborates with the faculty to develop policies and best practices that further the high academic standards and excellence of our graduate programs. The Office of Graduate Studies is client-centered, focused on providing the information and services that students need to enhance their experience with UCF and that faculty and staff need to effectively carry out their responsibilities to students. Graduate Studies emphasizes cooperation with the colleges, graduate programs, administrative offices, and support services to provide an excellent experience for our graduate students from inquiry to graduation.

Through its primary activities, programs and services, the Office of Graduate Studies contributes to program development and growth, enrollment management and recruiting, enhanced infrastructure and technological support for our graduate students and programs, and quality student support services for a diverse and talented graduate student population. We are a strong advocate for providing graduate education to persons who are full-time working professionals requiring flexible and relevant advanced education, those who are full-time graduate students being mentored by our graduate faculty, and those who are non-traditional, underrepresented or economically disadvantaged.

## **Administration and Staff**

Dr. Patricia J. Bishop, Vice Provost and Dean—Oversees all activities related to graduate studies on campus; reviews and recommends policies and procedures for graduate study at UCF, and, in cooperation with the college graduate coordinators and the Graduate Council and its subcommittees, coordinates new program proposals and changes to options or tracks.

Dr. Ben B. Morgan, Jr., Associate Dean—With Dr. Bishop, manages all activities related to graduate studies, develops and coordinates relationships between UCF and local industry, and assists with recruiting and marketing projects and other special assignments.

### **Recruiting**

Through its recruiting area, the Office of Graduate Studies develops and implements a recruiting plan for the university. It also provides the colleges and programs with guidance, resources, and assistance in regard to the recruitment of graduate students. The focus of these efforts is to help meet university goals related to enrollment management and the achievement of a diverse and talented graduate student population.

## **Admissions**

The Admissions area in the Office of Graduate Studies guides students through the graduate admissions process for master's, specialist, and doctoral degree programs as well as graduate certificate programs and nondegree study.

## **Student Services and Records**

The Office of Graduate Studies works with the graduate programs, colleges, and graduate students, and provides academic services to current students from the time they are admitted until they graduate. The mission of the Student Services and Records area is to enhance the quality and visibility of graduate education at UCF and to facilitate the academic success of our graduate students. All graduate student status changes are processed through Graduate Studies, which updates students' records and provides reports to the graduate programs and colleges to assist them in monitoring academic performance and progress. Transfer hours that are approved by the graduate program for a student's program of study are recorded on the UCF transcript, and grade change requests are reviewed for approval and submission to the Registrar's Office. This area processes all graduate student petitions and appeals for exceptions to university policies; questions regarding university policies and processes should be directed to Student Services and Records. All aspects of the graduation certification process are coordinated by Student Services and Records in collaboration with the graduate programs, colleges, and the Registrar's Office. This area also serves as liaison with graduate student organizations and works closely with other university support offices. This area also houses a Thesis and Dissertation Editor who provides workshops and format review assistance, supports students, faculty members, and staff members throughout the thesis/dissertation process, and facilitates effective scholarly communications.

## **Communications and Financial Support**

The Communications area of the Office of Graduate Studies- coordinates the production of the Graduate Catalog, the Graduate Studies website and Graduate Studies publications, forms, and handouts. This area also produces marketing and recruiting materials to promote graduate education at UCF.

The Financial Support office assists students in applying for fellowships and in identifying other sources for financial support for graduate study. The Office of Graduate Studies also oversees graduate tuition support and assistantships as well as financial processing for fellowships.

## **Information Technology and Accounting**

The Information Technology group designs and maintains database information important to the function of the Office of Graduate Studies and provides summary information for the programs concerning inquiry, admissions, and registration statistics. This area also develops programs and applications, and researches new hardware and software technology for the Office of Graduate Studies.

The Accounting office manages the Graduate Studies financial accounts, including those related to graduate fellowship and tuition support.

## **Graduate Council**

The Graduate Council is a standing committee of the Faculty Senate and reports to the Senate on graduate policy and curriculum matters. The committee consists of eighteen members, at least six of whom are current Faculty Senate members, and the Dean of Graduate Studies or the Dean's designee (ex-officio). The composition of the committee consists of a voting library representative, and three members from each college, except Arts and Sciences, which has six.

The Graduate Council deals with policy issues and standards for the university. New graduate program requests are reviewed by the Graduate Council. The program proposals are submitted to the Office of Graduate Studies for initial review. The proposal may undergo some editing changes, corrections, and format changes to meet the requirements of the Board of Trustees and the Board of Education. Once the final program proposal is ready, it is forwarded to the Graduate Council for final approval. The Graduate Council then transmits its recommendations to the Office of Graduate Studies.

The Graduate Council has three subcommittees that examine and formulate policies and procedures, hear petitions for variances from graduate programs, college, or university requirements, and review graduate Course Action Requests, among other matters. Each subcommittee consists of four senate members and at least three non-senate members.

### **Duties of the Graduate Council**

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

## **Policy and Procedures Subcommittee**

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

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

### **Duties of the Policy and Procedures Subcommittee**

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

## **Appeals Subcommittee**

The Appeals Subcommittee is a subcommittee of the Graduate Council. It consists of four senate members and at least three non-senate members with representation from each college. The Vice Provost and Dean of Graduate Studies or designee serves as an ex-officio member. The Chair of the Graduate Council appoints the Chair of the Appeals Subcommittee. Terms of service are two years, staggered. Vacancies are filled during the term in which they occur from the college of the vacating member for the remainder of that person's term. A graduate student



representative is appointed by the Chair of the Graduate Council based on recommendations made from the Deans of the colleges and the Vice Provost and Dean of Graduate Studies.

### **Duties of the Appeals Subcommittee**

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

## **Course Review and New Programs Subcommittee**

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

### **Duties of the Course Review and New Programs Subcommittee**

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

## **College Graduate Coordinators**

College graduate coordinators are appointed by the respective college Deans (or Directors of Schools with graduate academic programs) to work with the Office of Graduate Studies. The primary responsibilities of the college graduate coordinators are to coordinate graduate department activities, recruit graduate students, distribute

tuition support to the departments, ensure program standards for the colleges, and prepare an annual report to the Office of Graduate Studies on their activities.

Arts and Sciences—Dr. Michael Johnson

Business Administration—Dr. Robert Ford

Education—Dr. Michael Hynes

Engineering and Computer Science—Dr. Juin Liou

Health and Public Affairs—Dr. Robert Gennaro

School of Hospitality Management—Dr. Randall Upchurch

School of Optics—Dr. David Hagan

## **Graduate Program Coordinators**

The graduate program coordinators are appointed by the respective department Chairs (or Directors of other units with graduate academic programs) to work with the college graduate coordinators. Under the direction of their department chair, they are primarily responsible for recruiting graduate students, distributing tuition support to individual students, ensuring program standards in their department, and preparing an annual report to the college graduate coordinators on their activities.

## **Colleges and Schools**

### **College of Arts and Sciences**

The College of Arts and Sciences consists of eighteen academic departments, which offer graduate degrees from fourteen programs: Biology, Chemistry, Communication, English, Foreign Languages and Literatures, History, Liberal Studies, Mathematics, Physics, Political Science, Psychology, Sociology and Anthropology, Statistics, and Theatre. In addition to these departments, the college also supports interdisciplinary programs in Biomolecular Science and Modeling and Simulation.

The mission of the Graduate Studies Office in the College of Arts and Sciences is to assist the departments and programs of the college in providing high quality graduate education and achieving international prominence in key areas of graduate study. In providing this assistance, the office serves to coordinate graduate activities among the departments, promote an internationally diverse community of graduate students and faculty, enhance graduate recruitment and retention, and encourage, stimulate, and maintain excellence in scholastic achievement.

The office serves the needs of students by providing friendly, easily accessible support and advisement, and by assisting with record keeping, registration, and graduation. It supports the academic development of students and faculty by providing appropriate resources, encouraging scholarly and creative activities, and promoting quality graduate education and research facilities. It also supports the establishment and development of new and competitive graduate programs by serving as a responsive source of information for students, faculty, and staff, by encouraging increases in the number and quality of graduates, and by serving as a liaison between the programs and the university's Office of Graduate Studies.

The office assists students in matters concerning college and university requirements and procedures. Students should address questions concerning admission materials, acceptance notification, program of study, graduate

committee membership, thesis and dissertation approvals, fellowship and financial information, waiver and petition forms, and graduate certifications to their respective department; however these items are processed through this office for all graduate students in the college. Questions concerning university and college graduate policies affecting Arts and Sciences majors should be directed to the Graduate Studies Office in the College of Arts and Sciences Dean's Office, CAS 190K, or by calling (407) 823-5167.

## College Administration

Web address: <http://www.cas.ucf.edu>

- K. L. Seidel, Dean
- T. Frederick, Associate Dean
- H. Sweet, Associate Dean
- J. Fernández, Associate Dean
- L. Brodie, Associate Dean
- M. Johnson, Assistant Dean

## Faculty

### Biology

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Chair of the Department: David T. Kuhn

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Professors Emeritus: L. L. Ellis, Ph.D.; J. L. Koevenig, Ph.D.

Professors: L. M. Ehrhart, Ph.D.; D. T. Kuhn, Ph.D.; J. A. Osborne, Ph.D.; F. F. Snelson, Jr., Ph.D.; I. J. Stout, Ph.D.; H. C. Sweet, Ph.D.; W. K. Taylor, Ph.D.; H. O. Whittier, Ph.D.; G. A. J. Worthy, Ph.D.

Associate Professors: D. H. Vickers, Ph.D.; J. F. Weishampel, Ph.D.

Assistant Professors: C. A. Bayer, Ph.D., Research; L. H. von Kalm, Ph.D.; C. L. Parkinson, Ph.D.; J. D. Roth, Ph.D., Research; L. J. Walters, Ph.D.; J. M. Waterman, Ph.D.

Visiting Assistant Professor: W. D. Sotero, Ph.D.

Instructors: P. Thomas, M.S.; R. Vajravelu, Ph.D.

Courtesy Appointments: K. S. Beach, Ph.D.; C. B. Cook, Ph.D.; M. Deyrup, Ph.D.; E. S. Kierenfeld, Ph.D.; J. Gelsleichter, Ph.D.; P. Klein, Ph.D.; E. Menges, Ph.D.; D. Odell, Ph.D.; L. Rea, Ph.D.; S. J. Stern, Ph.D.

### Chemistry

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Forensic Science Graduate Track Coordinator: Jack Ballantyne, Ph.D., CH 223, (407) 823-0163.

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Professors: C. A. Clausen, Ph.D.; G. N. Cunningham, Ph.D.; B. G. Fookes, Ph.D.; F. E. Juge, Ph.D., Associate Vice President; B. C. Madsen, Ph.D.; W. W. McGee, Ph.D.; D. H. Miles, Ph.D.; W. J. Tilstone, Ph.D.; R. Y. Ting, Ph.D.

*Associate Professors:* J. Ballantyne, Ph.D.; K. D. Belfield, Ph.D.; K. A. Cerqua-Richardson, Ph.D.; S. R. Elsheimer, Ph.D.; M. D. Hampton, Ph.D.; O. Phanstiel, IV, Ph.D.

*Assistant Professors:* C. L. Geiger, Ph.D.; O. Phanstiel IV, Ph.D.; A.F. Slaterbeck

### **Nicholson School of Communication**

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*Associate Professors:* J. F. Butler, Ph.D.; W. J. Hall, Ed.D.; J. Maunez-Cuadra, Ph.D.; J. B. O'Hara, Ph.D.; M. C. Santana, Ph.D.; L. A. Tanzi, Ph.D.; E. B. Wycoff, Ph.D.

*Assistant Professors:* G. M. Bagley, M.A.; R. L. Barfield, Ph.D.; T. M. Bridges, M.A.; R. E. Costain, M.A.; D. E. DeLorme, Ph.D.; F. L. Johnson, M.A.; S. G. Lawrence, Ph.D.; M. Rabby, Ph.D.

### **English**

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*Associate Professors:* B. Barnes, Ph.D.; J. Bartkevicius, Ph.D.; K. L. Bell, Ph.D.; J. Campbell, Ph.D.; P. Dombrowski, Ph.D.; J. J. Donnelly, Ph.D.; M. Flammia, Ph.D.; J. Hemschemeyer, M.A.; S. Hubbard, M.F.A.; I. Lamazares, Ed.D.; A. Lillios, Ph.D.; L. Logan, Ph.D.; K. Meehan, Ph.D.; C. Rodrigues Milanés, D.A.; P. J. Rushin, M.A.; E. Smith, Ph.D.; M. E. Sommer, Ed.D.; D. Wallace, Ph.D.

*Assistant Professors:* J. D. Applen, Ph.D.; M. Bowdon, Ph.D.; L. Casmier-Paz, Ph.D.; A. Davidson, Ph.D.; A. Grajeda, Ph.D.; P. Hammons, Ph.D.; A. Jones, Ph.D.; M. Kamrath, Ph.D.; K. Kitalong, Ph.D.; J. Leiby, M.F.A.; M. Marinara, Ph.D.; B. Mauer, Ph.D.; T. Pugh, Ph.D.; B. Scott, Ph.D.; B. Young, Ph.D.,

*Visiting Instructors:* L. Brodtkin, M.A.; D. Fox, Ph.D.

### **Foreign Languages and Literatures**

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### **History**

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*Visiting Assistant Professor:* J. Spencer Downing, Ph.D.

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## **Mathematics**

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*Visiting Instructors:* A. Danielyan, Ph.D.; L. Dunlop, M.S.; P. Higgins, M.S.; M. Langfield, M.S.; K. Muterspaugh, M.S.

*Joint Appointees:* T. Clarke, Ph.D., Associate Faculty; R. Dutton, Ph.D., Professor of Computer Science; L. Hoffman, Ph.D., Associate Professor of Statistics; 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

## **Physics**

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*Assistant Professor:* N. G. Barlow, Ph.D.; A. Bhattacharya, Ph.D.; L. Chernyak, Ph.D.; J. M. Saul, Ph.D.; R. Vanfleet, Ph.D.; D. Walters, Ph.D.

*Visiting Assistant Professor:* C. Efthimiou, Ph.D.; J. Evans, Ph.D.; S. Kleckley, Ph.D.

*Adjunct Professors:* E. Flitsiyan, Ph.D.

*Affiliate Faculty:* M. Bass, Ph.D., Professor of Optics; B. H. T. Chai, Ph.D., Professor of Optics; L. R. Elias, Ph.D., Professor of Optics; M. C. Richardson, Ph.D., Professor of Optics; S. Shivamoggi, Ph.D., Professor of Mathematics; W. T. Silfvast, Ph.D., Professor of Optics; M. J. Soileau, Ph.D., Professor of Optics and Vice

President for Research; G. I. Stegeman, Ph.D., Cobb-Hooker Eminent Scholar Chair of Optical and Laser Sciences and Engineering; E. W. Van Stryland, Ph.D., Professor of Optics; B. Zel'dovich, Ph.D., Professor of Optics; P. Delfyett, Ph.D., Associate Professor of Optics; D. J. Hagan, Ph.D., Associate Professor of Optics; A. Kar, Ph.D., Associate Professor of Optics; G. Li, Ph.D., Associate Professor of Optics

### **Political Science**

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*Assistant Professors:* H. Bartling, Ph.D.; J. Knuckey, Ph.D.; D. Lanier, Ph.D., J.D.; B. Wilson, Ph.D.

### **Psychology**

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*Chair of the Department:* John M. McGuire

*Associate Chair:* William Wooten

*Clinical Psychology Ph.D. Graduate Program Coordinator:* Mark D. Rapport, PH 409J, (407) 823-2974. E-mail:

[mrapport@pegasus.cc.ucf.edu](mailto:mrapport@pegasus.cc.ucf.edu)

*Clinical Psychology M.A. Graduate Program Coordinator:* Robert J. Kennerley, DB140-310B (386) 254-4412 ext. 4033. E-mail: [rkennerl@mail.ucf.edu](mailto:rkennerl@mail.ucf.edu). Web address: [www.daytona.ucf.edu/clinicalpsychologyma](http://www.daytona.ucf.edu/clinicalpsychologyma)

*Industrial/Organizational Psychology Ph.D. Graduate Program Coordinator:* Eugene Stone-Romero, PH 309F, (407) 823-2544. E-mail: [estone@pegasus.cc.ucf.edu](mailto:estone@pegasus.cc.ucf.edu)

*Industrial/Organizational Psychology M.S. Graduate Program Coordinator:* William Wooten, PH 302H, (407) 823-3478. E-mail: [wwooten@pegasus.cc.ucf.edu](mailto:wwooten@pegasus.cc.ucf.edu)

*Applied Experimental and Human Factors Psychology Graduate Program Coordinator:* Eduardo Salas, PH 314A, (407) 823-2552. E-mail: [esalas@pegasus.cc.ucf.edu](mailto:esalas@pegasus.cc.ucf.edu)

*Professors:* W. A. Burroughs, Ph.D.; R. D. Gilson, Ph.D.; J. C. Hitt, Ph.D., President; P. A. Hancock, Ph.D., Distinguished Research Professor; J. M. McGuire, Ph.D.; B. B. Morgan, Jr., Associate Dean Graduate Studies, Ph.D.; M. D. Rapport, Ph.D.; E. J. Rinalducci, Ph.D.; J. B. Rollins, Ph.D., V. P. and Director, Daytona Beach Campus; E. Salas, Ph.D.; E. Stone-Romero, Ph.D.; M. H. Thomas, Ph.D.; R. D. Tucker, Ph.D.; A. Y. Wang, Ph.D.

*Associate Professors:* B. I. Blau, Ph.D.; C. A. Bowers, Ph.D.; J. C. Brophy, Ph.D.; R. D. Fisher, Ph.D.; B. J. Jensen, Ph.D.; M. Mouloua, Ph.D.; C. Negy, Ph.D.; E. C. Shirkey, Ph.D.; J. A. Smither, Ph.D.; W. Wooten, Ph.D.

*Assistant Professors:* S. Berman, Ph.D.; M. E. Dunn, Ph.D.; S. T. Dunn, Ph.D.; C. Frederick, Ph.D.; B. A. Fritzsche, Ph.D.; K. Renk, Ph.D.; V. Sims, Ph.D.; J. L. Weaver, Ph.D.

*Associate Scientist:* F. Jentsch, Ph.D.

*Instructors:* M. H. Newlin, Ph.D.; M. J. Lavooy, Ph.D.; K. Mottarella, Psy.D.; R. J. Kennerley, Ph.D.

*Visiting Instructors:* M. Chin, Ph.D.; M. A. Kennerley, Ph.D.

### **Sociology and Anthropology**

*Web address:* [http://www.cas.ucf.edu/soc\\_anthro](http://www.cas.ucf.edu/soc_anthro)

*Chair of the Department:* Jay Corzine

*Graduate Program Coordinator:* John Lynxwiler, PH 409F, (407) 823-2227. E-mail: [jlynxwil@mail.ucf.edu](mailto:jlynxwil@mail.ucf.edu)

*Professors:* J. Corzine, Ph.D.; J. Wright, Ph.D.

*Associate Professors:* I. J. Cook, Ph.D.; D. R. Dees, Ph.D.; D. A. Gay, Ph.D.; L. Huff-Corzine, Ph.D.; J. P. Lynxwiler, Ph.D.; J. Morris, Ph.D.; E. Mustaine, Ph.D.

*Assistant Professors:* S. Boeringer, Ph.D.; T. Dietz, Ph.D.; J. Ford, Ph.D.; W. Goldstein, Ph.D.; J. Jasinski, Ph.D.; S. Keeton, Ph.D.; B. Marshall, Ph.D.; J. Wesely, Ph.D.; E. Wright II, Ph.D.

### **Statistics and Actuarial Science**

*Web address:* <http://www.cas.ucf.edu/statistics/>

*Chair of the Department:* Ibrahim Ahmad

*Graduate Program Coordinator:* James R. Schott, CCII 205, (407) 823-2797. E-mail: [jschott@pegasus.cc.ucf.edu](mailto:jschott@pegasus.cc.ucf.edu)

*Professors:* I. A. Ahmad, Ph.D.; M. E. Johnson, Ph.D.; G. D. Richardson, Ph.D.; J. R. Schott, Ph.D.

*Associate Professors:* L. L. Hoffman, Ph.D.; M. Jamshidian, Ph.D.; D. Nickerson, Ph.D.; M. Pensky, Ph.D.; J. Ren, Ph.D.; N. Uddin, Ph.D.; M. Wang, Ph.D.

*Assistant Professors:* L. Gou, Ph.D.; X. Su, Ph.D.; Y. Zhang, Ph.D.

*Instructors:* C. E. Cutchins, M.S.; S. C. Schott, M.S.; K. Suchora, M.S.

### **Theatre**

*Web address:* [pegasus.cc.ucf.edu/~theatre](http://pegasus.cc.ucf.edu/~theatre)

*Chair of the Department:* Donald Seay

*Assistant Chair:* Joseph Rusnock

*Graduate Program Coordinator:* Julia Listengarten, VAB 202, (407) 823-3858. E-mail: [jlisteng@mail.ucf.edu](mailto:jlisteng@mail.ucf.edu)

*Professors:* D. W. Seay, Ph.D.

*Associate Professors:* J. C. Bell, M.F.A.; M. W. Brotherton, M.F.A.; J. L. DeHesus, Ph.D.; R. L. Harmon, M.F.A.; K. H. Ingram, M.F.A.; A. B. Major, M.F.A.; J. S. Rusnock, M.F.A.

*Assistant Professors:* J. C. Brown, M.F.A.; T. L. Gebelt, Ph.D.; L. M. Harris, M.F.A.; J. P. Hart, M.F.A.; J. D. Helsinger, M.F.A.; C. Niess, M. F. A.; P. F. Lartonoix, M.F.A.; J. Listengarten, Ph.D.; J. J. Ruscella, M.F.A.; H. Tan, M.F.A.; K. J. Tollefson, M.F.A.

## **Programs**

### **Doctor of Philosophy**

- Biomolecular Sciences
- Mathematics—Industrial Mathematics Track
- Modeling and Simulation
- Physics—Optical Physics Track
- Psychology—Applied Experimental and Human Factors, Clinical, and Industrial and Organizational Tracks
- Texts and Technology

### **Master of Science**

- Biology
- Chemistry, Industrial—Forensic Science Track
- Mathematical Science—Industrial Mathematics Track
- Modeling and Simulation
- Physics—Optical Physics Track
- Psychology—Industrial and Organizational Track
- Statistical Computing—Actuarial Science and Data Mining Tracks

## Master of Arts

- Communication—Interpersonal and Mass Communication Tracks
- English—Creative Writing, Literature, and Technical Writing
- History—Public History Track
- Liberal Studies—Maya Studies Track
- Political Science—Environmental Politics, Political Analysis, and Public Policy Tracks
- Psychology—Clinical Track
- Sociology, Applied—Domestic Violence Track
- Spanish
- Teaching English to Speakers of Other Languages (TESOL)
- Theatre

## Master of Fine Arts

- Theatre—Acting, Design, and Musical Theatre Tracks (*this track is planned to be offered Fall 2002, pending university approval*)

## Accelerated Undergraduate and Graduate Programs

- History
- Liberal Studies

## Graduate Certificates

- Applied Mathematics
- Arts Management
- Computer Forensics
- Conservation Biology
- Contemporary Humanities
- Domestic Violence
- Gender Studies
- Maya Studies
- Professional Writing
- SAS Data Mining
- Teaching English as a Foreign Language (TEFL)
- Theoretical and Applied Ethics

## 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. Admission to graduate programs is based upon university and departmental criteria, which may include factors such as work or internship experience, community service, research interests of prospective students, or personal interviews. The college strongly encourages applications from minority and diverse populations. Race, national origin, and gender are not used in the evaluation of students for admission into graduate and professional programs.



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

## College of Business Administration

The College of Business Administration offers seven master's programs and one doctoral program. All graduate programs in business administration are accredited by the Association to Advance Collegiate Schools of Business (AACSB). The seven professional programs leading to the master's degree are: Master of Business Administration, Master of Sport Business Management, Master of Science in Management Information Systems, Master of Science in Accounting, Master of Science in Taxation, Master of Arts in Applied Economics, Master of Science in Management with a track in Human Resources/Change Management. The Master of Business Administration program is conveniently available to Brevard County residents. Also offered on the main campus is a full-time Doctor of Philosophy (Ph.D.) in Business Administration.

The mission of the College of Business Administration at the University of Central Florida is to provide quality business education programs, at the undergraduate, graduate, and executive levels, to the citizens of the state of Florida and to selected clientele nationally and internationally. In delivering these programs, the college places primary emphasis on excellent teaching and research with a strong commitment to developing mutually supportive relationships with the business community of Central Florida.

In pursuit of its mission, the College of Business Administration affirms its commitment to the university's focus on excellence and accent on the individual. Furthermore, the college pledges to deliver innovative and progressive programs to its clientele. As the college enters the twenty-first century, it has adopted "Driven by Excellence" as a motto and guiding force in achieving its goals and objectives.

## College Administration

- T. L. Keon, Dean
- B. Braun, Interim Associate Dean for Administration and Technology
- R. C. Ford, Associate Dean of Graduate Programs
- E. T. Ellis, Associate Dean of Undergraduate Programs

## Faculty

### School of Accounting

Director of the School: A. J. Judd, Ph.D.

Professors: C. D. Bailey, Ph.D.; D. D. Bandy, Ph.D.; C. G. Avery Ph.D.; R. Roberts, Ph.D., Burnett Eminent Scholar Chair; T. G. Evans, Ph.D.; J. F. Dillard, Ph.D., KPMG Peat Marwick Professor; J. H. Salter III, Ph.D., Ernst and Young Professor

Associate Professors: P. Dwyer, Ph.D.; P. M. Goldwater, Ph.D.; W. L. Johnson, Ph.D.; A. J. Judd, Ph.D.; C. F. Kelliher, Ph.D.; P. B. Roush, Ph.D.; L. J. Savage, Ph.D.; J. K. Welch, Ph.D.

Assistant Professors: D. Bobek, Ph.D.; L. Mahoney, Ph.D.

## **Economics**

Chair of the Department: D. A. Hosni, Ph.D.

Professors: M. Dickie, Ph.D.; S. Gerking, Ph.D.; R. A. Hofler, Ph.D.; W. W. McHone, Ph.D.; J. W. Milon, Ph.D.; F. A. Raffa, Ph.D.; B. Rungeling, Ph.D.

Associate Professors: B. M. Braun, Ph.D.; A. E. Day, Ph.D.; W. E. Gibbs, Ph.D.; S. Hamilton, Ph.D.; D. A. Hosni, Ph.D.; 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.

Assistant Professors: J. A. Elston, Ph.D.; D. Finnoff, Ph.D.; O. Mikhail, Ph.D.; B. Sen, Ph.D.; K. M. Tomlin, Ph.D.; D. Scrogin, Ph.D.; W. Anton, Ph.D.

## **Finance**

Interim Chair of the Department: A. K. Byrd, Ph.D.

Professors: D. F. Scott, Jr., Ph.D., Phillips-Schenk Chair in American Private Enterprise; S. D. Smith, Ph.D., SunTrust Chair of Banking

Associate Professors: R. Ajayi, Ph.D.; S. M. Atkinson, D.B.A.; S. F. Borde, Ph.D.; A. K. Byrd, Ph.D.; J. M. Cheney, D.B.A.; Y. Choi, Ph.D.; J. H. Gilkeson, Ph.D.; N. K. Modani, Ph.D.; H. Park, Ph.D.; P. Ramanlal, Ph.D.; W. C. Weaver, Ph.D.; A. M. Whyte, Ph.D.; D. Winters, Ph.D.

Assistant Professors: M. Frye, Ph.D.

Instructors: B. Dalrymple, Ph.D.; R. A. Taft, M.B.A.

## **Management**

Interim Chair of the Department: F. F. Jones, Ph.D.

Professors: M. Ambrose, Ph.D.; L. W. Fernald, Jr., D.B.A.; R. C. Ford, Ph.D., Associate Dean; J. S. Harrison, Ph.D.; R. C. Huseman, Ph.D.; T. L. Keon, Ph.D., Dean of the College of Business Administration; M. Schminke, Ph.D.; D. L. Stone, Ph.D.

Associate Professors: B. Barringer, Ph.D.; W. A. Bogumil, Jr., Ph.D.; W. G. Callarman, D.B.A.; C. M. Ford, Ph.D.; M. A. Gowan, Ph.D.; F. F. Jones, Ph.D.; M. Uhl-Bien, Ph.D.

Assistant Professors: J. S. Callahan, Ph.D.; D. O. Neubaum, Ph.D.

## **Management Information Systems**

Chair of the Department: P. H. Cheney, Ph.D.

Professors: P. H. Cheney, Ph.D.; J. Courtney, Ph.D.; J. Haynes, Ph.D.; W. Leigh, Ph.D.; C. Saunders, Ph.D.

Associate Professors: S. Goodman, Ph.D.; J. J. Jiang, Ph.D.

Assistant Professors: R. Hightower, Ph.D.; S. Hornick, Ph.D.; R. Johnson, Ph.D.; K. McNamara, Ph.D.; C. VanSlyke, Ph.D.; L. West, Ph.D.

Instructors: T. McNair; E. Odisho; R. Szymanski; N. Thienel; S. Winters

## **Marketing**

Chair of the Department: R. E. Michaels, Ph.D.

Professors: D. L. Davis, D.B.A.; R. E. Michaels, Ph.D.; R. S. Rubin, Ph.D.

Associate Professors: J. Allen, DBA.; R. Desiraju, Ph.D.; D. A. Fuller, Ph.D.

Assistant Professors: S. Das, Ph.D.; R. Echambadi, Ph.D.; K. Elliott, Ph.D.; J. Ganesh, Ph.D.; P. Gupta, Ph.D.; J. Harris, Ph.D.; M. B. Sarkar, Ph.D.; Y. Whang, Ph.D.; J. C. White, Ph.D.

Instructor: R. Borrieci, M.B.A.; L. DeGeorge, M.B.A.; S. Garcia, M.S.; C. Gundy, M.B.A.; N. Howatt, M.S.; A. Jordan, M.B.A.

# Programs

## Doctor of Philosophy in Business Administration

- Accounting
- Finance
- Management
- Management Information Systems
- Marketing Tracks

## Master of Arts in Applied Economics

## Master of Business Administration

- Executive M.B.A.
- Full-time (One Year) M.B.A.
- Part-time M.B.A.

## Master of Science in Accounting

## Master of Science in Management

- Human Resources/Change Management Track

## Master of Science in Management Information Systems

## Master of Science in Taxation

## Master of Sport Business Management

# Admission to Master's Programs

Before candidates will be considered for admission, **all** required application documents—application, official transcripts, GMAT test score (or GRE test score for the program in Applied Economics and MS/MIS only), essays, a resume, and three recommendations—must be received in the Office of Graduate Studies by admission deadline. MSA and MST do not require essays or recommendation letters. 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. The college strongly encourages applications from minority and diverse populations. Race, national origin, and gender are not used in the evaluation of students for admission into graduate and professional programs.

Admissions are restricted each semester to individuals showing high promise of success in postgraduate studies. Admission criteria include academic achievement as an upper-division undergraduate student and satisfactory performance on the GMAT (minimum score of 500). For the M.A. in Applied Economics degree only, scores on either the GRE or GMAT may be submitted. Both GMAT and GRE scores have a limit of 5 years. Other indicators of promise include the applicant's extracurricular activities, work experience and job responsibilities, and leadership experience. Foreign students whose native language is not English are required to achieve a score

of at least 233 (computer-based test; or equivalent score on the paper-based test) on the Test of English as a Foreign Language (TOEFL). The Test of Spoken English (TSE) may be required if deemed necessary by faculty recommendation. Foreign transcripts must be evaluated by an acceptable agency.

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, Master of Sport Business Management, M.S. in Management Information Systems, M.S. in Accounting, M.S. in Taxation, M.S. in Management, or M.A. in Applied Economics, and to other students with regular graduate status elsewhere in the university. Graduate-level courses may not be taken unless a student is accepted into a graduate program. Under special circumstances, and with the permission of the Associate Dean for Graduate Studies in the College of Business Administration, up to six (6) hours in one semester may be taken as a non-degree-seeking student (only courses from the M.B.A. professional Core I are allowed). The student must have a 3.25 GPA from an AACSB accredited school, and must take the GMAT during that semester.

An applicant will not be considered for admission to any graduate program 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.

Non-degree-seeking, post-baccalaureate students may take up to nine hours of foundation business core courses with special permission of the Associate Dean for Graduate Programs.

## **Academic Standards**

Regularly admitted graduate students in the College of Business Administration must maintain an overall 3.0 GPA in both their program of study and any graduate or undergraduate foundation core courses. In the event this is not maintained, a graduate student shall be placed in an academic provisional status. If a 3.0 GPA (grades of "B" or better) is then not obtained in the subsequent nine 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 foundation core courses, they will be disqualified from the program. If graduate students accumulate more than six 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.

## **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. The Doctor of Philosophy in Education is available with five tracks: Counselor Education, Elementary Education, Exceptional Education, Instructional Technology, Mathematics Education. All programs in the College of Education are accredited by NCATE (National Council for the Accreditation of Teacher Education). School Psychology is

accredited by the National Association of School Psychologists (NASP/NCATE). Exceptional Student Education is accredited by the Council for Exceptional Education.

## College Administration

Sandra L. Robinson, Dean

Jennifer M. Platt, Associate Dean

Michael C. Hynes, Associate Dean

Suzanne M. Martin, Assistant Dean

Helen Stewart-Dunham, Brevard Campus Coordinator, (407) 632-1111, ext. 65533

Jessica Jelks-Cook, Daytona Beach Campus Coordinator, (904) 255-7423, ext. 4042

Ivy Johnson, Lake/Sumter Campus Coordinator, (352) 243-5722 ext. 2171787-3747, ext. 633

## Faculty

### Educational Studies

Chair of the Department: K. L. Biraimah

Assistant to the Chair: M.L. Kysilka

Professors: K. L. Biraimah, Ph.D.; Ph.D.; M. L. Kysilka, Ph.D.; M.S. Lue, Ph.D.

Associate Professors: K. W. Allen, Ph.D.; S. L. Hiatt, Ph.D.; L. C. Holt, Ed.D.; C. J. Hutchinson, Ed.D.; J. S. Kaplan, Ph.D.; A. J. Miller, Ed.D.; T.J. Sullivan, Ed.D.; A. T. Wood, Ph.D.

Assistant Professors: D. Boote, Ph.D.; S. Condly, Ph.D.; J. Deets, Ph.D.; R.S. Hewitt, Ph.D.

Associate Graduate Faculty, Florida Gulf Coast University: D. A. Pataniczek, Ph.D.; C. M. Hewitt-Gervais, Ph.D.

Associate Graduate Faculty: E. Short, Ph.D., Professor Emeritus, The Pennsylvania State University

### Educational Research, Technology and Leadership

Chair of the Department: J. W. Cornett

Assistant to the Chair: R. Williams

Professors: W. C. Bozeman, Ph.D.; R. A. Cornell, Ed.D.; J. W. Cornett, Ph.D.; C. D. Dziuban, Ph.D.; M. H. Hopkins, Ed.D.; R. R. Lange, Ph.D.; M. A. Lynn, Ed.D.; G. W. Orwig, Ed.D.; S. L. Robinson, Ph.D., Dean.

Associate Professors: G. Gunter, Ph.D.; J. House, Ph.D.; D. Magann, Ed.D.; B. Murray, Ph.D.; K. Murray, J.D., Ph.D.; R. Paugh, Ed.D.; G. Pawlas, Ph.D.; S. E. Sorg, Ph.D.; L. Tubbs, Ed.D.; C.P. Wilson, Ed.D.; L. Witta, Ph.D.

Assistant Professors: R. Taylor, Ph.D.; S. Sivo, Ph.D.

Associate Graduate Faculty, Florida Gulf Coast University: C. F. Carter, Ed.D.; T. C. Valesky, Ed.D.

### Child, Family and Community Sciences

Chair of the Department: W. Wienke, Ed.D.

Assistant to the Chair: P. Cox, Ph.D.

Professors: S. M. Martin, Ph.D., Assistant Dean; J. L. Olson, Ph.D.; J. M. Platt, Ed.D., Associate Dean; E. H. Robinson, Ph.D.; R. Spina, Ph.D.; W. Wienke, Ed.D.

Associate Professors: T. Angelopoulos, Ph.D.; C. R. Balado, Ed.D.; R. M. Bollet, Ed.D.; L. Cross, Ph.D.; M. Lue, Ph.D.; M. Miller, Ed.D.; M. Young, Ph.D.

Assistant Professors: M. Blanes, Ph.D.; M. Casado, Ph.D.; A. Daire, Ph.D.; D. Ezell, Ph.D.; B.G. Hayes, Ph.D.; R. Hines, Ph.D.; S. Fuller, Ph.D.; D. Jones, Ph.D.; M. Little, Ph.D.; J. Manning, Ed.D.; H. P. Martin, Ed.D.; V. Mumford, Ed.D.; S. Pankaskie, Ph.D.; S. Y. Smalley, Ph.D.; G. Taub, Ph.D.; D. Woodson, Ph.D.

Associate Graduate Faculty, Florida Gulf Coast University: V. J. Dimidjian, Ph.D.; L. Golian, Ed.D.; M. S. Green, Ed.D.; E. Hyun, Ph.D.; M. Issacs, Ph.D.

Associate Graduate Faculty, UCF College of Engineering: L. Chew, Ph.D.

### **Teaching and Learning Principles**

Interim Chair of the Department: Robert Williams

Assistant to the Chair: Lance Tomei

Professors: D. Baumbach, Ed.D.; T. Blair, Ph.D.; D. K. Brumbaugh, Ed.D.; M. C. Hynes, Ph.D., Associate Dean, Director of Lockheed Martin/UCF Academy; A. R. Joels, Ph.D.; M. J. Palmer, Ed.D.; F. Rohter, Ph.D.

Associate Professors: J. H. Armstrong, Ed.D.; T. Brewer, Ph.D.; D. J. Camp, Ph.D.; J. Dixon, Ph.D.; R. M.

Everett, Ph.D.; D. W. Gurney, Ph.D.; P. Higginbotham, Ed.D.; L. R. Hudson, Ph.D.; J. A. Johnson, Ph.D.,

Associate Director of Lockheed Martin/UCF Academy; J. Lee, Ph.D.; D. Mitchell, Ed.D.; S. E. Ortiz, Ed.D.; M.

K. Romjue, Ph.D.; B. W. Siebert, Ph.D.; G. West, Ph.D.; K. Williams, Ph.D.;

Assistant Professors: P. Crawford, Ph.D.; R. DuVall, Ph.D.; W. Gaudelli, Ed.D.; B. Jeanpierre, Ph.D.; S. Roberts, Ed.D.; A. Sweeney, Ph.D.; K. Verkler, Ph.D.; V. Zygoris-Coe, Ph.D.

Associate Graduate Faculty, Florida Gulf Coast University: C.W. Engle, Ed.D.; S.C. Mayberry, Ed.D

Associate Graduate Faculty, College of Arts and Sciences: J. Saul, Ph.D.

Associate Graduate Faculty, College of Engineering and Computer Science: L. Chew, Ph.D.; S. Durrance, Ph.D.

## **Programs**

### **Doctoral Degrees**

- Curriculum and Instruction (Ed.D.)
- Educational Leadership (Ed.D.)
- Education (Ph.D.)—Counselor Education, Elementary Education, Exceptional Education, Instructional Technology, and Mathematics Education Tracks

### **Education Specialist Degrees**

- Curriculum and Instruction
- Educational Leadership
- School Psychology—School Counseling and School Psychology Tracks

### **Master's Degrees**

- Art Education
- Counselor Education—Mental Health Counseling and School Counseling Tracks
- Curriculum and Instruction
- Early Childhood Education
- Educational Leadership—Student Personnel Administration in Higher Education Track
- Elementary Education—Primary and Mathematics Education Tracks
- English Language Arts Education
- Exceptional Education—Varying Exceptionalities Track
- Instructional Technology—Educational Media Track (Online Program), Educational Technology, and Instructional Systems Tracks
- Mathematics Education
- Music Education

- Physical Education—Career Enhancement Track, Exercise Physiology and Wellness Track, Teaching Physical Education Track
- Reading Education
- Science Education—Biology, Chemistry, and Physics Tracks
- Social Science Education
- Vocational Education

### **Graduate Certificates**

- Coaching
- Community College Education
- Initial Teacher Professional Preparation
- Instructional/Educational Technology
- Marriage and Family Therapy
- Middle Level Education
- Play Therapy
- Pre-Kindergarten Handicapped Endorsement
- Professoriate
- Special Education
- Sports Leadership
- Teaching Excellence
- Teaching Writing K-12
- World Studies Education

## **Doctoral Programs**

The College of Education offers the Ph.D. in Education with tracks in Counselor Education, Elementary Education, Exceptional Education, Instructional Technology, and Mathematics Education. The Ph.D. in Education is a research-oriented degree appropriate for educators from school districts, businesses, industry, educational agencies, and other educational settings who need a strong research base in their careers. It is the intent of this program to be interdisciplinary, allowing flexibility for students who will work in research clusters and learning communities with faculty on education-related research. 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. (Please note that the previously offered Ph.D. in Curriculum and Instruction Program has been discontinued.)

Doctor of Education (Ed.D.) 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.

The Curriculum and Instruction as well as the Educational Leadership doctoral programs (Ed.D) are offered on the main campus and selected off-campus sites. There is a collaborative effort between UCF and Florida Gulf Coast University in Fort Myers to serve the educational community in southwest Florida. Likewise, to serve the Daytona Beach community, the programs are offered through the UCF campus at Daytona Beach Community College.

## **Admission Policy**

Each doctoral program in the College of Education has specific application deadlines. Refer to the program descriptions for these dates. Completed Filenames must be on campus by February 15 for fall admission and fellowship 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. New admissions for the Daytona program are accepted for specially announced dates only (call 904-259-4460 for more information about this program). The college strongly encourages applications from minority and diverse populations. Race, national origin, and gender are not used in the evaluation of students for admission into graduate and professional programs.

## **Application**

Completed application Filenames must include: a completed UCF graduate application form, including transcripts from all previously attended post-secondary schools, three letters of recommendation (should include those that will provide professional and academic information), a professional resume, and a statement of professional goals. Other information may be requested after the Filename 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
- A minimum score of 1000 on the General Graduate Record Examination (verbal/ quantitative scores combined)
- A score of 220 (computer-based test or equivalent score on the paper-based test) on the Test of English as a Foreign Language (TOEFL) if the applicant is an international student

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

- 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 Filenames and interview applicants for admission.

## **Transfer Credit**

The number of transfer credit hours applied to the course requirements for a doctoral degree may not exceed 30 semester hours. Transfer credit may include only graduate hours awarded by an accredited institution toward a master's degree and post-master's degree work. The transfer credit allowed will be determined on a case-by-case



basis by the graduate adviser and graduate program coordinator. Post-master's degree credit taken at UCF prior to admission to the program is considered to be transfer credit.

### **Financial Support**

Students interested in financial support through Education fellowship programs must have completed application Filenames 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 unless working on the dissertation. Doctoral students working on the dissertation must be continuously enrolled in dissertation research every semester until successfully defended. 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.

## **Education Specialist Programs**

Education Specialist (Ed.S.) degree programs are offered in three areas: Curriculum and Instruction, for persons in teaching and other instruction/training leadership positions; Educational Leadership, for those who are interested in decision-making positions in educational organizations; and School Psychology, for students preparing to enter the specialized fields of School Psychology or School Counseling.

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 transferable to a doctoral degree program. When a recipient of an Ed.S. degree is accepted for a doctoral program, the respective doctoral advisory committee will determine the amount of applicable credit earned in the Ed.S. for the doctoral program. In any case, 30 semester hours is the maximum amount of credit transferable to a doctoral program of study.

### **Admission Requirements**

Admission to the Education Specialist program requires:

- A master's degree from a regionally accredited institution (except in the case of School Psychology, which does not require a master's degree but does have other admission requirements) AND
- A combined score of 1000 (verbal and quantitative sections of the General Graduate Record Examination) AND
- A minimum score of 220 (computer-based test or equivalent score on the paper-based test) on the Test of English as a Foreign Language if the applicant is an international student AND
- Other criteria as required by the respective degree program area AND
- A recommendation from the respective advanced graduate program admission committee.

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. Transfer credit decisions are made by the respective graduate program coordinators and the specialization advisers with approval of the College of Education.

Students entering the School Psychology program from the baccalaureate level may transfer in a maximum of 9 semester hours of graduate credit earned subsequently at an accredited institution of higher education. Courses taken as an undergraduate student may not be used for transfer unless the credit was graduate level and not a part of the undergraduate degree program.

### **Time Limit and Continuous Attendance**

The student has seven years from the date of admission to the Education Specialist degree to complete the program. No courses taken since the entry date may be older than 7 years and be used in the program. The college reserves the right to revert the status of students who do not maintain continuous enrollment to non-degree-seeking. Students who are reverted to non-degree-seeking status must petition to be reinstated to the program.

## **Examinations**

There are appropriate culminating academic experiences for each of the program areas. The specific program area requirements are listed under the program descriptions.

## **Master's Programs**

Programs are offered in a wide variety of areas within the general field of education. Master of Education programs are open only to qualified students who have completed a baccalaureate degree and have completed course work for regular Florida State Teaching Certification. This degree is appropriate for the practicing educator who wishes to update and extend knowledge of their present teaching field.

Master of Arts programs leading to initial certification are open to qualified individuals who are seeking both a master's degree and a new teaching certification or to qualified students seeking a master's degree in a field not requiring state teaching certification. Students who are presently teaching with a valid Florida Teaching Certificate may add a teaching field to their certificate by completing a Master of Arts degree. Those students without previous certification and who are seeking initial certification in a teaching area may be required by the program area to complete an internship to complete the state-approved program. M.A. candidates must complete a portfolio as part of the requirements of an internship.

NOTE: All Master of Arts programs at UCF leading to initial certification are state-approved programs. Completion of the prescribed program results in the affixing of a state-approved program stamp to the transcript. This stamp ensures that certification will be issued by the Florida Department of Education in the indicated area. Failure to complete the prescribed state-approved program through petitions, waivers, or unauthorized course substitutions will be cause to not affix the stamp of approval on the transcript. While the student may graduate with a Master of Arts, a transcript without the stamp will be evaluated for certification on a course-by-course basis. UCF and the College of Education do not guarantee that any non-stamped program transcript will lead to certification by the Florida Department of Education.

## **Admission**

The Graduate Record Examination (GRE) is required of all graduate students. Minimal requirements for admission are (1) a grade point average (GPA) of 3.0 for the last 60 attempted semester hours of undergraduate study and a minimum score of at least 840 on the verbal-quantitative sections of the GRE or (2) a GPA of less than 3.0 combined with a GRE of 1000 or above. A score of 220 (computer-based test or equivalent score on the paper-based test) on the Test of English as a Foreign Language (TOEFL) is required if the applicant is an international student. In addition, a student seeking a Master of Education degree must show evidence that all course work has been completed for the basic bachelor's level state of Florida teaching certificate. Master of Arts programs, available in some specialties, may be planned without the student's having previously completed certification courses. Specific graduate programs within the College of Education may use socioeconomic status, commitment to work in low income neighborhoods, evidence of community or volunteer work, family educational background, first generation in college, overcoming hardships, or personal interviews as additional criteria for admission. The college strongly encourages applications from minority and diverse populations. Race, national origin, and gender are not used in the evaluation of students for admission into graduate and professional programs.

## **Restricted Admission**

The College of Education has a separate restricted application process for those students who do not present at least a 3.0 grade point average in their last 60 attempted semester hours of undergraduate course work AND at

least a score of 1000 on the combined verbal-quantitative sections of the Graduate Record Examination. The restricted deadline is earlier in the semester for all programs with the exception of School Psychology, Counselor Education, and the doctoral programs. To be considered for restricted admission in the College of Education, students must Filename an application for restricted status in the Education Student Services Office (ED 109; 823-3723) upon being denied regular admission. Department committees make recommendations to the College Graduate Standards and Curriculum Committee. The following criteria are applied in evaluating applications:

- Ranking of undergraduate 60-hour grade point average
- Ranking of GRE score
- Contribution, current and projected, to the profession
- Number of years of professional experience
- Number of non-degree-seeking hours taken
- Grade point average on any non-degree-seeking work
- Recommendations by college faculty and other professionals.

Restricted students who do not maintain a 3.0 GPA during their first nine hours of enrollment will be reverted to non-degree-seeking status. Those who are accepted as restricted students by one program are not accepted into another, but must reapply for restricted admittance into another program.

### **Program of Study**

Students are officially assigned formal academic advisers upon admission to a College of Education graduate degree program. It is the student's responsibility to seek advisement and finalize a program of study early in the degree program. Students are advised to Filename a program of study within the first nine hours of their graduate study. The acceptability and application of non-degree/transfer hours toward a degree is contingent upon the recommendation of the academic adviser and is approved only after a program of study has been officially Filenamed through all university channels.

Academic advisers are not assigned to individuals admitted as non-degree-seeking students. Non-degree-seeking students may seek information and general advisement in the Education Student Services Office (ED 109; 823-3723). Non-degree-seeking students seeking certification in the state of Florida and who have been initially certified elsewhere are not eligible for financial assistance from the university. In general, non-degree-seeking students cannot receive financial assistance unless enrolled for at least half-time and they have not previously been certified. Students should check their specific circumstances with the Office of Student Financial Assistance.

### **Performance Standards**

Minimum university-wide standards and regulations are applicable in addition to the specific College of Education requirements and regulations described in this section. A "B" (3.0 GPA) must be maintained on all graduate work and no more than six hours of "C" may be earned and applied to the degree program. Unresolved "I" (incomplete) grades must be resolved according to university guidelines. In addition to the minimum university standards, College of Education students must maintain at least a 2.5 GPA in all co-requisite work prescribed in concert with a graduate degree program.

Students whose grade point average on degree work falls below 3.0 will be placed on academic provisional status for a nine semester-hour period of enrollment. During this time, the GPA must reach or exceed the 3.0 minimum to remain in the program. Only one academic provisional period is permitted, and no transfer credit may be applied.

## **Culminating Experience**

Prior to graduation, all students are required to successfully complete an academic culminating experience, which is planned and evaluated by each student's program area. Comprehensive examinations are the most common form of culminating experience. Failure on a comprehensive examination requires re-enrollment and reexamination during a subsequent semester. Students are required to be enrolled during the semester in which they take examinations to satisfy this requirement and must be enrolled the term they plan to graduate.

## **Thesis, Research Report, and Non-thesis Options**

In most programs, master's degree students in education, with adviser consultation, may select one of three options: Thesis, a research paper with a formal faculty committee and defense; Research Report, a research paper supervised by the student's adviser; or the non-thesis option, course substitution for the research papers. Both the thesis and research report options result in programs with a minimum of 33 semester hours. In the non-thesis option the courses selected must be approved in advance by the student's adviser and result in a program of at least 36 semester hours. For specific options within programs, please consult the graduate program coordinator for the degree sought.

## **Extended Content**

*Graduate Program Coordinator:* Dr. Ruby Evans, (407) 823-1129. E-mail: [revans@mail.ucf.edu](mailto:revans@mail.ucf.edu)

Several of the education Master of Arts degrees have an option available to individuals who have a goal of teaching in a content area at the community college level. Every attempt is made to build at least 18 hours of graduate-level content into the program of study from the following areas: Art, Mathematics, Music, Science, Social Science, and English Language Arts. Only six hours of independent study courses may be used to satisfy degree requirements. It is important to see an adviser if courses are difficult to schedule in content areas. Students take content courses in lieu of internship with the full understanding that they will not be eligible for certification at the secondary level because of the internship deficiency in their program. College of Education content specialists serve as advisers in the program.

## **Required Courses—42 Credit Hours Minimum**

### **Area A: Core—15 Credit Hours**

(Some programs may vary slightly)

- EDF 6155 Lifespan Human Development and Learning (3 hours)
- EDF 6401 Statistics for Educational Data (3 hours) OR
- EDF 6432 Measurement and Evaluation in Education (3 hours)
- EDF 6481 Fundamentals of Graduate Research Education (3 hours)
- EDF 6517 History and Philosophy of American Education (3 hours)
- ESE 6909 Research Report (2 hours)
- ESE 6909 Research Report (1 hour)

### **Area B: Specialization—27 Credit Hours**

(Electives approved by adviser)

# College of Engineering and Computer Science

The College of Engineering and Computer Science offers graduate programs leading to Master of Science and Doctor of Philosophy degrees. Each department within the college offers options for specialized education.

The College of Engineering and Computer Science has the following departments with graduate programs:

- Civil and Environmental Engineering
- School of Electrical Engineering and Computer Science
- Computer Science
- Computer Engineering
- Electrical Engineering
- Industrial Engineering and Management Systems
- Mechanical, Materials, and Aerospace Engineering

## College Administration

M. P. Wanielist, Ph.D., P.E., Dean

D. R. Reinhart, Ph.D., P.E., Associate Dean for Research

E. Gelenbe, Ph.D., Associate Dean, and Director for the School of Electrical Engineering and Computer Science

J. Nayfeh, Ph.D., Assistant Dean for Academic Affairs

J. Liou, Ph.D., Interim Assistant Dean

## Faculty

### Department of Civil and Environmental Engineering

Chair of the Department: A. E. Radwan

Assistant Chair of the Department: M. B. Chopra

Graduate Program Coordinator: R. L. Wayson, ENGR II211, (407) 823-2841. E-mail: [go\\_ucf@mail.ucf.edu](mailto:go_ucf@mail.ucf.edu)

*Professors:* C. D. Cooper, Ph.D., P.E.; S. S. Kuo, Ph.D., P.E.; A. E. Radwan Ph.D., P.E.; D. R. Reinhart, Ph.D., P.E., Associate Dean; J. S. Taylor, Ph.D., P.E.; M. P. Wanielist, Ph.D., P.E., Dean; R. L. Wayson, Ph.D., P.E., G. Yew, Ph.D.

*Associate Professors:* H. M. Al-Deek, Ph.D., P.E.; M. A. Aty, Ph.D., P.E.; M. B. Chopra, Ph.D., P.E.; J. D. Dietz, Ph.D., P.E.; S. M. El-Tawil, Ph.D., P.E., C. M. Head, Ph.D., P.E.; S. K. Kunnath, Ph.D., P.E.; F. N. Nnadi, Ph.D., P.E.; A. Oloufa, Ph.D., P.E.; U. O. Onyemelukwe, Ph.D., P.E.; A. A. Randall, Ph.D., P.E.

*Assistant Professors:* S.C. Hagen, Ph.D.; S. K. Hong, Ph.D.

### School of Electrical Engineering and Computer Science

The School of Electrical Engineering and Computer Science consists of three independent but interrelated programs: the Computer Engineering (CpE) program, the Computer Science (CS) program, and the Electrical Engineering (EE) program.

*Director of the School:* Erol Gelenbe

*Computer Engineering Program Director:* Christian S. Bauer, ENGR 407C, (407) 823-2236. E-mail: [csb@engr.ucf.edu](mailto:csb@engr.ucf.edu)

*Computer Science Program Director:* Ronald D. Dutton, CSB 263, (407) 823-2920. E-mail: [dutton@cs.ucf.edu](mailto:dutton@cs.ucf.edu)

*Electrical Engineering Program Director:* Zhihua Qu, ENGR 446, (407) 823-5976. E-mail:

[qu@pegasus.cc.ucf.edu](mailto:qu@pegasus.cc.ucf.edu)

*Computer and Electrical Engineering Graduate Coordinator:* Michael Georgiopoulos, ENGR 407B, (407) 823-5338. E-mail: [michaelg@mail.ucf.edu](mailto:michaelg@mail.ucf.edu)

*Computer Science Graduate Coordinator:* Ronald D. Dutton, CSB 263, (407) 823-2920. E-mail:

[dutton@cs.ucf.edu](mailto:dutton@cs.ucf.edu)

### **Computer Engineering**

*Professors:* C. S. Bauer, Ph.D.; A. J. Gonzalez, Ph.D.

*Associate Professors:* R. DeMara, Ph.D.; H. I. Klee, Ph.D.; D. G. Linton, Ph.D.; B. E. Petrasko, D. Eng.; J. Zalewski, Ph.D.; G. Walton, Ph.D.

*Assistant Professors:* A. Ejnoui, Ph.D.; T. Kocak, Ph.D.; F. Gonzalez, Ph.D.

*Lecturers:* See <http://www.seecs.ucf.edu>

### **Computer Science**

*Professors:* M. A. Bassiouni, Ph.D.; R. C. Brigham, Ph.D.; N. Deo, Ph.D., Millican Endowed Chair in Computer Science; R. D. Dutton, Ph.D.; K. Hua, Ph.D.; T. J. Frederick, Ph.D.; E. Gelenbe, Ph.D.; F. Gomez, Ph.D.; R. K. Guha, Ph.D.; C. E. Hughes, Ph.D.; G. Marin, Ph.D.; D. Marinescu, Ph.D.; J. M. Moshell, Ph.D.; A. Mukherjee, Ph.D.; M. A. Shah, Ph.D.

*Associate Professors:* O. Favorov, Ph.D.; S. D. Lang, Ph.D.; J. Leeson, Ph.D.; A. Orooji, Ph.D.; S. Pattanaik, Ph.D.; N. da Vitoria Lobo, Ph.D.; D. A. Workman, Ph.D.

*Assistant Professors:* H. Foroosh, Ph.D.; J. Lee, Ph.D.; C. Lisetti, Ph.D.; J. P. Rolland, Ph.D.; A. Wu, Ph.D.

*Lecturer:* W. Allen, M.S.; M. Llewellyn, Ph.D.; E. Montagne, M.S.

### **Electrical Engineering**

*Professors:* J. Liou, Ph.D., Interim Assistant Dean of the College of Engineering and Computer Science; M. Georgiopoulos, Ph.D.; W. L. Jones, Ph.D.; J. J. Liou, Ph.D.; D. C. Malocha, Ph.D., P.E.; W. B. Mikhael, Ph.D.; Ph.D., P.E.; R. L. Phillips, Ph.D.; Z. Qu, Ph.D.; N. S. Tzannes, Ph.D.; P. F. Wahid, Ph.D.; J. S. Yuan, Ph.D.

*Associate Professors:* T. Kasparis, Ph.D., S. M. Richie, Ph.D., K. B. Sundaram, Ph.D.; L. Wei, Ph.D.

*Assistant Professors:* M. G. Haralambous, D. Sc., P.E., T. Wu, Ph.D.

*Joint Appointees:* See <http://www.seecs.ucf.edu>

### **Department of Industrial Engineering and Management Systems**

Chair of the Department: Lesia Crumpton-Young

Graduate Program Coordinator: Linda C. Malone, EN2 312K, (407) 823-2204. E-mail: [lmalone@mail.ucf.edu](mailto:lmalone@mail.ucf.edu)

*Professors:* John E. Biegel, Ph.D., P.E., Professor Emeritus; Lesia Crumpton-Young, Ph.D., Yasser A. Hosni, Ph.D., P.E.; Linda C. Malone, Ph.D.; Charles H. Reilly, Ph.D.; George F. Schrader, Ph.D., P.E., Professor Emeritus; Gary E. Whitehouse, Ph.D., P.E., Provost and Academic Vice President

*Associate Professors:* Robert L. Armacost, D.Sc.; Ahmad K. Elshennawy, Ph.D., C.Q.E., C.R.E.; Robert L. Hoekstra, Ph.D.; Timothy G. Kotnour, Ph.D.; Dennis Kulonda, Ph.D.; Gene C.H. Lee, Ph.D., P.E.; Pamela R. McCauley-Bell, Ph.D.; Mansooreh Mollaghasemi, Ph.D.; Michael A. Mullens, Ph.D.; Julia J.A. Pet-Edwards, Ph.D.; Michael D. Proctor, Ph.D.; Luis Rabelo, Ph.D.; James M. Ragusa, D.B.A.; José A. Sepúlveda, Ph.D., P.E.; Kay M. Stanney, Ph.D.; Kent E. Williams, Ph.D.

*Assistant Professors:* William J. Thompson, Ph.D.

*Instructor:* Edward Hampton, M.S.

### **Department of Mechanical, Materials and Aerospace Engineering**

Interim Chair of the Department: D. W. Nicholson

Associate Chair of the Department: H. Hagedoorn

Graduate Program Coordinator: Alain J. Kassab, ENGR 381, (407) 823-5778. E-mail: [kassab@mail.ucf.edu](mailto:kassab@mail.ucf.edu)

Professors: P.J. Bishop, Ph.D., P.E., Vice Provost and Dean of Graduate Studies; L. C. Chow, Ph.D.; V. H. Desai, Ph.D., P.E.; B. E. Eno, Ph.D., P.E.; A. J. Kassab, Ph.D.; F. A. Moslehy, Ph.D., P.E.; D. W. Nicholson, Ph.D.

Associate Professors: R. H. Chen, Ph.D.; L. Chew, Ph.D.; T. Conway, Ph.D.; S. T. Durrance, Ph.D.; L. A.

Giannuzzi, Ph.D.; A. H. Hagedoorn, Ph.D., P.E.; R. W. Johnson, Ph.D., P.E.; J. Kapat, Sc.D.; K. C. Lin, Ph.D., P.E.; A. Minardi, Ph.D.; J. Nayfeh, Ph.D.; C. E. Nuckolls, Ph.D., P.E.; C. Suryanarayana, Ph.D.; G. G. Ventre, Ph.D., P.E.

Assistant Professors: Linan An, Ph.D.; Quanfang Chen, Ph.D.; Yong-ho Sohn, Ph.D.; Raj Vaidyanathan, Ph.D.; D. Zhou, Ph.D.

Emeritus Professors: E. R. Hosler, Ph.D., P.E.; J. D. McBrayer, Sc.D., P.E.; W. F. Smith, Sc.D., P.E.

Visiting Assistant Professors: C. Ham, Ph.D.; E. Divo, Ph.D.

Joint Appointees: K.D. Belfield, Ph.D., Department of Chemistry; K. A. Cerqua-Richardson, Ph.D., School of Optics; M. B. Chopra, Ph.D., Department of Civil and Environmental Engineering; N. S. Dhere, Ph.D., Florida Solar Energy Center; A. Kar, Ph.D., School of Optics; W. Luo, Physics, D.C. Malocha, Ph.D., School of Electrical Engineering and Computer Science; N. Misconi, Engineering Technology; K.V. Sundaram, School of Electrical Engineering and Computer Science; R. Y. Ting, Ph.D., AMPAC; K. Vajravelu, Ph.D., Department of Mathematics

Research Faculty: J. Bindell, Ph.D., Cirent Semiconductor; R. Irwin, Ph.D., Cirent Semiconductor; F. Stevie, M.S., Cirent Semiconductor; R. Zarda, Ph.D., Lockheed-Martin Missiles and Fire Control

## **Degree Programs**

### **Doctor of Philosophy**

- Civil Engineering
- Computer Engineering
- Computer Science
- Electrical Engineering
- Environmental Engineering
- Industrial Engineering
- Materials Science and Engineering
- Mechanical Engineering
- Modeling and Simulation

### **Master of Science (M.S.)**

- Engineering Management Track
- Environmental Engineering Sciences Track
- Human Engineering/Ergonomics Track
- Interactive Simulation and Training Systems Track
- Manufacturing Engineering Track
- Operations Research Track
- Quality Engineering Track
- Simulation Modeling and Analysis Track
- Structures and Foundations Engineering Track
- Transportation Systems Engineering Track
- Water Resources Engineering Track



### **Master of Science in Computer Science (M.S.)**

### **Master of Science in Aerospace Engineering (M.S.A.E.)**

- Space Systems Design and Engineering Track
- Thermofluid Aerodynamic Systems Design and Engineering Track

### **Master of Science in Civil Engineering (M.S.C.E.)**

- Structural and Geotechnical Engineering Track
- Transportation Engineering Track
- Water Resources Engineering Track

### **Master of Science in Computer Engineering (M.S.Cp.E.)**

- Computer Architecture Track
- Digital Systems Track
- Knowledge-based Systems Track
- Software Engineering Track

### **Master of Science in Electrical Engineering (M.S.E.E.)**

- Communication Track
- Controls/Power Track
- Digital Signal Processing Track
- Electromagnetics Track
- Electronics/Power Electronics Track
- Electro-optics Track
- Solid State and Microelectronics Track

### **Master of Science in Environmental Engineering (M.S.Env.E.)**

### **Master of Science in Industrial Engineering (M.S.I.E.)**

### **Master of Science in Materials Science and Engineering (M.S.M.S.E.)**

### **Master of Science in Mechanical Engineering (M.S.M.E.)**

- Computer-Aided Mechanical Engineering Track
- Mechanical Engineering Systems Track
- Mechanical Systems Track
- Miniature Engineering Systems Track
- Professional Track
- Thermofluids Track

## **Graduate Certificates**

### **Civil Engineering**

- Construction Engineering

- Structural Engineering
- Surface Water Modeling
- Transportation Engineering

### **Computer Engineering**

- Software Engineering
- Software-Intensive Systems

### **Electrical Engineering**

- Communications Systems
- Electronic Circuits

### **Environmental Engineering**

- Wastewater Treatment

### **Industrial Engineering and Management Systems**

- Applied Operations Research
- Design for Usability
- Industrial Ergonomics and Safety
- Project Engineering
- Quality Assurance
- Systems Simulation for Engineers
- Training Simulation

### **Mechanical, Materials, and Aerospace Engineering**

- CAD/CAM Technology
- HVAC Engineering
- Materials Failure Analysis

## **College Admission Requirements**

In addition to meeting the minimum university admission requirements, each applicant is required to satisfy college and department admission requirements. Specific department requirements are listed in respective departmental sections. Meeting the minimum admissions requirements does not automatically guarantee admission, as enrollment may be restricted by limited college or department resources. Supplemental information such as research/goal statements, resumes, work or internship experience may be considered by the graduate program coordinators in making admissions decisions. The college strongly encourages applications from minority and diverse populations, however race, national origin, and gender are not used in the evaluation of students for admission into graduate and professional programs.

## 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 Graduate Record Exam (GRE).
- Applicants for master's programs must have bachelor's degrees and must present baccalaureate degree credentials appropriate to the specialized area of study that may include mathematics through differential equations for most programs. Consult with your program catalog description for specific math requirements.
- 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 220 (computer-based test; or equivalent score on the paper-based test) on the Test of English as a Foreign Language.

## 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, including submission of an application for graduate admission with resume, goals statement, and three letters of recommendation.
- 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 are expected to 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.
- 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 220 (computer-based test; or equivalent score on the paper-based test) on the Test of English as a Foreign Language (TOEFL).

## College Degree Requirements

### Master's Degree Requirements, Thesis Option

- 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.
- Continued enrollment in one hour of thesis once six hours of thesis credits have been completed and all course work has been satisfied, and until the final thesis has been received by the Office of Graduate Studies.
- At least 15 credit hours must be from 6000-level courses (except for Computer Science).
- A maximum of 9 semester hours of graduate credit may be transferred into the program from UCF non-degree-seeking status or regionally accredited institutions. Only grades of "B-" or better can be transferred.
- A maximum of 6 credits of 4000-level courses may be applied toward a master's degree. No 3000-level courses are acceptable.
- A maximum of 6 semester hours of Independent Study may be used toward the degree. Directed research credits may not be applied toward the degree.
- A minimum "B" (3.0) average must be maintained in the program of study and no more than two C+, C, and C- grades are allowed.
- A written thesis and final oral defense are required.

## **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 serve as 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 committee membership. The Office of Graduate Studies reserves the right to review appointments to advisory committees, place a representative on any advisory committee, or appoint a co-advisor.
- In unusual cases, with approval from the department 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

## **Master's Degree Requirements, Non-Thesis Option**

Most departments within the College of Engineering and Computer Science 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**

- The Civil and Environmental Engineering, Industrial Engineering Management Systems, and Mechanical, Materials and Aerospace Engineering programs require a minimum of 81 semester hours beyond the baccalaureate degree, including 24 semester hours of dissertation credits.
- School of Electrical Engineering and Computer Science programs require a minimum of 72 semester hours beyond the baccalaureate degree, including 15 semester hours of dissertation credits.
- Continued enrollment in three credit hours of Dissertation (XXX 7980) once the course work requirements and minimum hours of dissertation are satisfied.
- At least 6 semester hours of course work taken at UCF must be outside the student's area of specialization (except Computer Science), 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 may consist of a maximum of 6 hours of 4000-level work, no 3000-level courses, and no courses with grades less than "B-".
- A minimum "B" (3.0) average must be maintained in the program of study and no more than two "C" (C+, C, C-) grades are allowed.
- The student 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.
- 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 must consist of a minimum of five members: three must be faculty members from within the student's department, and one must be at large from outside the department or school. The committee Chair must be a member of the department graduate faculty approved to direct dissertations.

Joint faculty members may serve as department-faculty committee members. Adjunct faculty and off-campus experts may serve as the outside-the-department person in the committee. Program areas may further specify committee membership. The Office of Graduate Studies reserves the right to review appointments to advisory committees, place a representative on any advisory committee, or appoint a co-advisor.

- In unusual cases, with approval from the program Chair, two professors may chair the committee jointly. Joint faculty members may serve as committee co-chairs, but off-campus experts and adjunct faculty may not serve as committee co-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.

### **Accelerated Undergraduate and Graduate Program**

Some College of Engineering and Computer Science departments offer an integrated BS/MS degree program that allows students of high academic standing to complete an MS degree at an accelerated pace. The generic rule for students in this program is that they will be allowed to use nine hours of intermediate level (5000-level) graduate courses with a grade of “B-” or higher toward fulfillment of both the BS and MS degree requirements. Interested students should contact the department Assistant Chair or Graduate Coordinator if they have questions about this program.

## **Florida Engineering Education Delivery System**

Florida Engineering Education Delivery System (FEEDS) is a Florida statewide system whereby graduate-level engineering and computer science courses are delivered via videotape 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. Such students should apply online for non-degree-seeking status. However, students who intend to seek admission to a graduate program should be aware that no more than 9 credit hours of courses may be transferred from non-degree-seeking status into a degree-seeking program. Certain courses may have the requirement that the student come to the main campus for exams or laboratory participation.

For information concerning FEEDS, consult the UCF-FEEDS catalog (published each semester) or contact the Director of UCF-FEEDS at (407) 823-2481.

## **College of Health and Public Affairs**

The College of Health and Public Affairs offers nine graduate programs: the Master of Arts Communicative Disorders, the Master of Science in Criminal Justice, the Master of Science in Health Sciences: 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. In addition, it offers—jointly with the College of Arts and Sciences—an interdisciplinary Doctor of Philosophy in Biomolecular Sciences. 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.

The college strongly encourages applications from minority and diverse populations. Race, national origin, and gender are not used in the evaluation of students for admission into graduate and professional programs.

## College Administration

B. R. McCarthy, Ph.D., Dean  
J. E. Dorner, M.N., Associate Dean  
R. N. Gennaro, Ph.D., Interim Associate Dean  
R. Kirby, J.D., Assistant Dean  
M. Rogers, Assistant Dean

## Faculty

### Communicative Disorders

Chair of the Department: R. J. Lieberman, Ph.D.  
Professors: C. Nye, Ph.D.; D. L. Ratusnik, Ph.D.  
Associate Professors: D. B. Ingram, Ph.D.; T. A. Mullin, Ph.D.; J. Ryalls, Ph.D.; M. Vanryckeghem, Ph.D.  
Assistant Professors: A. E. Brice, Ph.D.; J. Dutka, Ph.D.; B. Hoffman, Ph.D.; K. Rivers, Ph.D.; L. I. Rosa-Lugo, Ed.D.; H. A. Utt, Ph.D.  
Instructors: G. Drelinger, M.S.; J. Whiteside, Ph.D.  
Visiting Instructors: J. Kissel, M.S.; J. Schwartz, Ph.D.

### Criminal Justice and Legal Studies

*Chair of the Department:* B. J. McCarthy, Ph.D., Professor  
*Professors:* B. R. McCarthy, Ph.D., Dean; B. Bohm, Ph.D.; D. Fabianic, Ph.D.; R. Surette, Ph.D.  
*Associate Professors:* C. Bast, J.D.; D. Bishop, Ph.D.; P. Griset, Ph.D.; D. Hall, Ph.D.; M. Lanier, Ph.D.; S. Mahan, Ph.D.; R. Pyle, Ph.D.; J. Sanborn, Ph.D.  
*Assistant Professors:* B. Applegate, Ph.D.; D. Becker, M.S.; S. Holmes, Ph.D.; K. Lucken, Ph.D.; R. Remis, J.D.; K. M. Reynolds, Ph.D.; D. Slaughter, J.D.; R. Watkins  
*LS Internship Coordinator:* K. Cook, J.D., Instructor  
*CJ Internship Coordinator:* M. Eastep, M.S., Instructor  
*Instructors:* J. Flagg, J.D.; R. Lynch, J.D.; J. Randall, M.S.

### Health Professions

*Chair of the Department:* A. Liberman, Ph.D., Associate Professor  
*Professors:* L. J. Acierno, M.D.; M. Fottler, Ph.D.  
*Associate Professors:* S. Douglass, M.S.; T. Edwards, Ed.D., RT(R); E. Hamby, D.B.A., P.T.; A. Liberman, Ph.D.; J. S. Lytle, M.S., M.P.H.; T. S. Mendenhall, Ph.D., M.B.A.; L. T. Worrell, M.P.H.; K. Parry, P.T., Ph.D.

*Assistant Professors:* L. Chase, Ph.D., P.T.; J. Ludy, Ed.D.; S. Morrison, Ph.D., M.S.P.H.; D. Oetjen, Ph.D.; T. Rotarius, Ph.D., M.B.A.; J. Strack, Ph.D.; A. Trujillo, Ph.D.

*Instructors:* C. J. Barr, M.S.; G. Bertetta, M.A.; D. Cassidy, M.S., A.T.C.; M. Diesen, M.S., M.Ed.; K. B. Enchelmayer, M.S.P.T., O.T.R.; T. Falen, M.S.; J. Holder, M.S.P.T.; V. J. Hudson, M.S.P.T., M.B.A., A.T.C.; T. Viamontes, M.S.-H.S.A.; P. Welker, M.A., RT(R) (CT)

### **Molecular Biology and Microbiology**

*Chair of the Department:* R. N. Gennaro, Ph.D., Professor

*Professors:* O. M. Berringer, Ph.D.; H. Daniell, Ph.D.; D. Jacobs, Ph.D.; M. J. Sweeney, Ph.D.; R. S. White, Ph.D.

*Associate Professors:* D. Chakrabarti, Ph.D.; J. F. Charba, Ph.D.; T. Zervos, Ph.D.

*Assistant Professors:* K. Chai, Ph.D.; R. Chakrabarti, Ph.D.; C. Fernandez-Valle, Ph.D.; S. Naser Ph.D.

*Instructors:* K. Blaney, M.S.; D. F. Hitchcock, M.S.; F. Logiudice, M.S.

### **School of Nursing**

*Director:* E. Stullenbarger, DSN, RN, CS-PNP, Professor

*RN-B.S.N. Coordinator:* L. Hennig, Ed.D., RN

*Professors:* A. Bushy, Ph.D., RN, CS; M. L. Sole, Ph.D., RN, FAAN

*Associate Professors:* E. J. Brown, Ph.D., RN, CS; J. Dorner, M.N., RN, Associate Dean; J. Byers, Ph.D., RN; K. Dow, Ph.D., RN, FAAN; R. Gropper, Ed.D., RN, Daytona Beach Campus Coordinator; J. Kijek, Ph.D., RN; F. Smith, Ed.D., RN; V. Browne-Krimsley, Ed.D., RN, Brevard Campus Coordinator; D. Wink, Ed.D., ARNP

*Assistant Professors:* J. Gichia, Ph.D., CNM, RN; L. Holcomb, DSN, RN, ARNP; E. Kiehl, Ph.D., ARNP

*Instructors:* J. Peterson, Ph.D., RN; P. Leli, M.S.N., RN, Undergraduate Coordinator; M. Ramey, M.N.Ed., RN; M. Covelli, Ph.D., RN; S. Pelliccio, M.S.N., RN

*Visiting Instructor:* M. L. Brunell, MSN, RN; P. Connell, M.S.N., RN

### **Public Administration**

*Chair:* K. T. Liou, D.P.A., Professor

*Professors:* P. W. Colby, Ph.D.; R. A. Shapek, Ph.D.

*Associate Professors:* E. Berman, Ph.D.; J. D. Jurie, D.P.A.; W. C. Lawther, Ph.D.

*Assistant Professors:* M.A. Feldheim, Ph.D.; R. Korosec, Ph.D.; X. H. Wang, Ph.D., Graduate Program Coordinator

*Instructors:* J. Kiefer, M.P.A., Undergraduate Program Coordinator; M. Rogers, M.P.A., Assistant Dean

### **Public Affairs—Ph.D. Program**

*Director:* E. M. Abel, Ph.D.

*Chairs:* B. J. McCarthy, Ph.D., Professor; K. T. Liou, D.P.A., Professor; M. Van Hook, Ph.D.

*Professors:* R. Bohm, Ph.D.; I. Colby, Ph.D.; D. Poole, Ph.D., R. Shapek, Ph.D.; R. Surette, Ph.D.

*Associate Professors:* E. Berman, Ph.D.; D. Bishop, Ph.D.; M. Lanier, Ph.D.; S. Mahan, Ph.D.; J. Sanborn, Ph.D.

*Assistant Professors:* B. Applegate, Ph.D.; M.A. Feldman, Ph.D.; J. Gianakis, Ph.D.; P. Griset, Ph.D.; S. Holmes, Ph.D.; A. Leon, Ph.D.; K. Luken, Ph.D.; K. Reynolds, Ph.D.; X. Wang, Ph.D.

### **School of Social Work**

*Director:* M. Van Hook, Ph.D.

*Professors:* S. Dziegielewski, Ph.D.

*Associate Professors:* E. M. Abel, Ph.D., Director of Public Affairs Doctoral Program; K. Kazmerski, D.S.W.; A. Leon, Ph.D.; P. Maiden, Ph.D., M.S.W. Coordinator

*Assistant Professors:* C. E. Green, Ph.D.; J. Kirven, Ph.D.; C. Massey, M.S.W., Director of Field Education; B. Turnage, Ph.D.

*Clinical Instructors:* L. Davis, M.S.W.; V. Grey, M.S.W.; G. Jacinto, M.S.W.; R. Kohn, M.S.W., B.S.W. Coordinator; M. Sauer, M.S.W.

## **Programs**

### **Doctor of Philosophy in Biomolecular Sciences**

*Areas of emphasis:* Basic Biomolecular Sciences, Applied Biomolecular Sciences

### **Doctor of Philosophy in Public Affairs**

*Tracks:* Criminal Justice, Health Services, Public Administration, and Social Work

### **Master of Science**

- Criminal Justice
- Health Sciences: Health Services Administration
- Molecular Biology and Microbiology
- Physical Therapy

### **Master of Science in Nursing**

- Adult, Clinical, Family, or Pediatric Nurse Practitioner Track
- Leadership and Management Track

### **Master of Arts in Communicative Disorders**

### **Master of Public Administration**

### **Master of Social Work**

## **Graduate Certificates**

- Addictions
- Adult, Family, or Pediatric Nurse Practitioner (post-master's)
- Aging Studies
- Child Language Disorders
- Children's Services
- Corrections Leadership
- Crime Analysis
- Juvenile Justice Leadership
- Marriage and Family Therapy
- Multicultural/Multilingual Speech-Language Pathology
- Nonprofit Management
- Nursing and Health Professional Education
- Police Leadership
- Public Administration



- Urban and Regional Planning
- Victim Assistance

## Rosen School of Hospitality Management

The hospitality industry currently represents the second largest employer in the United States and is the major part of the rapidly growing services sector of the economy. Because of its unique location in the premier tourist destination in the world, the Rosen School of Hospitality Management is ideally situated to prepare students for managerial careers in the hospitality industry. Whether the student is interested in entering lodging, food service, travel and tourism, financial management and technology, theme parks, vacation ownership resorts, or conventions and destination services management, the Orlando and Central Florida area offers extraordinary opportunities. It is the destination for over 42 million tourists each year, has over 400 hotels with 112,000 rooms, 4,000 restaurants, and 75 theme parks and attractions. The industry employs a half million people in the State of Florida and many are in the Central Florida area.

The educational mission of the School is to provide students with the knowledge, skills, and ability to identify opportunities and challenges in the hospitality industry, and to apply creative decision techniques in responding to those opportunities.

The degree is designed to prepare students for a broad range of managerial roles across the hospitality industry. It provides both academic preparation and “hands-on” experiences that students will need to enter and succeed in a hospitality management career. Students also have the opportunity to experience the work world in hospitality through extensive contact with leading hospitality managers in the Central Florida area.

The School also houses the Dick Pope Sr. Institute for Tourism Studies, which was created and funded by the travel and tourism industry in Central Florida. The Institute conducts research and gathers information that helps the entire Orlando area hospitality industry better understand and serve its many guests from around the world.

The Center for Multi-Unit Restaurant Management and the Darden Eminent Scholar Chair in Restaurant Management provides a unique focus in the curriculum on corporate restaurant management. Students have access through the Center to leading restaurant industry executives. This academic unit is an integral part of the Rosen School of Hospitality Management.

### School Administration

- Abraham Pizam, Dean. CL1 302, (407) 823-2188
- Stephen LeBruto, Associate Dean. CL1 302, (407) 823-5064

### Faculty

- Robert A. Ashley, M.S., C.E.C., C.C.E., F.M.P.
- Deborah Breiter, Ph.D.
- Duncan R. Dickson, Visiting Instructor
- William Fisher, Ph.D.
- Ady Milman, Ph.D.
- Christopher Muller, Ph.D.
- Peter R. Ricci, C.H.A.

- Dana V. Tesone, Ph.D.
- Randall S. Upchurch, Ph.D.

## Distinctive Benefits

- Access to the many hospitality organizations that serve one of the premier tourist destinations in the world.
- Extensive ties with the top leadership of the Orlando area hospitality industry.
- Scholarships made available through the generous support of the industry.
- A faculty committed to continuously improving their knowledge of the hospitality industry as well as their ability to teach that knowledge to their students.
- Work experience that provides students with “hands-on” experiences in the hospitality industry.
- Outstanding opportunities for internships.
- A modern food production laboratory and teaching restaurant completely equipped to provide students with experience in food preparation.
- American Resort Development Association (ARDA) Professorship of Resort Development.
- Central Florida Hotel and Lodging Association (CFHLA) Professorship of Convention and Conference Management.
- Hospitality Financial and Technology Professionals (HFTP) Professorship of Hospitality Financial Management and Technology.

## School of Optics

UCF’s School of Optics is one of the world’s leading graduate institutions in optics and photonics education and research. The School offers a comprehensive interdisciplinary graduate program covering all aspects of optics, photonics, and lasers leading to Master’s and Doctoral degrees in Optics. The Center for Research and Education in Optics and Lasers (CREOL) is integrated in the school as its research arm. The School has twenty-four full time faculty members and more than one hundred graduate students. It is housed in a state-of-the-art 82,000-sq. ft. building dedicated to optics research and education.

Faculty members from the School of Optics are also the primary resource for the optical physics option in the M.S. and Ph.D. program in Physics and the electro-optics option in the M.S. and Ph.D. programs in Electrical Engineering. These two option programs are offered in partnership with academic departments. The faculty participate in undergraduate and graduate teaching in the Physics, Electrical Engineering and Computer Science, Mechanical, Materials, and Aerospace Engineering (MMAE), and Chemistry Departments.

## School Administration

Eric W. Van Stryland, Professor and Director. CREOL 206, (407) 823-6834. E-mail: [director@creol.ucf.edu](mailto:director@creol.ucf.edu)

David J. Hagan, Associate Professor and Associate Director for Academic Programs, CREOL 208, (407) 823-6817. E-mail: [dhagan@creol.ucf.edu](mailto:dhagan@creol.ucf.edu)

Web address: <http://www.creol.ucf.edu>

## Faculty

- Michael Bass, Professor of Optics, Physics and EECS
- Glenn Boreman, Professor of Optics and EECS

- Bruce Chai, Professor of Optics, Physics and EECS and MMAE
- Demetrios N. Christodoulides, PREP Professor of Optics
- Peter Delfyett, Professor of Optics, EECS and Physics
- Luis Elias, Professor of Optics and Physics
- M. G. “Jim” Moharam, Professor of Optics and EECS
- Martin Richardson, Professor of Optics, Physics and EECS
- Nabeel Riza, Professor of Optics and EECS
- George Stegeman, Cobb Family Chair and Professor of Optics, Physics and EECS
- William Silfvast, Professor of Optics, Physics and EECS
- M. J. Soileau, Professor of Optics, EECS and Physics and VP for Research
- Eric Van Stryland, Professor of Optics, Physics and EECS
- Boris Zel’dovich, Professor of Optics and Physics
- Emil Wolf, Provost’s Distinguished Professor of Optics
- Shin-Tson Wu, Provost’s Distinguished Professor of Optics
- David Hagan, Associate Professor of Optics, Physics and EECS
- James Harvey, Associate Professor of Optics and EECS
- Guifang Li, Associate Professor of Optics, Physics and EECS
- Patrick LiKamWa, Associate Professor of Optics and EECS
- Aravinda Kar, Associate Professor of Optics and MMAE
- Kathleen Richardson, Associate Professor of Optics, Chemistry and MMAE
- Jannick Rolland, Associate Professor of Optics, EECS and Computer Science
- Aristide Dogariu, Assistant Professor of Optics
- Eric G. Johnson, Assistant Professor of Optics
- Craig Siders, Assistant Professor of Optics

## Research Faculty

- Leonid Glebov, Associate Research Scientist
- Hans Jenssen, Senior Research Scientist

## Joint Appointees

- Larry Andrews, Professor of Mathematics, EECS and Optics
- Kevin Belfield, Associate Professor of Chemistry and Optics
- Luis Chow, Professor of MMAE and Optics
- Robert Peale, Associate Professor of Physics, EECS, and Optics
- Ronald Phillips, Professor of EECS, Mathematics and Optics
- Mubarak Shah, Professor of Computer Science and Optics
- Alfonse Shulte, Associate Professor of Physics and Optics

## Programs

The School of Optics offers master’s (M.S.) and doctoral (Ph.D.) degree programs in optics for qualified applicants holding undergraduate degrees in optics, engineering, physics, or closely related fields.

The School offers more than twenty-five graduate courses in optics, with courses ranging from optical science to optical engineering. Thesis and dissertation research span the spectrum from basic science to prototype development. Current research areas include: linear and nonlinear guided-wave optics and devices, high speed photonic telecommunications, solid state laser development, nonlinear optics, laser-induced damage, quantum-well optoelectronics, photonic information processing, infrared systems, optical diagnostics, optical system design, image analysis, virtual reality, medical imaging, diffractive optics, optical crystal growth and

characterization, high intensity lasers, x-ray optics, EUV sources, optical glasses, laser materials processing, free-electron lasers, and light matter interaction. These research programs are supported by research grants and contracts from numerous federal and state agencies and industry.

## **Fellowships and Research Assistantships**

School of Optics/CREOL Fellowships, Litton Fellowships, Schwartz Electro-Optics Fellowship, NSF IGERT Fellowships, and graduate research assistantships, as well as other university awards, are available to qualified students. The stipend ranges from \$17,000 to \$25,000 per calendar year. Full tuition (both resident and nonresident portions), estimated at \$13,500 per year, is provided for students receiving graduate fellowships and research assistantships. Applications received after February 1st may not be considered. For more information about financial support available for graduate students, contact the School of Optics ([gradprog@mail.ucf.edu](mailto:gradprog@mail.ucf.edu) or <http://www.creol.ucf.edu/>) and the Office of Graduate Studies ([gradfaid@mail.ucf.edu](mailto:gradfaid@mail.ucf.edu) or <http://www.graduate.ucf.edu>)

## **University Notices**

### **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 *Graduate Catalog*. The *Graduate Catalog* is published once a year and cannot always reflect new and modified regulations. Statements in this *Graduate 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 *Graduate Catalog*. Additional information or clarification of any policy or procedure may be obtained from the specified office.

### **Sexual Harassment Policy**

The University of Central Florida values diversity in the campus community. Accordingly, discrimination on the basis of race, sex, national origin, religion, age, 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:

Submission to such conduct is made either explicitly or implicitly a term or condition of an individual's employment or enrollment;

Submission to or rejection of such conduct by an individual is used as the basis for employment or enrollment decisions affecting such individual; or

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. Occurrences will be dealt with in accordance with the guidelines above and university rules. 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 Millican Hall 330, Orlando, FL 32816-0030. The phone number is 407-UCF-1EE0. Policies and guidelines are available online at <http://pegasus.cc.ucf.edu/~eeo/>.

## **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 the Office of Human Resources or the Division of Student Development and Enrollment Services (MH 282).

## **Academic Behavior Standards**

The University of Central Florida is committed to a policy of honesty in academic affairs. Examples of conduct for which students may be subject to academic and/or disciplinary penalties including expulsion are:

Cheating, whereby non-permissible written, visual, or oral assistance including that obtained from another student is utilized on examinations, course assignments, or projects. The unauthorized possession or use of examination or course related material may also constitute cheating.

Plagiarism, whereby another's work is deliberately used or appropriated without any indication of the source, thereby attempting to convey the impression that such work is the student's own. Any student failing to properly credit ideas or materials taken from another has plagiarized.

NOTE: A student who has assisted another in any of the aforementioned breach of standards shall be considered equally culpable. In cases of cheating or plagiarism, the instructor may take appropriate academic action ranging from loss of credit for a specific assignment, examination, or project to removal from the course with a grade of "F." Additionally, the instructor may request disciplinary action through the Office of Student Rights and Responsibilities as outlined in *The Golden Rule*.

## **Student Use of Technology**

Beginning with the Fall 2002 semester, the University of Central Florida expects all students to have ready access to a personal computer and software appropriate to his or her field of study. Students can meet this expectation by purchasing or leasing a computer, sharing a computer with family or roommates, or using a UCF computer lab.

All UCF students should expect to use a personal computer in many university activities, including course work, accessing library information, registering for classes, and e-mailing correspondence to instructors or fellow students. In addition, many UCF courses require the use of the Internet.

The University of Central Florida has developed one of the nation's most advanced campus technology environments, and all UCF students are provided free e-mail accounts and Internet access.

Students wishing to acquire a personal computer are strongly advised to consider a laptop equipped with a wireless networking card. Recommended configurations can be found on the university's website at <http://www.cstore.ucf.edu/store/standards.html>

## About the Graduate Catalog

### The Graduate Catalog

The Graduate Catalog is published by the Office of Graduate Studies and is the authoritative source for information regarding UCF graduate degree and certificate programs, admission requirements, and graduate policies and procedures for the academic year of publication. Beginning with the 2002-2003 Graduate Catalog, the catalog is published solely online and the online version is the official source of graduate information until it is archived in the UCF Libraries.

### Graduate Catalog Revision

In collaboration with the colleges and schools, the Office of Graduate Studies revises the catalog each year and in May or June publishes the new catalog for the coming academic year (e.g., the 2002-2003 graduate catalog applies to Summer 2002, Fall 2002, and Spring 2003). The Admission, Policies, Degree Programs, Certificate Programs, and Courses sections are considered the UCF graduate curriculum record and are archived as published for each academic year. These sections serve as key resources throughout a student's graduate study. Substantive changes are not made to these sections of the catalog during the academic year.

As new degree and certificate programs are approved, they will be added to the current graduate catalog. Each addition will include a statement at the beginning of the program information describing the effective date of the new program or program change and the date that the program information was added to the online catalog. Other sections of the catalog may be updated throughout the year to add or refresh information, including The UCF Advantage, About UCF, Registration, and Financial Information. Check the What's New section for important additions to the catalog during the academic year.

## Admission and Registration

### Overview

The Office of Graduate Studies coordinates the admission process with program coordinators and the deans of the colleges to admit prospective students to graduate study. Graduate Studies also admits students who are applying as nondegree students. To apply online or review program information, visit the Office of Graduate Studies website at [www.graduate.ucf.edu](http://www.graduate.ucf.edu). This section also includes registration information.

# Application Deadlines

## U.S. and Resident Alien Application for a Graduate Degree Program

Students applying for fellowships or assistantships must apply for the fall semester by the FALL PRIORITY date.

### College of Arts and Sciences

	<b>FALL PRIORITY</b>	<b>FALL</b>	<b>SPRING</b>	<b>SUMMER</b>
Biology (MS)	Feb 1	Jul 15	Oct 15	Feb 1
Chemistry - Industrial (MS)	Feb 1	Jul 15	Dec 1	Apr 15
Chemistry - Forensic Science (MS)	Feb 15	Mar 15	--	--
Communication (MA)	Feb 15	Jul 15	Dec 1	Apr 15
English (MA)	Jan 15	Jun 15	Dec 1	Apr 15
History (MA)	Feb 15	Jul 15	Dec 1	Apr 15
Liberal Studies (MA)	Feb 15	Jun 30	Nov 15	Mar 30
Mathematical Science (MS)	Feb 15	Jul 15	Dec 1	Apr 15
Mathematical Science (PhD)	Feb 1	Jul 15	Dec 1	Apr 15
Physics (MS)	Feb 15	Jul 15	--	--
Physics (PhD)	Feb 1	Jul 15	--	--
Political Science (MA)	Feb 15	Jul 15	Dec 1	Apr 15
Psych., Applied Experimental/Human Factors (PhD)	Feb 1	Feb 1	--	--
Psych., Industrial & Organizational (MS)	Feb 1	Feb 1	--	--
Psych., Industrial & Organizational (PhD)	Jan 15	Jan 15	--	--
Psychology, Clinical (MA)	Feb 1	Feb 1	--	--
Psychology, Clinical (PhD)	Jan 1	Jan 1	--	--
Sociology, Applied (MA)	Feb 15	Jul 15	Dec 1	Apr 15
Spanish (MA)	Mar 1	Jun 1	Dec 1	Mar 1
Statistical Computing (MS)	Feb 15	Jul 15	Dec 1	Apr 15
TESOL (MA)	Feb 15	Jun 15	Nov 1	Mar 15
Texts and Technology (PhD)	Dec 1	Dec 1	--	--
Theatre (MA and MFA)	Feb 15	Jun 1	Dec 1	May 1

## College of Business Administration

	<b>FALL PRIORITY</b>	<b>FALL</b>	<b>SPRING</b>	<b>SUMMER</b>
Sports Business Management (MSBM)	Feb 15	Apr 15	--	--
MBA Cohort (1 year, full-time program)	Feb 15	Apr 15	--	--
MBA (Non-Cohort) and Executive MBA	Feb 15	Apr 15	--	--
Other Master's Programs	Feb 15	June 15	Nov 1	March 15
Doctoral Program	Feb 1	May 15	--	--

## College of Education

	<b>FALL PRIORITY</b>	<b>FALL</b>	<b>SPRING</b>	<b>SUMMER</b>
Art Education (MA and MEd)	Feb 15	Jul 15	Dec 1	Apr 15
Education (PhD)	Dec 20	Feb 15	--	--
Curriculum/Instruction (EdD)	Feb 1	Feb 1	Sep 20	--
Curriculum/Instruction (EdD, Florida Gulf Coast Univ.)	Feb 1	Feb 1*	--	--
<b>*Next available term is Fall 2004</b>				
Curriculum/Instruction (EdS)	Feb 1	Jun 20	Sep 20	Feb 15
Curriculum/Instruction (MA and MEd)	Feb 15	Jul 15	Dec 1	Apr 15
Counselor Education (MA and MEd)	Feb 15	Mar 1	Oct 1	--
Early Childhood Education (MA and MEd)	Feb 15	Jul 15	Dec 1	Apr 15
Educational Leadership (EdD)	Feb 1	Feb 1	Sep 20	--
Educational Leadership (EdS)	Feb 1	Jun 20	Sep 20	Feb 15
Educational Leadership (MA and MEd)	Feb 15	Jul 15	Dec 1	Apr 15
Elementary Education (MA and MEd)	Feb 15	Jul 15	Dec 1	Apr 15
English Language Arts Education (MA and MEd)	Feb 15	Jul 15	Dec 1	Apr 15
Exceptional Ed: Varying Exceptionalities (MA and MEd)	Feb 15	Jul 15	Dec 1	Apr 15
Instructional Technology, Educational Media (MEd)	Feb 15	Jul 15	Dec 1	Apr 15
Instructional Technology, Instructional Systems (MA)	Feb 15	Jul 15	Dec 1	Apr 15
Instructional Technology, Educational Technology (MA)	Feb 15	Jul 15	Dec 1	Apr 15
Mathematics Education (MA and MEd)	Feb 15	Jul 15	Dec 1	Apr 15
Music Education (MA and MEd)	Feb 15	Jul 15	Dec 1	Apr 15
Physical Education (MA)	Feb 15	Jul 15	Dec 1	Apr 15
Reading Education (MEd)	Feb 15	Jul 15	Dec 1	Apr 15



School Psychology (EdS)	Feb 1	Mar 1	--	--
School Counseling (EdS)	Feb 1	Mar 1	Oct 1	--
Science Education (MA and MEd)	Feb 15	Jul 15	Dec 1	Apr 15
Social Science Education (MA and MEd)	Feb 15	Jul 15	Dec 1	Apr 15
Vocational Education (MA and MEd)	Feb 15	Jul 15	Dec 1	Apr 15

## College of Engineering and Computer Science

	<b>FALL PRIORITY</b>	<b>FALL</b>	<b>SPRING</b>	<b>SUMMER</b>
All master's programs in this college	Feb 15	Jul 15	Dec 1	Apr 15
All doctoral programs in this college	Feb 1	Jul 15	Dec 1	Apr 15

## College of Health and Public Affairs

	<b>FALL PRIORITY</b>	<b>FALL</b>	<b>SPRING</b>	<b>SUMMER</b>
Communicative Disorders (MA)	Feb 1	Feb 1	Oct 1	Feb 1
Criminal Justice (MS)	Feb 15	Jul 15	Dec 1	Apr 15
Health Sciences: Health Services Administration (MS)	Feb 15	Jul 15	Dec 1	Apr 15
Molecular Biology and Microbiology (MS)	Mar 15	Jul 15	Dec 1	Apr 15
Nursing (MSN, RN to MSN)	Mar 15	Jun 15	Oct 15	--
Physical Therapy (MS)	Jan 15	--	--	Jan 15
Public Administration (MPA)	Feb 15	Jul 15	Dec 1	Apr 15
Public Affairs (PhD)	Feb 1	Feb 17	--	--
Social Work (MSW)	Feb 15	Mar 1 *	--	--

\* Please see department for possible deadline extension

## School of Optics

	<b>FALL PRIORITY</b>	<b>FALL</b>	<b>SPRING</b>	<b>SUMMER</b>
All programs (MS and PhD)	Feb 1	Jul 15	Dec 1	Apr 15

## Graduate Studies

	<b>FALL PRIORITY</b>	<b>FALL</b>	<b>SPRING</b>	<b>SUMMER</b>
Biomolecular Sciences (PhD)	Feb 1	Feb 1	--	--
Modeling & Simulation (MS)	Feb 1	Jul 15	Dec 1	Apr 15

Modeling & Simulation (PhD)	Feb 1	Jul 15	Dec 1	Apr 15
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## Rosen School of Hospitality Management

	<b>FALL PRIORITY</b>	<b>FALL</b>	<b>SPRING</b>	<b>SUMMER</b>
Hospitality & Tourism Management (MS)	Feb 1	Jul 15	Dec 1	Apr 15

## International Application for a Graduate Degree Program

Students applying for fellowships or assistantships must apply for the fall semester by the FALL PRIORITY date.

	<b>FALL PRIORITY</b>	<b>FALL</b>	<b>SPRING</b>	<b>SUMMER</b>
International Applicants	Feb 15	Mar 1	Aug 1	Dec 1
Curriculum and Instruction (Specialist - EdS)	Feb 1	Feb 15	Aug 1	Dec 1
Curriculum and Instruction (EdD)	Feb 1	Feb 15	Aug 1	--
Counselor Education (MA and MEd)	Feb 15	Mar 1	Aug 1	--
Educational Leadership (Specialist - EdS)	Feb 1	Feb 15	Aug 1	Dec 1
Educational Leadership (EdD)	Feb 1	Feb 15	Aug 1	--
Engineering and Computer Science (master's)	Feb 15	Mar 1	Aug 1	Dec 1
Engineering and Computer Science (doctoral)	Feb 1	Mar 1	Aug 1	Dec 1
Molecular Biology and Microbiology (MS)	Feb 15	Mar 1	--	Dec 1
Nursing (MSN, RN to MSN)	Feb 15	Feb 15	--	--
Physics (MS)	Feb 15	Feb 15	--	--
Physics (PhD)	Feb 1	Feb 15	--	--
Psych., Applied Experimental/Human Factors (PhD)	Feb 1	Feb 1	--	--
Psychology, Industrial and Organizational (MS, PhD)	Feb 1	Feb 1	--	--
Psychology, Clinical (MA)	Feb 1	Feb 1	--	--
Psychology, Clinical (PhD)	Jan 1	Jan 1	--	--

## Application for a Graduate Certificate Program

	<b>FALL</b>	<b>SPRING</b>	<b>SUMMER</b>
University deadlines	Jul 15	Dec 1	Apr 15
Nursing certificate applicants	Jun 15	Oct 15	--

## Nondegree, Certificate, Transient, and Readmission Applications

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

Fall admission	July 15
Spring admission	December 1
Summer admission	April 15

## Reactivation Application

The program deadline. See the U.S./Resident Alien Application or International Application deadlines.

## Admission to Graduate Programs

In order to be considered for admission to a graduate program, the following documents must be submitted and on Filename in the Office of Graduate Studies: application forms, residency forms, and any required supporting documents specified by the program. These documents become part of UCF's Filenames and will not be returned to the applicant.

For specific program information, refer to the appropriate department descriptions in the graduate program 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, recommendations, essay/personal statement, resume) to be submitted online simultaneously. Official transcripts should be sealed in an envelope by the registrar of the former institution and sent directly to the Office of Graduate Studies, University of Central Florida, P.O. Box 160112, Orlando, FL 32816-0112.

## Applying to a Graduate Program

Application for admission to a graduate program should be submitted electronically via the Internet. In order to apply online, go to the graduate studies website, at [www.graduate.ucf.edu](http://www.graduate.ucf.edu), and click on the highlighted "Apply Online" sign. Those without web access may request an application form by mail or e-mail ([graduate@mail.ucf.edu](mailto:graduate@mail.ucf.edu)). U.S. citizens and resident aliens in the United States must submit the following application materials:

- Graduate Application for Admission form (signed by the applicant)
- \$20 application fee (not required if you have previously attended UCF or have applied within the past year)
- Residency Classification form
- One official transcript (in a sealed envelope) from each college/university attended

- 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 official language or if an applicant's bachelor's degree is from an accredited non-U.S. institution
- Free Application for Federal Student Aid (FAFSA), if financial support is desired
- Recommendations, if required by the program
- Essays or statements, if required by the program
- Professional resume, if required by the program
- 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, download and print this form from the online application. Send the completed form to the address specified on the form. This form is not used in making an admission decision. However, you will not be allowed to enroll at UCF without submitting the Health Form.

## Applying as an International Student

Application for admission to a graduate program should be submitted electronically via the Internet. In order to apply online, go to the graduate studies website, at [www.graduate.ucf.edu](http://www.graduate.ucf.edu), and click on the highlighted "Apply Online" sign. Those without web access may request an application form by mail or e-mail ([graduate@mail.ucf.edu](mailto:graduate@mail.ucf.edu)). If you are not a U.S. citizen or resident alien, you must submit the following application materials:

- 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 or have applied within the past year)

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
- One official transcript (in a sealed envelope) from each college/university attended.\*
- Transcript Evaluation (see "Transcript Evaluation" under "International Students" in this section of the catalog)
- GRE (or GMAT, if required by the program) scores sent directly to UCF. UCF 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, 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. UCF cannot accept international students without an official copy of the TOEFL. Please make arrangements to take this exam before submitting this application.
- Recommendations, if required by the program
- Essays or statements, if required by the program
- Professional resume, if required by the program
- 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, 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 on arrival will result in immediate deportation at the applicant's expense.

\*\* To expedite processing of materials, return this completed form with the rest of your application. This form is not used in making an admission decision. However, you will not be allowed to enroll at UCF without submitting the Health Form. The form can be found at <http://www.shs.ucf.edu/>

## Applying as a Nondegree Student

If you are interested in taking graduate courses at UCF for personal or professional enhancement or to prepare for possible admission to a graduate program, you may enroll as a nondegree-seeking student. In order to apply online, go to the graduate studies website, at <http://www.graduate.ucf.edu>, and click on the highlighted "Apply Online" sign. Then complete and submit the online application for the graduate nondegree-seeking program and the residency classification form. If you have not previously attended UCF or applied within the last year, a \$20.00 application fee must be received before the application can be processed. Also required are official transcripts showing an earned bachelor's degree. Prior to registration, a health form must be submitted to Student Health Services. The form can be downloaded from the online application site.

Please note that nondegree admission or admission to a graduate certificate program at UCF does not guarantee admission to graduate status in a degree program. International students are not eligible for nondegree status unless they hold an eligible visa status.

## Applying as a Transient Student

Students attending UCF for a term from another institution where they are receiving their degree are classified as transient students. Transient students can apply online as a nondegree-seeking student. In order to apply online, go to the graduate studies website, at [www.graduate.ucf.edu](http://www.graduate.ucf.edu), and click on the highlighted "Apply Online" sign. Required documents for transient students are:

- Graduate application for nondegree-seeking status (signed by the applicant)
- \$20 application fee (not required if you have previously attended UCF, are a State University System [SUS] transient student, or have applied within the past year)
- Health Form required if you are not an SUS transient student
- A letter from your home institution stating that you are in good academic standing and that the institution will accept the transfer of the hours

## Applying to a Certificate Program

If you are interested in taking graduate courses at UCF in a specialized or interdisciplinary area, you may enroll in one of our many graduate certificate programs. In order to apply to a certificate program, go to the graduate studies website, at [www.graduate.ucf.edu](http://www.graduate.ucf.edu), click on the highlighted "Apply Online" sign, and complete the online application for the graduate nondegree-seeking program. The following application materials are required:

- Graduate application for nondegree-seeking status (signed by the applicant)
- \$20 application fee (not required if you have previously attended UCF or have applied within the past year)
- Residency Classification form
- Health Form\*
- Official transcript showing an earned bachelor's degree

If you are a regular graduate student in a graduate degree program and wish to supplement your degree with a graduate certificate, you may do so by completing a Nondegree Application form indicating the certificate program. In order to complete a graduate certificate program, a student must apply and be admitted to a specific graduate certificate program.

\* To expedite processing of materials, return this completed form with the rest of your application. This form is not used in making an admission decision. However, you will not be allowed to enroll at UCF without submitting the Health Form. The form can be found at <http://www.shs.ucf.edu/>

## Accreditation

The University of Central Florida is accredited by the Commission on Colleges of the Southern Association of Colleges and Schools (1866 Southern Lane, Decatur, Georgia 30033-4097; Telephone number 404-679-4501) to award master's, specialist, and doctoral degrees. For the purposes of this catalog, "accredited institutions" means those institutions accredited by one of the six U.S. regional associations. 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

An applicant must have obtained a baccalaureate or higher degree, prior to the start of the term for which the student is admitted, from one of the above accreditation agencies or from a recognized foreign institution.

**Recognized institution:** An institution in a country outside of the United States that is recognized by that nation's Ministry of Education or similar authority, as a post-secondary, academic-degree-granting institution.

## Applications

Applications for admission to the university for degree-seeking or nondegree-seeking graduate study may be obtained from the graduate studies website at [www.graduate.ucf.edu](http://www.graduate.ucf.edu). Students are strongly encouraged to apply online. Online applications are processed more quickly, making it possible for programs to make earlier admission decisions. Those without web access may request an application form by mail or e-mail ([graduate@mail.ucf.edu](mailto:graduate@mail.ucf.edu)). An application fee is not required for students that have previously attended UCF or applied within the past one year.

### **Official Transcripts**

To be granted admission to UCF in graduate or nondegree status, all applicants must request official transcripts from the previous institution showing a baccalaureate degree and the grades for the last 60 semester (90 quarter) hours of attempted undergraduate work. Transcripts must be mailed directly from the previous institution to the Office of Graduate Studies at UCF. If grades were transferred from other schools in the last 60 semester hours, official transcripts from those schools also must be obtained and included. If applying to the Business, Social Work, or Psychology programs, all transcripts from all colleges attended are required. Final acceptance into degree-seeking graduate status is not granted unless an applicant's official transcripts and necessary test scores are on Filename so that they can be evaluated for admission.

### **Graduate Examinations**

The Board of Education (BOE) 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 (ETS) to the Office of Graduate Studies and be on Filename 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 GMAT exam is computerized and is available at Sylvan Learning Centers (407-671-2332). The GRE is also available in a computerized format at Sylvan and test scores are usually available in four to six weeks. Preparatory courses are offered through UCF's Division of Continuing Education (407- 882-0260).

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 the Office of Graduate Studies.

### **Deadline for Supporting Documents**

If the program has a specific deadline, all supporting documents are due by that deadline (see the "Application Deadlines" list elsewhere in this catalog). For all other programs and nondegree applicants, all supporting admissions documents should be received by the Office of 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. Transcripts should be sealed in an envelope by the registrar of the former institution and mailed directly to the Office of Graduate Studies.

### **Validity of Submitted Documents**

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

## **Family Educational Rights and Privacy Act**

The procedures for protecting the confidentiality of student records are based on state regulations and the federal Family Educational Rights and Privacy Act of 1974. FERPA affords students certain rights with respect to their education records. They are:

1. The right to inspect and review the student's education records within 30 days of the day the University receives a written request for access. Students should submit to the University Registrar, dean, head of the academic department, or other appropriate official, written requests that identify the record(s) they desire to inspect. The University official will make arrangements for access and notify the student of the time and place where the records may be inspected. If the records are not maintained by the University official to whom the request was submitted, that official shall advise the student of the correct official to whom the request should be addressed;
2. The right to request the amendment of the student's education records that the student believes are inaccurate or misleading.

The student may ask the University to amend a record that he or she believes is inaccurate or misleading. The student should write the University official responsible for the record, clearly identify the part of the record to be changed, and specify why the current record is inaccurate or misleading. If the University decides not to amend the record as requested by the student, the University will notify the student of the decision and advise the student of his or her right to a hearing regarding the request for amendment. Additional information regarding the hearing procedures will be provided to the student when notified of the right to a hearing;

3. The right to consent to disclosures of personally identifiable information contained in the student's education records, except to the extent that FERPA authorizes disclosure without consent. One exception that permits disclosure without consent is disclosure to school officials with legitimate educational interests. A school official is a person employed by the university in an administrative, supervisory, academic or research, or support staff position (including law enforcement unit personnel and health staff); a person or company with whom the University has contracted (such as an attorney, auditor, or collection agent); a person serving on the Board of Trustees; or a student serving on an official committee, such as a disciplinary or grievance committee, or assisting another school official in performing his or her tasks. A school official has a legitimate educational interest if the official needs to review an education record in order to fulfill his or her professional responsibility;
4. The right to File a complaint with the U.S. Department of Education concerning alleged failures by a State University to comply with the requirements of FERPA. The name and address of the office that administers FERPA is: Family Policy Compliance Office, U.S. Department of Education, 400 Maryland Avenue, SW, Washington DC, 20202-4605.

### **Directory Information**

FERPA authorizes the University to classify certain information concerning students as "directory information," which means that it may be released to anyone upon request. In accordance with Florida Statutes Section 228.093, the University is required to release student directory information to independent vendors upon request. Directory information at UCF includes

- name,
- current mailing address,
- telephone number,
- e-mail address,
- date of birth,
- major field of study,
- dates of attendance,
- enrollment status,
- degrees and awards received,



- participation in officially registered activities and sports; and,
- athletes' height and weight.

All other student information will be released in accordance with FERPA; in most cases this requires the student's prior written and signed consent. The University extends to students the opportunity to withhold any or all information, including "directory information." To do this, students must complete the appropriate form in the Registrar's Office (MH 161), requesting that this information be withheld. The Golden Rule outlines the University procedures for confidentiality. For additional information describing FERPA policy, enter the Department of Education Family Policy Compliance Office website at <http://www.ed.gov/offices/OM/fpco/>.

### **Higher Education Act**

Lists, descriptions, and sources of information required for disclosure under the Higher Education Act may be obtained from the Registrar's Office (MH 161) or from <http://pegasus.cc.ucf.edu/~enrsrvc/registrar/HEA.html>.

## **Medical History Report**

All new students must furnish medical history reports on the approved university health form before registration will be allowed. The Health Form is available from the office of Student Health Services and at <http://www.shs.ucf.edu/>. This form should be completed and mailed to the address on the form. Those students who will take courses solely on the web, and never come to UCF or an area campus, are not required to fill out the Health Form. 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.

## **Reactivating a Prior Application**

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

## **Admission to the University**

The admission process begins with the receipt of the Graduate Application for Admission online. As soon as the application is received, Graduate Studies will send you an e-mail notifying you of its receipt. Actual processing of

the application, however, is not initiated until the application fee and other required materials are received in the Office of Graduate Studies. Providing Graduate Studies with all the required information in a timely manner expedites the admission process.

After all application information has been received, it is reviewed by the appropriate degree program in order to make an admission decision. Acceptance into a graduate degree program will be granted by the academic program.

Nondegree-seeking applicants will receive notice of acceptance to the university and registration information from the Office of Graduate Studies. Admission as a nondegree student does not constitute admission to a graduate program.

## **Readmission to the University**

A regularly admitted student who has not been registered for two major semesters (spring/fall) must apply for readmission to the graduate program through the Office of Graduate Studies. Students can complete the readmission application online at [www.graduate.ucf.edu](http://www.graduate.ucf.edu). Please refer to the [Application Deadlines](#) for your program.

## **Continuous Attendance**

Graduate students should be aware of three policies regarding continuous attendance at the university. The first may affect continuing status as a graduate student. The second requires thesis and dissertation students to be enrolled continuously. The third affects the student's option to fulfill degree requirements under any UCF catalog in force during the student's most recent period of continuous attendance.

- Students may not be guaranteed continuing graduate status if they do not enroll in the university for a period of two major semesters (spring/fall). When students apply for readmission, after having been out two or more semesters, the program will review the students' records to determine if they will be continued in graduate status or be reverted to nondegree status.
- Students taking thesis or dissertation hours are required to be continuously enrolled until the thesis or dissertation is completed.
- Graduation policy allows a student to fulfill degree requirements as listed in their official program of study on Filename 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 Filename, 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 the Office of Graduate Studies, the degree program coordinator will admit the applicant as a degree-seeking graduate student or deny the applicant. Admission to graduate status can be in one of four categories: regular, conditional, provisional, or restricted status. Applicants should contact the department directly for admission decision information.

# 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-6.003 to appeal that decision. The appeal procedure consists of the student writing a letter within thirty days of the date of denial 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 admission action to the department chair.

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

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

## Admission Classifications

### 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 systemwide requirements of the Board of Education (BOE) for admission to regular graduate status are listed below.

Individual degree programs may specify additional requirements. Programs may require a minimum GRE General Test score more stringent than the BOE 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 1000 or higher on the General Test (quantitative and 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 Education; 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 name 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. Programs are encouraged to have more restrictive admission requirements than the BOE requirements. Program requirements may be based on other factors such as work experience, research interests of the prospective student, evidence of extracurricular or community work, personal interviews, or other factors specified by the program.
- 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 computer-based

TOEFL score of 220 (or equivalent score on the paper-based test) is required unless otherwise specified by the program.

### **Graduate Status—Conditional**

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

### **Graduate Status—Provisional**

A student who does not fulfill the minimum BOE 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 nine 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 nine semester hours, then reverted to nondegree 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 nondegree status. (See “Appeals” under “University Graduate Regulations.”)

### **Graduate Status—Restricted**

Even though BOE minimum requirements are met, a program may attach restrictions to the admission of an applicant, such as higher GRE or GPA requirements, completing certain prerequisite courses, retaking the GRE, maintaining a certain GPA in the first few hours of a graduate program, etc. Students may be denied admission to regular graduate status if the conditions are not met.

## **Nondegree Status**

Students are generally placed in this category at their request. International students are not eligible for nondegree status unless they hold an eligible visa status.

A student may elect to remain in nondegree 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 nondegree status, students are allowed to take graduate courses, in some departments, on a space-available basis. Nondegree students may also enroll in specific graduate certificate programs. Not all departments accept nondegree 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 nondegree 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. Students who take nine credit hours in nondegree seeking status will be placed on hold until they have signed and submitted a Nine-Hour Hold Release form. In general, at the discretion of the program, students accepted into graduate programs may transfer all the hours from a graduate certificate program into a graduate program.

## **Change of Major or College**

When students wish to change their major or college, after having been admitted to a graduate program, they must file a new application for the new program at the Office of Graduate Studies. The program coordinator of the new program will then decide whether to admit the student. Nondegree 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 semester hours from a completed master's program at UCF or any other institution may be transferred into a second master's program if the courses are not more than seven years old when the second degree is completed.

## Transcript Requests from UCF

**For UCF students applying to UCF graduate programs:** You do not need to request transcripts of your UCF course work. The Office of Graduate Studies will request those transcripts internally.

**For students requesting UCF transcripts for other purposes:** Transcripts of a student's UCF academic record may be requested by the student through the Registrar's Office. A student's academic record can be released only upon written authorization by the student. Information and a transcript request form is available at [www.registrar.ucf.edu](http://www.registrar.ucf.edu). When requesting a transcript, be sure to include your full name and social security number and indicate the names and complete addresses to which 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. There is a charge for requested transcripts 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 that would otherwise be lost to the U.S. students. Effective personal contact across cultures can reduce errors in understanding one another's problems and foster a climate of international peace and cooperation among people of the world today.

## Financial Statement for International Students

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

## Official Transcripts

Official transcripts are required. To be official, transcripts and certificates must bear the original seal or signature of the school's registrar or of the appropriate school official or office. 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). Some programs require a transcript evaluation regardless of GRE (or GMAT) score for those who have attended a college/graduate program outside the United States. Please check with the college or graduate program to determine if this is required. If transfer credits are desired from previous work at an international institution, then a transcript will be required. An admission decision may be delayed by the failure to produce a transcript evaluation. Effective for those students applying for the Fall 2003 semester or later, no outside evaluation of international credentials will be required.

UCF accepts transcript evaluations from the following agencies:

World Education Services, Inc.  
PO Box 01-5060, Miami, FL 33101  
E-mail: [SOUTH@WES.ORG](mailto: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 for that semester. Failure to meet these deadlines may prevent admission as

a regular graduate student for the term. The following dates are university application deadlines for international students.

**Fall admission:** March 1

**Spring admission:** August 1

**Summer admission:** December 1

In addition, students who wish to be considered for fellowships or assistantships must apply by February 15 (or the designated Fall Priority date for their program). Please refer to the Application Deadlines in this catalog for programs that have other deadlines for international applicants.

## Test of English as a Foreign Language

International students, except those who are from countries where English is the only official language or those who have earned a degree from an accredited American college or university, are required to submit a score on the Test of English as a Foreign Language (TOEFL) before they can be admitted to the university. When the official test score is received in the Office of 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 computer-based score of 220 (or equivalent score on the paper-based test) is required unless otherwise specified by the program. The list below includes programs that have determined a minimum required TOEFL score higher than the university requirement.

<b>Program</b>	<b>TOEFL (Paper)</b>	<b>TOEFL (Computer)</b>
<u>College of Arts and Sciences</u>		
Biology	573	230
English	577	233
History	577	233
<u>College of Business Administration</u>	577	233

## 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 Education's 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 Office of International Student and Scholar Services 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 an insurance carrier from outside of the United States issues the insurance, a notarized statement, in English, must be provided attesting to meeting the minimum coverage mandated by the state of Florida.

# Registration

During each academic semester, registration is held for all new, currently enrolled, degree-seeking, and nondegree-seeking students for the following term. There are two registration sessions for each term:

- Registration and Add/Drop
- Late Registration and Add/Drop

Spring Registration is held following midterm for the fall semester. Summer and fall 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 Web Guide*.

## Online Registration

Registration is available online on the Web through the POLARIS system. To access the system (<https://connect.ucf.edu>), you will need to enter your Personal IDentification number (PID) and password.

### **PID (Personal IDentification Number)**

Students obtain the Personal IDentification Number (PID) on their first login to POLARIS. The initial login will use a Default Password. Following instructions, students choose a new Password and reminder clue.

### **Online Registration Information and Course Schedules**

Registration information and course schedules are available online for both new and continuing students at <https://connect.ucf.edu>.

### **Schedule Web Guide**

The *Schedule Web Guide* is published once for summer and fall terms and once for spring term by the Registrar's Office and is available online (see <http://registrar.ucf.edu>) as well as in print. The guide includes instructions for registration by POLARIS as well as other essential information for new and continuing students.

## New Graduate Students

All new first-term graduate students must have health 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 on the Web at <http://www.shs.ucf.edu/>.

## Continuing Graduate Students

Continuing graduate students register through POLARIS on or after the assigned appointment day and time, which can be found in POLARIS. 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 adviser or department office. The college graduate office will normally register students into these courses.



## Nondegree-seeking Students

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

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

Only up to nine hours taken in nondegree-seeking status may be used toward a graduate degree. Students who have completed nine credit hours in nondegree-seeking status will be placed on hold until they have signed and submitted a Nine-Hour Hold Release form.

## Hold

A hold (negative service indicator) may be placed on students' records, transcripts, grades, diplomas, or registration due to financial or other obligations to the university. Satisfaction and clearance of the hold is required before a release can be given. Students may check for holds on the POLARIS system at <https://connect.ucf.edu>. To obtain an immediate release for financial holds, payment to the Cashier's Office (Millican 111) must be made in cash, credit card, cashier's check, or money order in U.S. currency.

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 the Office of Graduate Studies (Millican Hall 230) and switch to nondegree status.

Those students who are placed on nine-hour holds must sign a Nine-Hour Hold Release form provided by Graduate Studies in order to release the registration hold. This is to ensure that students are aware of the UCF policy that no more than 9 credit hours taken in postbaccalaureate, nondegree-seeking status are allowed in a graduate program of study should they be admitted in the future.

## Audit Registration

Audit students are those who desire to attend classes without receiving academic credit. Regular tuition and fees are assessed for audit registration. See "Tuition and Fees" for more information about the cost of auditing classes at UCF. Audit registration is on a space-available basis at the prescribed time of Registration, or at any time during Add/Drop when Late Registration fees will apply. Audit requests for students who register prior to this time will be denied. Students may not change to audit status after Add/Drop, but must remain in the course or withdraw through normal withdrawal procedures. New students must be accepted for admission. Audit forms,

available on the Registrar's website and in the Registrar's and college advising offices, must be signed by the instructor and presented to the Registrar's Office at the time of registration.

## Senior Citizen Audit

Senior citizens (60 years of age or older) who have been residents of the State of Florida for at least one year as of the first day of classes may enroll tuition free as audit students (i.e., no academic credit) on a space-available basis. Forms to be completed include the "Residency Affidavit," the "Student Health History," and the "Senior Citizen Audit Application." and "Senior Citizen Audit Registration Form" These forms are available in the Registrar's Office (MH 161) or at the Registrar's website:<http://registrar.ucf.edu> <http://registrar.ucf.edu>. It is necessary to complete the required forms during the last hours of registration as noted in the "Academic Calendar" of the *Schedule Web Guide*. Direct student expenses after the completion of registration include the campus ID card, vehicle registration, and textbooks.

## State Employee Registration

During fiscal year 2001-2002 state employees will not register for classes on the last day of registration, as they had previously. Effective through June 30, 2002, state employees will be assigned appointment days and times according to the total number of earned credit hours and grade point average. This appointment may be obtained through POLARIS at <https://connect.ucf.edu>. As of this publication's press date, policy regarding state employee registration and tuition vouchers beyond June 30 had not been determined. Check the Registrar's Office website at <http://registrar.ucf.edu> for state employee registration updates. Check the Office of Human Resources website at <http://www.hr.ucf.edu/> for current tuition voucher information.

## State Tuition Exemption Program (STEP) (National Guard) Registration

State of Florida employees and State Tuition Exemption Program (STEP-National Guard) students register during registration. These registrations are on a space-available basis only. State employees are required to submit the "Employee Tuition Fee Waiver Form," which may be obtained from Human Resources. Registration before the time specified in the "Academic Calendar" of the *Schedule Web Guide* will result in the student being assessed regular fees. The tuition fee waiver cannot be used for courses that require increased costs, including, but not limited to courses offered through the Center for Continuing Education, independent study, supervised research, supervised teaching labs, thesis hours, dissertation, internships, co-ops, practicums, or applied, individualized instruction in music, art, or dance. Eligible members of the active Florida National Guard may receive a waiver of 50 percent of tuition and material and supply fees. Registration is on a space-available basis during the last hours of registration as noted in the "Academic Calendar" of the *Schedule Web Guide*. STEP students must present a "Certification" letter to the Student Accounts Office (MH 107) to receive waiver of eligible fees.

## Fee Payments

All graduate students must pay their tuition and fees by the published fee payment deadline. If a department or college has not recorded tuition support 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 published deadline. It is important for graduate students to register early to provide the department or college enough time to record tuition support.

## Fee Invoices

You are not assured of being registered for any class until you print out your Fee Invoice/Schedule. Your fee invoice lists your fees and the classes in which you are registered. Please print a new invoice if you drop or add classes so that the invoice will reflect changes in your fees. If you wish to pay your fees by credit card, press the “ePay fees” button, which will take you to the UCF online credit card payment system. Be sure to have your current address on Filename (see “Address Changes,” below).

Fee Invoices are available on POLARIS and in these offices: Arts and Sciences, FA 202; Business Administration, BA 240; Education, ED 109; Engineering and Computer Science, ENGR 281; and 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. Distance learning students are only required to submit the medical history form.

Students are not allowed to register without proper health information documentation. 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: [tgcooper@mail.ucf.edu](mailto:tgcooper@mail.ucf.edu)). Office hours for Student Health Services are Monday-Friday, 8:00 a.m. to 8:00 p.m., and Saturday, 10:00 a.m. to 5:00 p.m. (Holiday hours are 8:00 a.m. to 5:00 p.m.) Visit the Student Health Services website [www.shs.ucf.edu](http://www.shs.ucf.edu) for additional information.

## Name Changes

“Official Name Change” forms, available in the Registrar’s Office (MH 161) or the Registrar’s website (<http://registrar.ucf.edu>), must be submitted to change the legal name maintained on the student record. Obtain a notary public seal and attach copies of legal name change documents (e.g., marriage certificate, divorce decree, etc.). Submit the completed form and all documents to the Registrar’s Office (MH 161).

## Address and E-Mail Changes

In order to communicate with students, the university uses the address given in the student’s application for admission or readmission. If the student’s address changes, it is the student’s responsibility to make the appropriate changes to the address. “Address Change” forms may be obtained from the Registrar’s website (<http://registrar.ucf.edu>), college advising office, from the Registrar’s Office (MH 161), from the Office of Graduate Studies (MH 230), or from the Graduate Studies website (<http://www.graduate.ucf.edu>). Address and e-

mail changes can be made in the Registrar’s Office, on POLARIS (<https://connect.ucf.edu>), or at any of the kiosks located on campus. Address and e-mail changes also can be made by writing the Registrar’s Office, P.O. Box 160114, Orlando, FL 32816-0114 or fax to 407-648-5022. Written requests must be signed and the student number provided. Address changes can also be made by writing the Office of Graduate Studies, University of Central Florida, P.O. Box 160112, Orlando, FL 32816-0112 or fax to 407-823-6442.

## Transcript Requests

Requests for official transcripts are made through the Registrar’s Office (in person, by mail, or by fax). “Transcript Request Forms” are also available on the Registrar’s website, <http://registrar.ucf.edu>. A student’s academic record can be released only upon written authorization signed by the student. Telephone and e-mail requests are not accepted. Transcripts cannot be released if the student is on hold due to a financial obligation to the University. Transcript requests must include the student’s signature, full name, identification number, and the name and complete address of the person(s) or organizations to whom transcripts are to be sent. If final grades or degree statement are needed, indicate that the transcript request is to be held until all requested data are posted.

Effective Summer 2002, a \$5 per transcript charge will be assessed for each transcript request. Payment for official transcripts is required at the time of request and may be satisfied by cash, check (made payable to UCF), money order, or UCF Card. Requests received by mail must be accompanied by a check or money order. Cash payments can be accepted only by the Cashier’s Office during that office’s regular business hours. The UCF Card payment option is available only at the main Orlando campus and must be made in person at the Registrar’s Office (MH 161). Mail written requests for transcripts to: Registrar’s Office, Attn: Transcripts, P. O. Box 160114, Orlando, FL 32816-0114. For fax request information and payment procedures, refer to <http://registrar.ucf.edu> or call 407-823-3100. Transcripts may be sent electronically to other Florida public institutions.

Unofficial transcripts and grades are available from all UCF kiosks and POLARIS at <https://connect.ucf.edu>.

## Enrollment Certifications

To confirm enrollment in the University, students should obtain the form from the Registrar’s website or the Registrar’s Office (MH 161). Picture identification is required. Enrollment certifications will be generated only for current and/or future semesters. The Registrar’s Office will process requests after the close of “Late Registration and Add/Drop” for the semester that you have requested enrollment certification. Enrollment status is determined as described in the following tables.

### Enrollment Status for Fall and Spring Terms

<b>Nondegree-seeking</b>		<b>Degree-seeking</b>	
<u>Status</u>	<u>Credit Hours</u>	<u>Status</u>	<u>Credit Hours</u>
Full	12 or more	Full	9 or more
Half	6, 7, 8, 9, 10, or 11	Half	4.5**, 5, 6, 7, or 8
LTHT*	less than 6	LTHT	less than 5

### Enrollment Status for Summer Term

<b>Nondegree-seeking</b>	<b>Degree-seeking</b>
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<u>Status</u>	<u>Credit Hours</u>	<u>Status</u>	<u>Credit Hours</u>
Full	12	Full	6
Half	6	Half	3
LTHT*	less than 6	LTHT	less than 3

\* LTHT = Less Than Half Time

\*\* 4.5 hours applies only to College of Business Administration credit hours.

**For students receiving university fellowships, assistantships, and tuition support,** full-time graduate status is defined as 9 hours of course work during the fall and spring terms and 6 hours during the summer term. However, there are two exceptions to this policy:

- Students in their last semester who need less than 9 hours to complete their program, unless they are receiving federal loans. These students are considered full time if they enroll in the hours required for program completion. This is a one-time only exception.
- Doctoral students who have finished all of their course work and passed their candidacy exam. These students are considered full time if they enroll in 3 hours of dissertation research (XXX 7980) for each term until degree requirements are completed, unless they are receiving federal loans.

Students taking thesis or dissertation hours are required to be continuously enrolled until the thesis or dissertation is completed. One hour of thesis does not constitute full-time status unless the student is in the final semester and this is the only remaining requirement as above.

**Federal loan recipients** must take one half of the definition of full time in order to keep the loan, at least 5 hours\*\* in the fall and spring terms and 3 hours in the summer term.

**Veterans** must take at least 9 hours per semester during the fall and spring terms (6 hours during the summer term) to be considered full time.

**Students on family insurance policies that require full-time status** must take at least 9 hours per semester in the fall and spring terms (6 hours in the summer term) to be considered full time. Students classified as nondegree-seeking must enroll in at least 12 hours of course work in order to be considered full time.

## 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 will be released only upon receipt of a written request signed by the student. Student records are stored in paper form or are digitally scanned. Once the student has been absent from the university for three academic years, all records are transferred to optical disk storage and the paper copies destroyed.

## Withdrawal Policy

Withdrawal for each term begins after "Late Registration and Add/Drop" ends. Students may withdraw from a class and receive the notation of "W" until the date noted in the "Academic Calendar" of the *Schedule Web Guide*. A student may withdraw from courses using POLARIS at <https://connect.ucf.edu>, or by visiting the Registrar's Office (MH 161), certain college advising offices, or an area campus records office. Students may withdraw by

fax at 407-823-5652. Faxed requests must be received by 5:00 p.m. on the last day to withdraw and must include the student's identification number, the course(s) to be dropped, and the student's signature. Students also may send a written request to the Registrar's Office by mail (to P.O. Box 160114, Orlando, FL 32816-0114). This letter must be time-stamped or postmarked before the published withdrawal deadline and must include the student's identification number, the course(s) to be dropped, and the student's signature. Students seeking to withdraw in person must sign the request and must provide photo identification. The official date of withdrawal is the date the university receives the withdrawal request. Requests received by mail are processed using the postmark as the official date of withdrawal.

A student is not automatically withdrawn from a class for not attending, nor can an instructor withdraw a student from a class. Upon request the instructor will provide the student with an assessment of the student's performance in the course prior to the last day of withdrawal.

No withdrawal is permitted after the deadline except in extraordinary circumstances such as serious medical problems. Unsatisfactory academic performance is not an acceptable reason for withdrawal after the deadline. Students seeking to petition for a late withdrawal should consult Academic Services (MH 210). At the time of the request, Academic Services will ascertain from the instructor whether the student was passing or failing the course. If the student was passing, a "WP" will be recorded on the student's permanent record; if failing, a "WF" will be entered. Medical and late withdrawals normally are for all courses taken in the semester.

Students who seek late withdrawal because they are ill must apply for the withdrawal within six months of the term from which the withdrawal is sought. Students seeking a late withdrawal because of medical conditions must follow the medical withdrawal procedure. The student's physician provides the university with the appropriate medical information, using the forms available in the Office of Academic Services. A medical withdrawal must be for all classes in the term.

If a medical withdrawal is approved, a "WM" will be recorded for each course. Students who receive a medical withdrawal may be placed on hold until the university can determine that the student is ready to return. If a medical withdrawal is not approved, the request may be approved as a late withdrawal and grades of "WP" or "WF" will be recorded. A grade of "WF" will affect the calculation of the student's grade point average.

If a student withdraws from a course while an alleged academically dishonest act is under consideration, and the case is not subsequently resolved in favor of the student, the university reserves the right to assign the appropriate grade for the course.

## **Financial Support**

Graduate students who will be supported on assistantships must contact their program coordinator to see that their employment contract form is filled out and to request tuition support. Paychecks are delayed when these arrangements are not made prior to the beginning of the semester. All graduate students who are receiving fellowships should register as early as possible so that payment arrangements can be made by the Office of Graduate Studies.

### **Student Responsibility to Inform Offices**

All graduate students who have financial aid, or who need financial support in order to attend UCF, should be sure to inform all appropriate offices of all changes in financial status. Remember to inform the departmental office, the Office of Student Financial Assistance, and the Office of Graduate Studies of all changes related to enrollment, graduate status, or financial support.

## Parking

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.

### Visitor Information Center

To park on campus without a permit, purchase a daily permit at the Visitor Information Center across from Millican Hall or from the pay-and-display machines on campus. Daily permits are valid only in student lots. Meters are also available in selected locations.

## Financial Information

### Overview

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 include tuition, course-related fees, textbooks, other instructional supplies, room and board, and miscellaneous items.

## Tuition and Fees

Student Accounts Office, Millican Hall 107,  
Telephone (407) 823-2433  
Dan Mayo, Associate Controller

Required fees are established by the University Board of Trustees and are subject to change without notice. Fees are affected by residency status.

Students are encouraged to obtain a "Fee Invoice" to confirm fees and course registration. Fee invoices are not mailed. Fee invoices are available on the POLARIS web system and kiosks, from student's college advising offices, and in the Registrar's Office. Students must obtain a new "Fee Invoice" after making any course changes or schedule adjustments.

All university fees must be paid according to published dates and no later than the end of the Late Registration and Add/Drop period. Fees not paid by the payment deadline date for each term will result in late fees and could result in the cancellation of all classes.

The following schedule applies to all UCF students:

### 2002-2003 Tuition and Fee Schedule

**Florida Resident**

**Non-Florida Resident**

<u>Fees Per Credit Hour</u>	<u>Undergraduate</u>	<u>Graduate</u>	<u>Undergraduate</u>	<u>Graduate</u>
Matriculation Fee	\$58.45	\$147.34	\$58.45	\$147.34
Non-Resident Fee	0	0	\$300.49	\$465.33
Building Fee	\$2.32	\$2.32	\$2.32	\$2.32
Capital Improvement Fee	\$2.44	\$2.44	\$2.44	\$2.44
Financial Aid Fee	\$2.91	\$7.01	\$2.91	\$7.01
Non-Res Financial Aid Fee	0	0	\$13.13	\$20.34
UCF Activity and Svc Fee	\$8.09	\$8.09	\$8.09	\$8.09
UCF Athletic Fee	\$9.90	\$9.90	\$9.90	\$9.90
Transportation Access Fee	\$3.90	\$3.90	\$3.90	\$3.90
<b>TOTAL PER HOUR FEES</b>	<b>\$88.01</b>	<b>\$181.00</b>	<b>\$401.63</b>	<b>\$666.67</b>

**Other Fees: Resident and Nonresident \***

ID Service and Access Fee (per academic year)	\$10.00
ID Service and Access Replacement Fee	\$15.00
Health Fee	\$6.00 per credit hour Minimum charge: \$36.00 Maximum charge: \$90.00
Material and Supply Fee (approved courses only – varies per course)	\$5.00-\$45.00
Late Registration Fee (students who initially register during Late Registration)	\$100.00
Late Payment Fee (failure to pay, defer or present waiver for fees by payment deadline)	\$100.00
<b>Returned Check Fees (checks returned for any reason):</b>	
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
Transcript Fee	\$5.00 per transcript

**Student Health Fee:** Mandatory fee assessed to all students except those enrolled at area campuses (i.e., UCF Cocoa, UCF Daytona, UCF Downtown, UCF Lake Sumter, UCF Palm Bay, UCF South Orlando, UCF Seminole, and UCF Valencia) and exclusively in Continuing Education courses.

**Zero Hour Registration:** Students registering for zero credit hours pay for a minimum of one credit hour at the level they are classified.

\*Fees are subject to change without notice. Rates for the 2003-2004 academic year will be available in early July 2003.

## **Application Fee**



The \$20.00 application fee for graduate admission 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). This fee is not refundable.

## **Registration Fees**

Registration fees per semester or term are shown above 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.

## **Late Registration Fee**

Beginning Fall 2002, students who register for the first time during Late Registration and Add/Drop will be assessed a Late Registration Fee of \$100.

## **Payment Deadline**

### **Pay Now or Pay More**

Failure to pay fees or obtain a deferment of fees by the payment deadline will result in the assessment of a \$100.00 Late Payment Fee. Students registering for UCF 1500 "UCF Temporary Course" must pay for this temporary class to avoid the Late Payment Fee.

### **Student Financial Responsibility Statement**

Registration at UCF requires students to acknowledge the following financial responsibility statement: "I accept responsibility for payment of my term tuition and fees by the published deadline. I understand that if I fail to pay my tuition and fees by the deadline, I will be charged a \$100 Late Payment Fee, my records will be put on hold, my account will be referred to a collection agency, and I may incur other financial consequences."

### **Late Registration Fee and Late Payment Fee Appeals**

Students who desire to appeal a Late Registration, and/or Late Payment, may make their appeal to the Fee Appeals Committee by initiating a student petition (Form 41-561). This form can be obtained online at [www.fiacctg.ucf.edu](http://www.fiacctg.ucf.edu)>[Student Accounts](#)>[forms](#), from the University Cashier or from the Student Accounts Section of Finance and Accounting. Students must submit their petitions to Student Accounts (MH 107) and may appear before the Committee (not mandatory).

## **Past Due Accounts**

All financial obligations to the university must be met. Failure to meet obligations can result in the withholding and denial of registration and readmission to the university. The services of a professional collection agency and recourse to the courts may also be invoked if deemed necessary. All costs of collection, including attorney's fees, are borne by the debtor.

## **Acceptable Forms of Payment**

Acceptable forms of payment are cash, cashier's checks, money orders and credit cards. Credit card payments may be made online, through POLARIS, at the Cashier's Office (MH 109) or by a telephone call to the Cashier's Office at 407-823-2614. A mandatory, nonrefundable \$10 convenience fee will be charged each time a student chooses to pay tuition or other state mandated fees with a credit card.

## Payment Procedures

Payment must be received or postmarked no later than the fee payment deadlines specified. Payment may be made at the Cashier's Office (MH 109). Operating Hours are Monday and Thursday from 8:30 a.m. to 7:00 p.m. and Tuesday, Wednesday, and Friday from 8:30 a.m. to 4:00 p.m. Students may submit payment after Cashier's Office operating hours at the Cashier's night depository (located at the pond entrance of Millican Hall) or through the enrollment screen "ePay" option on POLARIS at <https://connect.ucf.edu>. Payments (no cash) placed in the night depository by the official fee payment deadline will be considered "on time." Students may also submit payment by mail. Mailed payments must be postmarked no later than the payment deadline. Please include the student's PID on checks or money orders.

Payment guidelines for Limited Non-Degree enrollment classes can be found on the "Registration Form for Non-Admitted Students." It is the student's responsibility to officially drop or withdraw from courses so as to avoid additional financial obligations.

**Do not send cash.** Address payments to: University of Central Florida, P.O. Box 918449, Orlando, FL 32891-8449.

**Do not assume your registration will be canceled if you fail to pay fees or attend classes.** Tuition deferrals will prevent class cancellation for nonpayment. Payment guidelines for off-campus registration are contained on the off-campus registration form.

## Refund of Fees

A refund of fees will be made under the conditions noted below. A written appeal for a refund or other appeal action must be submitted to the university within six months of the close of the semester/term to which the refund or other appeal action is applicable. Any debts to the university will be deducted from the refund, up to the full amount.

### **A full refund is due when:**

1. Any class is dropped before the end of the Add/Drop period;
2. Cancellation of the course by the university; or
3. Student is denied admission to an offered course.

**Partial refund due to complete withdrawal from the university:** for the Fall and Spring semesters, a 25 percent refund of tuition is available for students who completely withdraw from the university by the end of the fourth week of classes. For the Summer term, complete withdrawal from an individual session must occur before the first quarter of classes has elapsed for that session. Each session in the Summer term is considered individually for partial refund purposes. The exact withdrawal deadline dates for each term may be obtained from the Student Accounts Office.

**Refunds for exceptional circumstances at any time upon withdrawal from one or more courses:** 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.

## **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

Filename a Residency Classification form with the Office of Graduate Studies.

**The Office of Graduate Studies reserves the right to require additional documentation as seen necessary to accurately determine the residency status of a student.**

## Residency Reclassification

The offices of Undergraduate Admissions and Graduate Studies determine first term at UCF residency for tuition purposes for all newly admitted students. Thereafter, the Registrar's Office will review undergraduate student requests for changes in residency.

To request a residency review, the student must submit a completed "Residency Reclassification Request Form" and supporting documents to the Registrar's Office (MH 161). This form is available either at the Registrar's Office or online at <http://registrar.ucf.edu>. The reclassification form must be accompanied by all documents that support the student's Florida residency claim. Residency reclassification requests are subject to Florida Statute 240.1201, Florida State Board of Education Administrative Code 6A-10.44, and State Board of Education rule 6C-7.005. In addition, university policy requires students requesting residency reclassification to provide documentation establishing that they have income or personal sources to meet financial obligations of attendance and living expenses. Contact the Registrar's Office at 407-823-3100 for additional information regarding all residency reclassification requirements.

When building a case for Florida residency for tuition purposes, the student may choose to submit documents from a variety of categories. Students may consult the Registrar's Office before submitting the reclassification request and supporting documents. The Registrar's Office will evaluate the submitted documents and available information and will render an eligibility determination. UCF is authorized to make discretionary judgments as to residency within the bounds of the law and in reaching this professional judgment will evaluate all documents submitted and information available. No single document shall be conclusive.

Students seeking residency reclassification should understand that living in or attending college in Florida is not tantamount to establishing residency in Florida for tuition purposes. The student who comes to Florida to enroll in a Florida post-secondary educational institution as an out-of-state resident and continuously enrolls in a Florida institution normally will not meet the Florida residency requirement for in-state tuition regardless of the length of time enrolled. Living or attending school in Florida merely evidences physical presence. The student must provide documentation verifying that he or she has formed significant legal ties to the State of Florida. This documentation must establish that the Florida residence constitutes a bona fide domicile rather than serving the purpose of maintaining a mere temporary residence or abode incident to enrollment in an institution of higher education. Evidence establishing legal ties to states other than Florida may disqualify the student from Florida residency for tuition purposes. All determinative documents must be dated at least 12 months before the first day of class for the term in which residency is sought.

New and continuing students who believe that they qualify for Florida residency must submit the request and all documents prior to end of "Late Registration and Add/Drop" for the term in which Florida residency is requested. Documentation received after the last day of "Late Registration and Add/Drop" will not be used to determine residency for the current term.

## **Tuition Support**

Graduate students who are employed as graduate assistants or receiving fellowships may also receive tuition support as part of their financial package. Usually, tuition support pays only matriculation and nonresident fees (charges for course hours) and does not pay local fees (health fee, athletic fee, etc.). Tuition support is generally described in the student's letter of admission acceptance and statement of financial awards. Students should contact their program of study (department) if they have questions about the tuition support that will be provided.

Certain fellowships also provide tuition support. Students should review the letter offering the fellowship and the terms of the award to see if tuition support is included. Students should review the fellowship descriptions in order to determine which fellowships include tuition support. Specific questions concerning the amount of tuition that might be included with a given fellowship may be directed to the Office of Graduate Studies.

## **Tuition Support Requirements**

Graduate students must meet all of the following requirements each term that they receive tuition support.

- Students must be full-time graduate students enrolled for at least 9 hours in fall and spring semesters and 6 hours in summer semester. However, there are two exceptions to this: (1) Students in their last semester who need less than 9 hours to complete their program are considered full-time if they enroll in the hours required for program completion, unless they are receiving federal loans. (2) Doctoral students who have finished all of their course work and passed their candidacy exam are considered full-time if they enroll in 3 hours of doctoral dissertation (XXX 7980) for each term until degree requirements are completed, unless they are receiving federal loans.
- Tuition support will be provided only for courses that are part of the student's program of study and necessary for progress toward the student's graduate degree.
- Students must maintain good academic standing with a graduate GPA of 3.0 or higher each term.
- Students must be employed as a Graduate Assistant (GA), Graduate Teaching Assistant (GTA), or Graduate Research Assistant (GRA) for at least 10 hours per week (0.25 FTE), or students must be receiving a fellowship in the amount of \$3250 or higher for the academic year.

- Tuition support 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.

### **Student Obligations**

**Student drops a course but remains full-time.** If a student drops a course for which tuition support has been received but remains full-time, the tuition support 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.

**Student drops a course and becomes part-time.** If a student drops a course for which tuition support has been received and becomes part-time as a result, all tuition support 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. (In extreme cases, a student may petition for an exception to this policy.)

**Student is dismissed or resigns from assistantship.** If a student with tuition support is dismissed from the university or resigns from employment on a graduate assistantship (GA, GTA, or GRA) at any point during the term, tuition support funds received by the student must be returned to the university.

## **Requesting Tuition Support**

Colleges and departments award tuition support to selected graduate students on assistantships each term. Check with your department regarding procedures for receiving tuition support.

### **Students Working in Nonacademic Units**

Each term, students employed as graduate assistants (GA, GTA, or GRA) in a nonacademic unit must submit a Tuition Support Request form with all required documentation to the Office of Graduate Studies (Millican Hall 230) by the due date on the form.

Examples of nonacademic units: Academic Affairs, Office of Sponsored Research, Computer Services, Student Development and Enrollment Services, Information Technologies, Course Development & Web Services, among others. Contact the Office of Graduate Studies if you are unsure if the unit is considered nonacademic.

## **UCF Employee Tuition Voucher**

Effective through Fall 2002, all full-time general Faculty, Administrative and Professional (A&P), and University Support Personnel System (USPS) employees of the University of Central Florida who are employed in an established position on the date fees are due and who meet academic requirements, including those employees on sabbatical, professional development, grants-in-aid, and educational leave, may be allowed to enroll for up to six credit hours of on-campus instruction without payment of the registration fee. Consult the Human Resources website at <http://www.hr.ucf.edu> for additional information and for the tuition voucher application packet.

## **Tuition Fees for Senior Citizens**

Persons 60 years of age or older who meet Florida residency requirements may register to audit classes on a space-available basis without payment of tuition and application fees. Registration is on a space-available basis; see the current "Academic Calendar" of this Graduate Catalog or Schedule Web Guide for dates and times. The tuition fee waiver cannot be used for courses that require increased costs (such as thesis, dissertation, directed

individual study). A “Florida Residency” Affidavit is required to establish Florida residency. A completed “Student Health History” must be Filenamed prior to registration. Inquiries should be directed to the Registrar’s Office, MH 161.

## **State Tuition Exempt Program (STEP)**

Eligible members of the active Florida National Guard may receive a waiver of 50 percent of tuition and material and supply fees. Registration is on a space-available basis on the last day of Registration at the time specified in the “Academic Calendar” of this Graduate Catalog. STEP students should present FNG form 621-5-2 to the Student Accounts Office (MH 107) prior to the fee payment deadline.

## **Fellowships**

The Office of Graduate Studies awards more than \$2 million in university fellowships to provide financial support for the graduate education of over 500 graduate students each year. These fellowships are funded by university appropriations, endowments, and other outside sources.

Some fellowships are awarded on the basis of academic merit. Others are available only to students who demonstrate financial need or who are minority applicants. For eligibility, students must be accepted as a graduate student in a degree program and enrolled full-time. To be considered full-time graduate students, students must be enrolled for at least 9 hours in fall and spring semesters and 6 hours in summer semester. However, there are two exceptions to this: (1) Students in their last semester who need less than 9 hours to complete their program are considered full-time if they enroll in the hours required for program completion, unless they are receiving federal loans. (2) Doctoral students who have finished all of their course work and passed their candidacy exam are considered full-time if they enroll in 3 hours of doctoral dissertation (XXX 7980) for each term until degree requirements are completed, unless they are receiving federal loans.

Students are strongly encouraged to apply for admission early. If they are interested in being considered for need-based awards, they should also complete the Free Application for Federal Student Aid (FAFSA) as early as possible. Allow up to six weeks for the FAFSA form to be processed.

Most fellowships require student nominations through the college and program offices. All admitted graduate students are automatically considered in this nomination process. Other fellowships, however, require students to fill out a fellowship application (either the UCF Graduate Fellowships Application or a fellowship-specific application). For more details about graduate fellowships, visit the Office of Graduate Studies website ([www.graduate.ucf.edu](http://www.graduate.ucf.edu)).

International students receiving fellowships are subject to up to 14 percent withholding on their fellowship checks. International students must obtain either a Social Security Number (SSN) or an Individual Tax Identification Number (ITIN) prior to receipt of a fellowship. Further information on this issue can be obtained from the Office of International Student and Scholar Services.

## **Need-based Fellowships**

For need-based fellowships, students must complete the Free Application for Federal Student Aid (FAFSA). This application may be completed online at FAFSA Express: <http://www.ed.gov/offices/OPE/express.html>. International students are not eligible for need-based support.

Students must have unmet need as determined by the FAFSA to be eligible for need-based awards. Graduate students who receive need-based awards (such as the Incentive Fellowship) should be aware that the amount they receive is dependent on their need. If tuition support or assistantships are granted after being awarded a need-based fellowship, then the total financial package may have to be adjusted to satisfy federal requirements.

## **General Fellowship Requirements**

- Students usually may receive only one UCF fellowship per term, and students are eligible to receive a given fellowship only once (with the exception of the Delores Auzenne Fellowship).
- Students must be regularly admitted graduate students by the time the fellowship is awarded in order to receive the funds. Nondegree-seeking (post-baccalaureate) and graduate certificate students are not eligible for fellowships.
- Most fellowships require at least a GRE score of 1000 (or a GMAT score of 500) and a 3.0 grade point average in the last 60 attempted semester hours of undergraduate study.
- All fellowships require full-time enrollment. To be considered full-time graduate students, students must be enrolled for at least 9 hours in fall and spring semesters and 6 hours in summer semester. However, there are two exceptions to this: (1) Students in their last semester who need less than 9 hours to complete their program are considered full-time if they enroll in the hours required for program completion, unless they are receiving federal loans. (2) Doctoral students who have finished all of their course work and passed their candidacy exam are considered full-time if they enroll in 3 hours of doctoral dissertation (XXX 7980) for each term until degree requirements are completed, unless they are receiving federal loans.
- Fellowship students must make acceptable academic progress during each term of the award or the fellowship will be cancelled.
- Each fellowship has different specific requirements.

## **Academic Progress for Fellowship Recipients**

Fellowship recipients are required to be in good standing and make satisfactory academic progress to continue to receive a fellowship award. To be considered in good standing, a fellowship recipient is required to maintain the standards listed below.

- Students must be fully accepted into a graduate degree program at UCF.
- Students must be full-time graduate students enrolled for at least 9 hours in fall and spring semesters and 6 hours in summer semester. However, there are two exceptions to this: (1) Students in their last semester who need less than 9 hours to complete their program are considered full-time if they enroll in the hours required for program completion, unless they are receiving federal loans. (2) Doctoral students who have finished all of their course work and passed their candidacy exam are considered full-time if they enroll in 3 hours of doctoral dissertation (XXX 7980) for each term until degree requirements are completed, unless they are receiving federal loans.
- Students must maintain a minimum grade point average of 3.0 each term of the award.
- Students must receive a satisfactory progress report from their academic adviser each term of the award.
- Students cannot receive a grade of incomplete ("I") and continue to receive the award.



Failure to meet any one of these standards will cause cancellation of the fellowship. Rare exceptions to this policy may be granted by the Office of Graduate Studies after review of evidence of mitigating circumstances presented by the student.

## Graduate Fellowships

The fellowships listed below is a partial list of fellowships offered and programs in which the university participates. For the most current information regarding fellowships, students are encouraged to consult the Office of Graduate Studies website at [www.graduate.ucf.edu](http://www.graduate.ucf.edu).

- Delores A. Auzenne Fellowship
- FGAMP Graduate Fellowship
- Florida A&M University Feeder Program
- Foundation Minority Graduate Fellowship
- GEM Fellowship
- McKnight Doctoral Fellowship
- Schwartz Electro-Optics Graduate Fellowship
- Siemens-Westinghouse Graduate Fellowship
- Summer Mentoring Fellowship
- UCF Incentive Fellowship
- UCF Merit Fellowship
- UCF Presidential Doctoral Fellowship
- UCF Provost's Graduate Fellowship
- UCF Undergrad to Grad Fellowship

For additional scholarship information, visit the Office of Student Financial Assistance website.

## Assistantships

Graduate students are often hired on assistantships in their departments or other university offices while pursuing graduate studies. Graduate assistants are employed to teach, conduct research, or perform other tasks for the university.

Graduate students may be employed as Graduate Teaching Assistants (GTAs), Graduate Research Assistants (GRAs), or Graduate Assistants (GAs). For eligibility, students must be accepted as a graduate student in a degree program and enrolled full-time. To be considered full-time graduate students, students must be full-time graduate students enrolled for at least 9 hours in fall and spring semesters and 6 hours in summer semester. However, there are two exceptions to this: (1) Students in their last semester who need less than 9 hours to complete their program are considered full-time if they enroll in the hours required for program completion, unless they are receiving federal loans. (2) Doctoral students who have finished all of their course work and passed their candidacy exam are considered full-time if they enroll in 3 hours of doctoral dissertation (XXX 7980) for each term until degree requirements are completed, unless they are receiving federal loans.

Specific eligibility and application guidelines for graduate assistants are established by the colleges and departments. To apply for an assistantship, students should contact their graduate program coordinator in the department of study.

Part-time students (those registered for less than 9 hours in fall and spring terms, less than 6 hours in summer term) and nondegree students are not eligible to be hired on assistantships.

## Graduate Research Assistants

Graduate research assistants may be employed to assist professors with research activities, participate in research efforts in university institutes and centers or in off-campus projects affiliated with the university, or perform other research-related duties. They may also be employed in nonacademic university offices such as Academic Affairs, University Analysis and Planning Support, Operational Excellence and Assessment Support, Computer Services, and Course Development & Web Services.

Graduate research assistants are typically supported by grants and contracts but may also be supported by departmental funds.

### Requirements

- Students must be classified as graduate students by the end of the add/drop period for the term of employment.
- Students must be full-time graduate students enrolled for at least 9 hours in fall and spring semesters and 6 hours in summer semester. However, there are two exceptions to this: (1) Students in their last semester who need less than 9 hours to complete their program are considered full-time if they enroll in the hours required for program completion, unless they are receiving federal loans. (2) Doctoral students who have finished all of their course work and passed their candidacy exam are considered full-time if they enroll in 3 hours of doctoral dissertation (XXX 7980) for each term until degree requirements are completed, unless they are receiving federal loans.
- Students may not work more than 20 hours per week. In rare circumstances, students may request to work excess hours by completing an Excess Hours Form (available at [www.graduate.ucf.edu](http://www.graduate.ucf.edu)).

Graduate research assistants are not faculty and are not able to receive faculty parking privileges or faculty ID cards.

## Graduate Assistants

Graduate assistants may be employed in college or department offices to assist in general office tasks and services not involved in teaching or research assignments. They may also be employed in nonacademic university offices such as the Registrar's Office, Computer Services, the Library, and Course Development & Web Services.

### Requirements

- Students must be classified as graduate students by the end of the add/drop period for the term of employment.
- Students must be full-time graduate students enrolled for at least 9 hours in fall and spring semesters and 6 hours in summer semester. However, there are two exceptions to this: (1) Students in their last semester who need less than 9 hours to complete their program are considered full-time if they enroll in the hours required for program completion, unless they are receiving federal loans. (2) Doctoral students who have finished all of their course work and passed their candidacy exam are considered full-time if they enroll in 3 hours of doctoral dissertation (XXX 7980) for each term until degree requirements are completed, unless they are receiving federal loans.

- Students employed as graduate assistants may not be simultaneously employed as a student assistant or adjunct faculty.
- Students may not work more than 20 hours per week. In rare circumstances, students may request to work excess hours by completing an Excess Hours Form (available at [www.graduate.ucf.edu](http://www.graduate.ucf.edu)).
- Nondegree students may be employed but must be classified as student assistants (not graduate assistants).

Graduate assistants are not faculty and are not able to receive faculty parking privileges or faculty ID cards.

## Graduate Teaching Assistants

Graduate teaching assistants may be employed as classroom teachers, co-teachers or classroom assistants, graders, lab assistants, or other roles directly related to classroom instruction.

### Requirements

- Students must be classified as graduate students by the end of the add/drop period for the term of employment.
- Students must be full-time graduate students enrolled for at least 9 hours in fall and spring semesters and 6 hours in summer semester. However, there are two exceptions to this: (1) Students in their last semester who need less than 9 hours to complete their program are considered full-time if they enroll in the hours required for program completion, unless they are receiving federal loans. (2) Doctoral students who have finished all of their course work and passed their candidacy exam are considered full-time if they enroll in 3 hours of doctoral dissertation (XXX 7980) for each term until degree requirements are completed, unless they are receiving federal loans.
- Students must have completed at least 18 hours of graduate courses in the major prior to being employed as the instructor of record or teaching independently at the university.
- New graduate teaching assistants are required to attend the University Graduate Teaching Assistants Workshop before teaching classes at the university.
- Students with access to student records must maintain the confidentiality of all student records and information. Failure to do so will result in immediate dismissal.
- All graduate students involved in classroom instruction who received their undergraduate degrees from a foreign institution must prove competency in the spoken English language. See “English Competency for Graduate Teaching Assistants” in this section of the graduate catalog for more information.
- Students may not work more than 20 hours per week. In rare circumstances, students may request to work excess hours by completing an Excess Hours Form (available at [www.graduate.ucf.edu](http://www.graduate.ucf.edu)).

Graduate teaching assistants are not faculty and are not able to receive faculty parking privileges or faculty ID cards.

### 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 is required as follows:

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

enrolled in appropriate English language instruction, beyond which time the score of 220 on the TSE or 3 on the LPI shall be required before the teaching assignment can be continued.

- **B. New Students —**

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

## **Employment of International Students**

International students must have their I-20 authorized by the international adviser at the Office of International Student and Scholar Services for any on- or off-campus employment.

### **On-campus Employment**

According to INS regulations, graduate students who are on an F-1 or J-1 visa may accept employment on campus without prior INS approval, as long as students are enrolled full-time and employment does not interfere with their studies. Employment may be full-time during vacation periods (between academic terms) for students who are eligible and intend to register for the subsequent academic term.

The university requires that all students employed as graduate assistants (Graduate Assistant, Graduate Teaching Assistant, and Graduate Research Assistant) be enrolled full-time during all terms that they are employed and maintain acceptable academic progress.

For international students, on-campus employment is limited to no more than 20 hours per week during fall and spring terms. During summer term, international students may request to work excess hours (more than 20 hours per week) by completing an Excess Hours Form (available at [www.graduate.ucf.edu](http://www.graduate.ucf.edu)).

### **Off-campus Employment**

International students may only be employed at off-campus locations that are affiliated with the university either through contractually funded projects or associated with the university curricula. Curricular training is authorized by the Office of International Student and Scholar Services only to students who qualify for Curricular Training for off-campus employment.

### **Tax Identification Number**

All international students must obtain either a Social Security Number (SSN) or an Individual Tax Identification Number (ITIN) when they arrive at UCF.

As soon as possible, international students should provide a copy of their signed Social Security card or Individual Taxpayer Identification card to the Registrar's Office in Millican Hall, Room 161. For additional information, e-mail to [ssnvalid@mail.ucf.edu](mailto:ssnvalid@mail.ucf.edu) or call (407) 823-3496.

International students should be aware that the payments they receive from UCF are subject to up to 14 percent withholding tax. More information on this issue is available from the UCF Finance and Accounting website, which provides links to federal forms, publications, and U.S. treaties with countries.

The Office of International Student and Scholar Services assists international students with visa issues and the application process for an SSN or ITIN card.

# 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 five hours in fall or spring terms, at least three hours in summer term, or enrolled in at least one hour of thesis or three hours of dissertation during any term.
- Generally, students who are on sole fellowship support 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 Financial Assistance

*Executive Director:* Mary H. McKinney

MH 120; 407-823-2827; e-mail: [finaid@mail.ucf.edu](mailto:finaid@mail.ucf.edu)

*Website:* <http://finaid.ucf.edu>

Students are encouraged to apply for financial assistance by completing the “Free Application for Federal Student Aid” (FAFSA). The following Financial Assistance policies and procedures are based upon federal, state, and University regulations current for the 2002-2003 academic year. Regulations are subject to change at any time.

## Determining Eligibility

In order to qualify for federal and state financial aid programs, a student must be a citizen or permanent resident of the United States, the Mariana Islands, or the Pacific Trust Territories. Some financial aid programs are available to part-time students; generally at least six credit hours enrollment per term is required.

The Student Financial Assistance Office encourages all students to apply for financial aid and to begin the process early. There are many grant, loan, and employment programs available. Most programs require the determination of financial need.

Financial need is calculated by the federal processor who uses a standardized formula: financial need equals the cost of education (specific to the school to be attended) minus the expected family contribution (specific to each applicant) and minus any Veteran's Educational Benefits or other expected resources available. Students and/or parents provide detailed financial information on the Free Application for Federal Student Aid (FAFSA), which generates a need analysis. The results are forwarded to the UCF Student Financial Assistance Office by the federal processor.

### **More Specific Eligibility Requirements Are Listed Below**

- The applicant must have a high school degree and must not be enrolled in an elementary or secondary school.
- The applicant must be admitted as a degree-seeking student at UCF in an eligible program.
- The applicant must be a U.S. citizen or an eligible non-citizen (e.g. resident alien). Eligible non-citizens include I-151, I-551 and I-688 cardholders as well as some I-94 classifications.
- The applicant must be maintaining Satisfactory Academic Progress toward his/her degree. See the "Satisfactory Academic Progress Policy" in this section of the catalog or refer to the Student Financial Assistance website for more information.
- The applicant must not be in default on any Federal Student Loan and must not owe a repayment on any grant program.
- The male applicant must be registered with Selective Service (if applicable).
- The applicant's aid may not exceed the published cost of attendance (refer to the Student Financial Assistance website for more information).
- The applicant must not have received Federal loans in excess of the established annual or aggregate limits.
- The applicant must show a financial need as computed on the FAFSA (for need based programs).
- The applicant must meet minimum hours of enrollment and other program-specific criteria.

### **Application Procedures**

The following steps may take four to six weeks to complete. Students should apply well in advance of the March 1 deadline of the year for which aid is being requested. Students who desire to enter UCF in spring or summer term must also apply by the March 1 deadline of the preceding Spring in order to be considered for the maximum aid available.

1. **Filename a Free Application for Federal Student Aid** - UCF requires that the student complete the Free Application for Federal Student Aid (FAFSA) or Renewal FAFSA. Applications should be Filed electronically at [www.fafsa.ed.gov](http://www.fafsa.ed.gov). Follow-up promptly on all corrections to the FAFSA. If the student's record is "rejected in analysis" by the federal processor, the student should provide them with the information they request as soon as possible. Processing of the student's Filename will be held up until corrections are made.

NOTE: The results of the student's FAFSA must be in the financial assistance office by March 1 for the next fall and spring semesters, to meet our priority deadline, so that the student may be considered for all aid available.

2. **Follow-Through** - The student's application will not be complete until all documents requested have been Filed and reviewed in the financial assistance office. Whenever the student receives financial

aid correspondence, he or she should review it thoroughly and follow directions promptly. Delays can be frustrating, as well as costly.

3. **Verification** - Federal regulations require that some students verify the information submitted on their applications. If selected for verification, the student will be asked to provide additional information (such as copies of tax return forms, documentation of household size, untaxed income, etc.). It is not unusual for additional documents to be requested after the initial review of the File Name. Prompt response to requests for additional documentation will expedite completion of this process. Financial aid cannot be processed or received until verification is complete and all necessary corrections have been made.
4. **Professional Judgment** - Students should contact the Student Financial Assistance Office for an appointment with a counselor if they experience an extenuating circumstance that they were not able to state on the original FAFSA.
5. **Award Notification** - Award and important additional information will be sent to the student after the Student Financial Assistance Office processes the data. The student may provide loan processing information by completing the Federal Stafford Loan Response Form.

### Helpful Tips

- Make a copy of tax return forms before submission to IRS.
- Start a folder NOW to save financial aid information and photocopies of all documents File Named and received.
- Include student's name and SSN on all documents submitted to Student Financial Assistance.
- Maintain a current address in the Registrar's Office; all financial aid correspondence is mailed to that address.
- Complete all items necessary to apply for a Federal Stafford Loan, even if it doesn't seem advantageous at the time. The law requires that students be considered for a grant before a loan is offered; choosing a lender now does not obligate the student to process a loan, but will make it easier if additional funds are needed.
- Online access is available at <http://finaid.ucf.edu/>
- If the student has extenuating circumstances or runs into major problems at anytime, call our appointment line, 407-823-5285, to meet with a counselor. Call 407-823-2827 for other information.

#### Office Hours:

Monday: 9:00 a.m. - 7:00 p.m.  
Tuesday/Wednesday/Friday: 9:00 a.m. - 5:00 p.m.  
Thursday: 1:00 p.m. - 7:00 p.m.

### Transfer Students

To apply for financial aid at UCF, complete all the application procedures listed with one exception. If a need analysis for the year in question has already been File Named, the student need only request that the processor forward the information to UCF Code 003954 by utilizing Part II of his/her SAR, or by calling 1-800-4-FED AID.

### Independent Student Status

The financial resources of parents do not have to be included in the determination of student's financial need if the student is:

- Graduate/Professional
- 24 years of age or older as of the award year
- An orphan or ward of the court
- A veteran
- Legally and financially responsible for dependents other than a spouse

- Married

### **UCF Financial Assistance Programs**

First-time UCF students will receive an award letter. Other students will receive an award letter only after their Filename is complete. Admission to UCF must be finalized with no contingencies, the student must be classified as Degree-Seeking, the verification process must be completed before a financial aid award will be disbursed, and the student must meet the standards for Satisfactory Academic Progress.

Student awards will be based upon the student's financial need, the amount of funds available to UCF, the number of UCF students who qualify for aid, and the date the student completes the application process. The amounts listed on the award letter are estimates based on full-time registration. Awards are subject to change. Check the chart below to see the number of hours for which the student must enroll each semester to receive an award from each program. The results of the FAFSA will determine eligibility for these programs. It is the student's responsibility to be aware of minimal hourly requirements for each program. When requirements are no longer met, awards will be adjusted as necessary. The adjusted award will appear on POLARIS.

### **Loans**

Federal Family Educational Loans are made through private lenders. Undergraduate and degree seeking PostBac students must be enrolled a minimum of six credit hours at UCF in UCF classes at the time of disbursement to receive a loan check. First-time borrowers at UCF must complete an Entrance Interview before a loan will be processed. Entrance Interviews may be completed by entering our website and going to "Entrance Interviews" or can be attended in person. Contact the office for scheduling. Exit Interviews are required for graduation or when enrollment drops below half time. Exit Interviews are available through our website or you may contact the office for times and locations. Payment is deferred until students graduate or drop below half-time enrollment at UCF. Once eligibility has been determined by a need analysis, students must complete and submit a Federal Stafford Loan Request Form by the dates printed below so that processing can be completed in time to receive funds during the term indicated.

November 15 - Fall Semester Loan

March 15 - Spring Semester Loan

June 30 - Summer Term Loan

### **Employment**

Federal Work Study (FWS) jobs are awarded as part of a student's financial aid package: a minimum of six hours enrollment is required for undergraduates. Jobs are on- and off-campus and efforts are made to match job assignments with the student's academic program. Awards are paid as an hourly wage.

OPS (Other Personnel Services) jobs are available on-campus and are not related to financial need. Application is made directly to the department advertising the position.

### **Emergency Loans**

UCF Emergency Short Term Loans are available to students currently enrolled at UCF. Loans are granted at the beginning of the semester for books and emergencies. This is not for the payment of tuition and fees. A \$5.00 nonrefundable service charge will be assessed for processing the loan. This service charge, like other debts owed the university, will be deducted at the time of check disbursement. If the loan is canceled, or not picked up, the \$5.00 service charge still must be paid. The specific repayment date of the loan is noted on the loan contract.



## Deferrals of Tuition and Fees

Financial assistance awards normally will result in the student being granted a deferment of tuition and fee payments. This process occurs automatically if the student has enrolled for sufficient hours, is meeting all general eligibility requirements, and is making satisfactory academic progress. This program makes up for the time lag that normally occurs between the date that tuition and fees are due and the date on which financial aid disbursements are made, which normally is three to four weeks after the semester begins. Students registering for classes during Registration or Late Registration must pay or be deferred for tuition and fees early, by **the published deadline**.

- The student's "Fee Invoice/Schedule" reflects the dollar amount of deferment at the time of printing. Students must use the POLARIS home page to obtain up-to-date information. If the total amount of tuition and fees exceeds the amount of deferment, the difference must be paid by the due date on the "Fee Invoice" (class schedule). Different financial assistance programs require different hours of enrollment for eligibility. The student must make sure he or she is registered for the required number of hours. Students must register for at least six hours to receive a Federal Stafford and Federal Perkins award. (NOTE: Graduate students need at least half-time enrollment.) Summer enrollment requirements may be less.
- The following programs are not included in the Automatic Deferral Program: work study programs, third party deferrals, other waivers, and direct-pay scholarships.
- Since awards are subject to change, deferments are also subject to change.
- Deferments based on estimated Stafford loans will be canceled if the student does not complete the loan process.
- Financial aid deferments based on federal or state programs that require a FAFSA will not be available to students who do not complete a FAFSA in time for the results to be in UCF's computer system by fee deadline dates. Federal loans cannot be processed without FAFSA data online to support the award.

NOTE: Both Subsidized and Unsubsidized Federal Stafford Loans will result in a deferral in the amount of 97 percent of the award, since origination fees are taken out by the lender and the guarantee agent in the amount of 3 percent. It is the responsibility of the student to properly drop classes prior to the end of the add/drop period. Additionally, under any circumstance where previously estimated financial aid cannot be paid and a deferment must be canceled, the student is liable for the cost of tuition, whether or not he/she attended classes. If classes are not dropped by the student, a financial aid deferment may keep them active. The student will be responsible for payment of these classes even if they never attended, and may receive a grade of "F."

## Financial Assistance Deadlines and Qualifications

	<b>Priority Deadline</b>	<b>Minimum Credit Hrs. Required</b>	<b>Available to Graduate Students</b>
<b>Federal College Work Study</b> On-campus jobs; award earned as hourly wage. Not available to post-baccalaureate students.	March 1	6	Yes
<b>Federal Stafford Loan Program</b> Repayment may be deferred. Loan amounts vary as well as interest rates and repayments options.	Posted each term	6 at UCF in UCF classes	Yes At least half-time at UCF
<b>Federal Perkins Loans</b>	March 1	6	Yes

Currently are made at 5 percent interest rate; loans deferred until 6 or 9 months after the student graduates or drops below 1/2-time. Not available to post-baccalaureate students.

At least half-time at UCF

### **Federal Unsubsidized Stafford Loans**

These loans operate under the same terms as regular Federal Stafford Loans except that financial need is not necessary. In addition, the student is responsible for the payment of interest as it accrues, (alternatively the interest can be capitalized into the loan balance). **This loan now replaces the Supplemental Loan for Students (SLS) previously available to independent students.**

Posted  
each  
semester/  
term

6 at UCF in  
UCF classes

Yes  
At least half-time at UCF

### **Fund Disbursements**

Financial assistance disbursements are not available at the time of registration. Funds will be disbursed after the third week of classes. Therefore, students should make themselves aware of the Automatic Deferment policies and procedures and should be prepared to use personal savings or a UCF Short Term Loan for books. Late applicants (those who apply after June 30) will likely find themselves caught up in a processing backlog that could dramatically delay the disbursement of their aid. These individuals should be prepared to cover their own living expenses out-of-pocket well into the semester.

Financial assistance funds for most programs are mailed directly to the student by the UCF Office of Student Accounts unless the student has a SunTrust Bank account linked to their UCF Smart Card. If that is the case, the net check amount will be directly deposited in their SunTrust account. Initial disbursements should take place after the third week of each semester. Most grant and scholarship checks go through a “net checking” process in which debts owed to the university are deducted from the available assistance. Federal Stafford Loan disbursements will also go through the “net checking” process, if two conditions are met: 1) the student has authorized Electronic Funds Transfer (EFT) on the promissory note; and 2) the student’s lender participates in UCF’s EFT program. All of the lenders on UCF’s preferred lender list participate in the EFT program.

For most students who do not participate in EFT, Federal Stafford checks will be held at the cashier’s office for pick-up by the student to facilitate any deduction for debts owed to the university. It is the student’s responsibility to pay outstanding debts to the school within 21 days of the date of the notification that funds have been disbursed to avoid a late charge. Undergraduate and post-baccalaureate (“B” certification only) students must be enrolled in at least six credit hours at UCF in UCF classes at the time of disbursement of each Federal Stafford Loan check. Graduate students need at least half-time enrollment.

NOTE: The verification process must be complete before financial assistance funds will be released. Students on Financial Assistance Cancellation will not receive funds.

### **Federal Stafford Loans**

Student loan check(s) or EFT disbursements will be sent to the University of Central Florida after the lender has received a completed application/promissory note **approved by UCF**. We strongly suggest that you follow-up with your lender if you have not received your loan check within 20 days of mailing your promissory note or notification by the UCF Financial Assistance Office of a problem. To estimate when your Federal Student Loan

funds will be mailed, refer to the Disclosure Statement from your lender; it indicates a date the lender intends to send the funds to UCF. If that date is before the semester starts, please allow ten working days from the first day of classes before inquiring about your funds. If the date is after the semester begins, please allow ten working days from the disbursement date for UCF processing. Loan checks or funds will be disbursed after the beginning of classes, **usually after the third week of classes.**

- **First-time borrowers at UCF:** must attend an “Entrance Interview” at UCF before the loan award can be made. Sessions may be available at orientation and at our website: <http://finaid.ucf.edu>. The times and location of entrance interviews will be posted.
- **Two-term loans:** to receive the second half of a two-term loan, the student must have received the first disbursement, and be enrolled for at least six hours at UCF (graduates must be enrolled at least half-time) for the second semester to receive the second check. If the student did not accept the first term loan disbursement, he or she cannot receive the second term disbursement and must cancel the original loan request and reapply for a new loan through Student Financial Assistance.
- **Summer Term:** undergraduate students must have a minimum of six hours **at UCF in UCF classes** to receive assistance. If the student’s hours include **Summer B** hours that are needed to meet the minimum requirements, funds will not be disbursed until **Summer B** term. Graduate students require at least half-time enrollment.

Exit Interviews **are required** upon graduation or departure from UCF. Be sure to Filename address changes with the Registrar’s Office or online at <https://connect.ucf.edu> as they occur.

### **Award Notification**

In the spring of each year, most students will be notified of the estimated awards they should receive in the coming school year. Award notices may not go out to students who were selected for verification, and have not completed that process, since verification corrections often alter award eligibility. Notification will also not go out to students who have been canceled from financial assistance due to a problem with academic progress. Award letters that are sent out anytime prior to the beginning of the semester will disclose estimated awards based on the enrollment information provided by the student on the FAFSA. If the student enrolls for less than 12 hours, some estimated awards may change. In addition, new information brought to the attention of our office (such as third party benefits, waivers or deferrals, prepaid tuition plans, or newly awarded scholarships) can cause a reduction in the amount of previously estimated need-based assistance.

Award letters are sent out to students who miss the application priority deadline once there is enough information on Filename to make an awarding decision. Verification students will receive their award notifications once that process is complete. Regardless of when the notification is sent out, it will be accompanied by a comprehensive information insert. Students should read this insert carefully and follow the instructions.

Only students receiving **Perkins Loans** are required to return the award notice to acknowledge acceptance of the award. Please note that although an estimated Federal Stafford loan may appear on the award letter to notify students that they are eligible for that form of assistance, the **student still must apply** for the loan by completing the requested information on the “Federal Stafford Loan Response Form.”

### **Overawards/Overpayments**

Awarding of a financial aid package involves matching the student budget with the Estimated Family Contribution (EFC), which is calculated from the FAFSA information. The office attempts to award students as much of the difference (unmet need) as possible. From time to time, the office will establish an aid package for a student and later the budget or EFC changes or aid will come in from some unexpected source (such as a scholarship). This may result in what is called an “overaward.” If no adjustment to the aid package occurs and the

financial aid is actually paid, this is called an “overpayment.” State and federal regulation require adjustment or repayment of overawards and overpayments for many programs. If the student receives notification of scholarship or other third-party payment after receipt of the award notice, please notify the office. The financial assistance office may be able to correct an overaward before it becomes an overpayment. If an overpayment does occur, the financial assistance office will notify the Student Accounts Office and the student will be required to work with them on a repayment.

### **Refunds and Return of Title IV Funds**

Students should be aware that if they withdraw from the university after having received financial assistance, they may have to repay a portion of that assistance, which must be returned to the appropriate program. Students who received Federal Stafford Loans should also know that the university is required to notify lenders of student withdrawals.

### **Refunds**

Financial assistance recipients planning to withdraw from UCF first should read the “Withdrawal Policy” in the “Registration” section of this graduate catalog. If the student is due a refund according to this policy, the financial assistance program(s) from which the student received assistance will first be reimbursed. Any remaining balance after refunding all appropriate assistance programs will be refunded to the student. In no case will the amount refunded to the assistance program exceed the amount disbursed.

### **Return of Title IV Funds**

Effective the Fall 2000 Semester, the University of Central Florida adopted a new refund policy that conforms to the updated version (Section 668.22) of the “Higher Education Amendments of 1998.” Students who have received (or who are eligible to receive) funding of federal assistance under Title IV of the above act and who withdraw from all their courses prior to the 60 percent point in the semester are subject to a recalculation of their awards based on the amount of aid earned. The amount of aid earned is determined by the number of days the student was enrolled prior to withdrawing from classes. Any assistance the student received in excess of the earned amount must be repaid to the university. The university will return the funds to the appropriate source. For example, a student received \$1,000 in federal funding and withdrew at the 30 percent point in the semester. The amount of earned aid would be 30 percent of \$1,000, or \$300. The amount of unearned aid, \$700, would have to be returned to the appropriated funding source. The student is required to pay the university any unearned aid received.

A student who owes a financial assistance repayment may not receive further financial aid until the funds are returned in full to the university. In addition, academic transcripts will be withheld until repayment is complete. Students should schedule an appointment with or come to the Student Financial Assistance Office prior to withdrawing from classes to confirm the consequences of that withdrawal. The appointment telephone number is 407-823-5285.

### **Conditions and Requirements for Receiving Assistance**

- The student must enroll for a minimum of six semester hours;
- The student must maintain UCF’s standards for Satisfactory Academic Progress (following section);
- The student agrees to inform the office of any additional assistance received beyond that listed on the award letter. Any subsequent awards or income may necessitate a revision of the financial assistance award;
- The student must not be in default on any educational loan or owe repayment on a grant at this or any other institution;

- The student must provide all information requested for the completion of his or her File name. If selected, verification must be completed prior to the receipt of any funds or certification of a Federal Stafford Loan;
- The student must notify the Student Financial Assistance Office of any changes in housing status or corrections to the financial or household information from that listed on the student’s assistance application;
- The student must reapply yearly for financial assistance; and
- The student’s Financial Aid Package may not exceed the cost of attendance as specified on the Student Financial Assistance website.

### **Satisfactory Academic Progress Policy**

Federal regulations require the university to establish standards of Satisfactory Academic Progress as a general eligibility requirement for financial assistance. A student must maintain Satisfactory Academic Progress in a course of study regardless of whether the student was a previous recipient of financial aid. Students who are unclear about these policies should schedule an appointment.

### **Time Limit**

When a student meets or exceeds the number of allowed Overall Attempted Hours, the student will be placed on “Financial Aid Cancellation” at the end of the semester/term (even if financial aid was not received during previous terms).

<b>Classification</b>	<b>Time Frame Allowed for Completing Degree</b>
Undergraduate	180 Overall Attempted Hours (including transferred hours)
Second Degree	60 Attempted Hours (including all post-baccalaureate hours)
Master’s	70 Attempted Hours (including all post-baccalaureate hours)
Specialist	100 Attempted Hours (including all graduate and post-baccalaureate hours)
Doctorate	120 Attempted Hours (including all graduate and post-baccalaureate hours)

### **Financial Aid Probation**

If students are placed on “Financial Aid Probation,” they must complete the following requirements for the term in which they are on probation. Failure to do so will result in “Financial Aid Cancellation” at the end of the probationary term.

### **Procedure for Appeals**

If students do not meet the above standards, they will be placed on “Financial Aid Cancellation.” When students are on Financial Aid Cancellation, they are not eligible for aid, nor a deferment, until reinstated through the appeal process. Any student with extenuating circumstances who is placed on Cancellation may appeal to the Financial Aid Review Committee. To appeal, the student must:

1. Complete the Satisfactory Academic Progress Appeal Form; and
2. Submit acceptable documentation supporting the extenuating circumstances.

After a thorough evaluation of the written request and all documentation, the Financial Aid Review Committee will notify the student of its decision in writing. Aid remains cancelled unless the student receives written notification of reinstatement.

## Re-establishing Eligibility

Students may re-establish financial aid eligibility. Contact the Student Financial Assistance Office for more information about requirements.

## Student Rights and Responsibilities

- Students have the right to full information about the financial aid programs available at UCF, application procedures and deadlines, and the criteria used to determine a financial package.
- Students have the right to appeal decisions made by the Student Financial Assistance Office.
- 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 students' 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.
- It is the student's responsibility to periodically check their financial assistance progress on POLARIS at <https://connect.ucf.edu> for application status, short-term loan status, deferment status, disbursement information, and "Fee Invoice."

# Policies

## Overview

The policies in this section of the *Graduate Catalog* are minimum university-wide standards for graduate programs. Additional requirements for each graduate program are described in the individual college or school descriptions (see Arts and Sciences, Business Administration, Education, Engineering and Computer Science, Health and Public Affairs, School of Optics, and Rosen School of Hospitality Management) and in the Degrees and Certificates descriptions in this catalog.

## General Policies

### Student Status

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

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

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

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

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

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

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

## Student's Responsibility

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

## Classroom Responsibility

Students are responsible for maintaining classroom decorum appropriate to the educational environment. When the conduct of a student or group of students varies from acceptable standards and becomes disruptive to normal classroom procedures, the instructor has the authority to remove the offending party from the room and refer the student to the Office of Student Conduct (SRC 155) for disciplinary action.

## Student Conduct

Students are subject to federal and state laws and local ordinances as well as regulations prescribed by the University of Central Florida and the Florida Board of Education. The breach or violation of any of these laws or regulations may result in disciplinary action. Detailed conduct regulations and procedures are presented in *The Golden Rule*.

A person applying for admission to UCF who has declared an adjudication of a violation of conduct policies at a previous college or university or a violation of the law that resulted in probation, community service, a jail sentence, or the revocation or suspension of their driver's license (including traffic violations that resulted in a fine of \$200 or more) may have circumstances of the case reviewed by the Office of Student Conduct (SRC 155) to consider eligibility for admission.

## Religious Observances

It is the policy of the University of Central Florida to reasonably accommodate the religious observances, practices, and beliefs of individuals in regard to admissions, class attendance, and the scheduling of examinations and work assignments. A student who desires to observe a religious holy day of his or her religious faith will notify all of his/her instructors and be excused from classes to observe the religious holy day.

The student will be held responsible for any material covered during the excused absence, but will be permitted a reasonable amount of time to complete any work missed. Where practicable, major examinations, major assignments, and university ceremonies will not be scheduled on a major religious holy day.

Students who are absent from academic or social activities because of religious observances will not be penalized. A student who believes that he/she has been unreasonably denied an educational benefit due to his/her religious belief or practices may seek redress in accordance with Rule 6C7-5.0031, Student Grievance Procedure, as listed in The Golden Rule.

## 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. A full-time graduate student must take at least 9 credit hours each semester, with 12 hours being the maximum load. During the summer term, full-time is 6 credit hours and half-time is 3 credit hours. There are two exceptions to this policy: (1) For students in their last semester, a full-time load is whatever is required to finish the degree program. This is a one-time only exception to the general policy. (2) For doctoral students who have passed the candidacy exam and are registered for dissertation research (XXX 7980) hours only, full-time is 3 hours per semester until graduation. All graduate assistants (GTAs and GRAs) must work at least 10 hours per week, but not more than 20 hours per week. Students who want to work for hours in excess of 20 hours per week must complete an Excess Hours Form (see <http://www.graduate.ucf.edu> for form). Exceptions to this policy may be granted by the Office of Graduate Studies for compelling reasons.

**Student FICA exemption**—Graduate students who are enrolled at least part time (5 hours in spring/fall; 3 hours in summer) will be exempt from FICA/Medicare taxes during pay periods that overlap with the academic term and during breaks of less than five weeks. Breaks longer than five weeks where graduate students are employed but not enrolled will result in withholding FICA/Medicare taxes.

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

## Program of Study and Academic Performance



A program of study is a listing of course work agreed to by the student and the degree program specifying course degree requirements. It must be established prior to enrollment in the second term for a full-time graduate student. For a graduate student carrying a reduced load, the establishment of a program of study may be delayed up to the registration for the ninth graduate semester hour. A Program of Study form (either a SASS audit or written form) can be obtained from the graduate program coordinator or graduate college coordinator. This form should be prepared and signed by the adviser and student, then given to the graduate program coordinator to be placed in the student's permanent File name. It must comply with the catalog current at the time it is proposed. The Program of Study, once established, cannot be altered solely due to poor academic performance by the student.

### **GPA in Program of Study**

A graduate student's GPA shall be calculated on only those courses specified on the individual's Program of Study (not including required prerequisites). A minimum of a 3.0 GPA in the specified graduate program of study is required to maintain graduate student status and for graduation. The minimum 3.0 GPA in the graduate program of study required for graduation cannot be waived.

When a term GPA falls below 3.0, the graduate student may be placed on "Hold" and should not register for classes for the next semester until advising has taken place with the graduate program coordinator or academic adviser.

If the graduate GPA drops below 3.0 in a program of study, students will be changed to academic provisional status for a maximum of nine semester hours. If students have not attained an overall graduate GPA of 3.0 in the program of study at the end of the nine semester hours, they will be reverted to nondegree status. Students will not be allowed to enroll in graduate courses in that major and will be removed from courses currently being taken. (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 File named with the graduate program coordinator. (See "Academic Grievances" in the Policies section of the *Graduate Catalog*.)

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, only 4000-level courses or transfer courses with a grade of "B-" or higher 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 graduate GPA falls below 2.0 will be reverted to nondegree status.

NOTE: Individual graduate programs may have more stringent grade requirements. Students must abide by the academic performance standards of their graduate program.

### **Maximum Hours of Unsatisfactory Grades**

A student may earn a maximum total of six semester hours of "C" (C+, C, C-) grades in the program of study. This does not imply that a course in which a student has received these grades cannot be repeated to provide a better grade. Both grades will be used in computing the GPA in the program of study. There is no forgiveness policy on graduate grades. Exceeding six semester hours of unsatisfactory grades ("C+" and below or unresolved "I" grades) in a specified graduate program of study is reason for reversion to nondegree status. The final program of study may not contain unresolved "I" grades.

### **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, dissertation, or research report hours.

It is the student's responsibility to arrange with the instructor for the changing of the "I" grade.

Grades of "I" awarded after Fall 1997 must be resolved within one calendar year or prior to graduation, whichever comes first. Incompletes in regular course work 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. The exception to this is enrollment in thesis (XXX 6971) and dissertation (XXX 7980) hours where the incomplete grade will be allowed to continue until graduation. Incomplete grades cannot be used on the program of study. Students cannot receive an incomplete grade while supported on a UCF fellowship and continue to receive the fellowship.

### **Review of Academic Performance**

The primary responsibility for monitoring academic performance standards rests with the degree program. However, the college and university may monitor a student's progress and may revert any student to non-degree status if performance standards as specified by the program, college or university are not maintained. Satisfactory academic performance 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 nondegree status at any time, when, in its judgment, the individual is deemed incapable of successfully performing at required standards of excellence. Once reversion to nondegree status has occurred, a student will not be allowed to enroll in graduate courses in that major and will be removed from courses currently being taken. If a student is reverted to nondegree status, reinstatement to graduate student status can occur only through a formal grievance process. (See Graduate Academic Grievance Procedure in the *Golden Rule Handbook*, <http://www.ucf.edu/goldenrule>.)

## **Discrimination or Sexual or Racial Harassment**

In the conduct of its activities, the university will not tolerate prejudicial discrimination on the basis of gender, age, handicap, religion, or ethnicity. Sexual or racial harassment complaints should be made to the Office of Equal Opportunity and Employment and may be directed to other offices in accordance with campus policies.

## **Golden Rule**

The *Golden Rule* is the university's policy regarding nonacademic discipline of students and limited academic grievance procedures for graduate (grade appeals in individual courses, not including thesis and dissertation courses) and undergraduate students. Information concerning the *Golden Rule* can be found at <http://www.ucf.edu/goldenrule>.

## **Academic Grievance Procedure**

The Office of Graduate Studies follows the procedures for academic grievances as outlined below. Academic matters are those involving instruction, research, or decisions involving instruction or affecting academic freedom.

The academic grievance procedure is designed to provide a fair means of dealing with graduate student complaints regarding a specific action or decision by a faculty member, program or college, including termination from an academic program. Academic misconduct complaints associated with sponsored research will invoke procedures outlined by the Office of Research.

Students who believe they have been treated unfairly may initiate a grievance. The procedure provides several levels of review, and at each level of review the participants are further removed and have a broader outlook than where the grievance originated. Procedures for initiating an academic grievance can be found in the *Golden Rule* at <http://www.ucf.edu/goldenrule>.

### **Petitions of Graduation Requirements Procedures**

Students have the responsibility to familiarize themselves with policies and procedures of the university, college, and program. Students are responsible for knowing the degree requirements and following the policies that govern the academic program. However, when unusual instances arise, making it appropriate for students to request exceptions of existing graduation requirements for graduate students, graduate students may petition the appropriate unit for an exception to this requirement. The procedures are:

- The graduate student completes a petition form (located at [www.graduate.ucf.edu](http://www.graduate.ucf.edu)), specifying the requirement and the exception desired to the graduate program coordinator.
- The graduate program coordinator may ask the program graduate committee to examine the necessary information. The program graduate committee will recommend a response to the petition to the graduate program coordinator.
- The graduate program coordinator will consider the input of the program graduate committee and make a recommendation about the exception at this level. The graduate program coordinator will consider the input of the unit graduate committee and make a recommendation to the unit head about the grievance. The unit head will then make a final unit decision about the grievance at that level. If the exception requested is only a program requirement, then the petition decision is final at this level.
- Should the graduate student wish to appeal the decision of the program, either because the requirement is a college, school, or university requirement or further evidence is now available that would cause the program decision to be reconsidered, the student or program may request in writing to the college or school graduate coordinator (if this is the next most appropriate unit) or the Office of Graduate Studies (if this is the next most appropriate unit) that the petition be considered at this level. The college or school graduate coordinator may ask the college or school graduate committee to examine the information and consider the petition at a scheduled meeting. The college or school graduate committee will recommend a response to the petition to the college or school graduate coordinator.
- The college or school graduate coordinator will consider the input of the college or school graduate committee and make a recommendation about the exception at this level. The college graduate coordinator will consider the input of the college graduate committee and make a recommendation to the college dean about the grievance. The college dean will then make a final decision about the grievance at that level. If the exception requested is only a college, school, or program requirement, then the petition decision is final at this level.
- Should the graduate student wish to appeal the decision of the college or school either because the requirement is a college or university requirement or further evidence is now available that would cause the college or school decision to be reconsidered, the student may request consideration at the university level by submitting the petition form to the Vice Provost and Dean of Graduate Studies. The Vice Provost and Dean may ask the Appeals Subcommittee of the Graduate Council of the Faculty Senate to examine the information and consider the petition at a scheduled meeting.

- The Vice Provost and Dean of Graduate Studies will consider the input of the Appeals Subcommittee of the Graduate Council and make a final decision about the petition for the university.

## Grade System

The university uses an alphabetic system to identify student grades and other actions regarding student progress or class attendance. This system, with a grade point equivalent per semester hour, is as follows:

<b>Grades</b>	<b>Grade Points Per Semester Hour of Credit</b>
A	4.00
A-	3.75
B+	3.25
B	3.00
B-	2.75
C+	2.25
C	2.00
C-	1.75
D+	1.25
D	1.00
D-	0.75
F	0.00
NC	- No Credit -

### Other Actions

I	Incomplete
N	No grade reported by instructor
R*	(followed by grade) Repeated course (Grade Forgiveness)
S	Satisfactory (with credit)/Satisfactory Progress (Research, Thesis, or Dissertation)
T*	(followed by grade) Subsequently repeated (no credit)
U	Unsatisfactory (no credit)
W	Withdrawn
WF	Withdrawn Failing
WH	Health Form Withdrawal
WM	Medical Withdrawal
WP	Withdrawn Passing

X Audit (no credit)

\* “R” and “T” actions only apply to undergraduates.

The designation of “N” will be temporarily assigned by the Registrar’s Office only in the case when a grade has not been submitted by the faculty by the “grades due” deadline. The designator will be replaced by the earned letter grade at the earliest opportunity in the semester that immediately follows. The “N” designator may not be assigned by faculty.

A request for grade change will be considered only during the term immediately following the one in which the grade was assigned, except that grades assigned during the Spring semester may be changed during either the following Summer or Fall semester. Academic Actions do not change when an incomplete grade is completed nor when a course is repeated. A change in a grade must be approved by the Dean of the College. A grade will not be changed after a degree has been conferred.

## **Traveling Scholars**

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

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

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

As part of the Traveling Scholars agreement, SUS institutions agree to accept one another’s entrance requirements and credits. All Traveling Scholars are required to submit the Student Health History and immunization requirements according to UCF and BOE 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 Office of Graduate Studies (Millican Hall 230, P.O. Box 160112, Orlando, FL 32816-0112; Phone 407-823-2766), and the graduate program coordinator must complete the Program of Study so that the credits can be entered into the

student database. Credits earned at another institution while in Traveling Scholar status will be considered resident credits and are not counted as “transfer” credits under the “nine-hour” rule. These hours may count toward UCF residency requirements if prior approval is obtained. Graduate students are not allowed to be traveling scholars in their final, or graduation, term except by prior approval of the Office of Graduate Studies.

## **International Visiting Scholars**

The following policy and procedures allow departments to invite international visitors to study or participate in research activities at UCF. These scholars will be designated as Visiting Scholars or Visiting Research Scholars. The policy is directed to those who do not wish to earn a degree, but who may audit courses in the post-baccalaureate, nondegree-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 application for admission as a nondegree student and pay the \$20 application fee. The deadline is about four (4) months before the beginning of a term. A faculty member, as Faculty Sponsor, must accept the responsibility for recommending, advising, and directing the activities of the scholar. The procedure for extending an invitation is as follows:

1. If financial support will be provided to the visiting scholar using university resources, then the approval of the university must be obtained on all correspondence with the visiting scholar. Written arrangements should be made with the Vice President for Research for financial support prior to invitations to visiting scholars.
2. The Department Chair will submit a recommendation to the Dean specifying the Faculty Sponsor, documenting anticipated activities, and providing the following information on the Visiting Scholar:
  - a. Date of birth
  - b. City and country of birth
  - c. Country of residence if different from country of birth
  - d. Place of work (academic institution, business firm, etc.)
  - e. Current position held in country of residence
  - f. Academic background
  - g. Professional experience
  - h. Source and amount of financial support (recommended honorarium, if any)
  - i. English proficiency
  - j. Dates of visit
  - k. Statement of how the Visiting Scholar will participate in research and what will be accomplished
  - l. Office space, equipment, etc. which will be required for scholar’s use
3. If arrangements are approved, the Dean will notify the Vice President for Research that the College is extending an invitation. The Chair’s recommendation will be included with the notification. These will be sent to Office of Graduate Studies so that the invitation and application may be placed in the visiting scholar’s official university Filename.
4. The Office of Graduate Studies will then forward copies of the information to the Office of International Student and Scholar Services. A copy of the recommendation will also be sent to the Director of International Student and Scholar 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 Office of International Student and Scholar Services and

the Vice President for Research. The Scholar will be asked to write a brief report at the termination of the visit.

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

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

## Academic Common Market Scholars

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

Alabama	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 the Office of Graduate Studies at 407-823-5815 (Millican Hall 230, P.O. Box 160112, Orlando, FL 32816-0112).

## 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 to receive an out-of-state tuition award. 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. Information is available at <http://oir.dos.state.fl.us/linkagegrant.html>.

**Florida-Brazil Institute**

Hannah H. Covert, UF, 352-392-0375

Dr. Robert Vitale, Miami-Dade Community College, 305-237-2533

**Florida-Canada Institute**

Dr. Jean Kijek, UCF, 407-823-3647

**Florida-Caribbean Institute**

Eduardo Gamarra and Tammy Bowers, FIU, 305-348-2894

Dr. Donald Matthews, Daytona Beach Community College, 386-247-8131

**Florida-China Institute**

Dr. Henry O. K. Chen, UWF, 850-474-2665

Ms. Francine Arrington, Brevard Community College, 407-632-1111

Dr. Miriam B. Stamps, USF, 813-974-6205

**Florida-Costa Rica Institute**

Ms. Joan Cassels, FSU, 850-644-7823

Dr. Larry Reagan, Valencia Community College, 407-299-5000 ext. 3421

**Florida-Eastern Europe Institute**

Dr. Jean Kijek, UCF, 407-823-3647

Dr. Robert W. Westrick, Lake-Sumter Community College, 352-365-3523

Ms. Karen Levin, Lake-Sumter Community College, 352-323-3638

**Florida-France Institute**

Ms. Joan Cassels, FSU, 850-644-7823

Dr. Christine Probes, USF, 813-974-3104

Dr. Robert Vitale, Miami-Dade Community College, 305-237-2533

**Florida-Israel Institute**

Dr. William B. Stronge, FAU, 561-367-2833

Dr. William Greene, Broward Community College, 954-973-2206

Ms. Nancy Q. Rosen, FAU, 954-351-4150

**Florida-Japan Institute**

Dr. Mark Orr, USF, 813-974-9448

Ms. Shigeko Honda, UWF, 850-474-3108

Dr. Patricia Rowell, St. Petersburg Community College, 727-791-2474

**Florida-Mexico Institute**

Eduardo Gamarra and Tammy Bowers, FIU, 305-348-2894

Ana Maria Meyers and Rosalinda Collins, Polk Community College, 941-297-1010

**Florida-West Africa Institute**

Dr. Rose Glee and Ms. Agnes Coppin, FAMU, 850-599-3562

Dennis Gayle and Betty Flinchum, UNF, 904-620-1950

Dr. Brenda Simmons, Florida Community College at Jacksonville, 904-633-5895



## 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" in the *Graduate Catalog* 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 Graduate Studies and deposit in the Library will take place following the delay.
3. No graduate degree will be awarded when the thesis or research report, after a reasonable interval, is not available to the public. If material is sensitive, classified, or will be or has been patented, it may be placed in the Office of Graduate Studies for a specified period.
4. Contractual agreements that contain provisions for review and delay of disclosure shall be reviewed by the Vice President for Research, and exceptional cases shall be considered by the Graduate Council. Exceptional cases include a delay of disclosure for more than one year and/or review prior to the oral defense.
5. The student and the student's Advisory Committee shall be informed of the possibility of the delay of disclosure at the time of appointment of the Advisory Committee.

## Patent and Invention Policy

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, or representative, any **work** made in the course of university-supported efforts, together with an outline of the project and the conditions under which it was done.
    - 2. The Vice President for Research, or representative, shall gather information to assess the relative equities of the graduate student and the university in the **work**.
    - 3. Within sixty days after such disclosure, the Vice President for Research, or representative, will inform the graduate student whether the university seeks an interest in the **work**.
    - 4. The graduate student and the university shall not commit any act which would tend to defeat the university's or graduate student's interest in the **work** and shall take any necessary steps to protect such interests.
4. **Invention(s)**
- a. **Student-generated Efforts**  
All **inventions** made outside the field or discipline in which the graduate student is employed by the university and for which no university support has been used are the property of the graduate student.
  - b. **University-supported Efforts**  
An **invention** made in the field or discipline in which the graduate student is employed by the university, or receiving university support, is the property of the university and the graduate student shall share in the proceeds therefrom.
  - c. **Disclosure**
    - 1. A graduate student shall fully and completely disclose to the Vice President for Research, or representative, all **inventions** which the graduate student may develop or discover while a graduate student of the university, together with an outline of the conditions under which it was done. With respect to **inventions** made during the course of approved outside employment, the graduate student may delay such disclosure, when necessary to

protect the outside employer's interest, until the decision has been made by the outside employer whether to seek a patent.

2. If the university wishes to assert its interest in the invention, the Vice President for Research, or representative, shall inform the graduate student within 120 days of the graduate student's disclosure.
3. The division of proceeds generated by the licensing or assignment of an **invention**, shall be according to the established royalty division set forth in the patent policy of the university, pp. 1461-2, paragraph (c).
4. The graduate student and the university shall not commit any act which would tend to defeat the university's or graduate student's interest in the **invention** and shall take any necessary steps to protect such interests.

#### 5. Release of Rights

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

#### 6. University Policy

- a. The university has a policy addressing the division of proceeds between graduate students and faculty when the **research** is done and results in a dissertation, Department of Education (6C7-2.029 Copyrights and Patents, pp. 1461 and 1462). The university also has a policy addressing the division of proceeds between faculty and the university. It is contained in the Patents and Copyrights Policy of the Office of Sponsored Research. This same division of royalties will apply in the disbursement of royalty income to graduate students, unless this has been negotiated in a contractual agreement at the start of research.
- b. All **research** done by graduate students enrolled at the university for and with companies must have a contractual agreement negotiated at the start of that research.
- c. The Graduate Studies Faculty and Staff Guide details when dissertation or thesis dissemination can be delayed because of patent concerns. This can only occur when a prior contractual agreement has been entered into including provisions for review and delay for dissertation purposes. (See "Proprietary and Confidential Information" in the Policies section of the *Graduate Catalog*.)

## Course Requirements

### Course Loads

A full-time graduate student must take at least 9 credit hours each semester, with 12 semester hours being the maximum load. During the summer term, full-time is 6 credit hours and half-time is 3 credit hours. There are two exceptions to this policy: (1) For students in their last semester, a full-time load is whatever is required to finish the degree program. This is a one-time only exception to the general policy. (2) For doctoral students who have passed the candidacy exam and are registered for doctoral dissertation (XXX 7980) hours only, full-time is 3 hours per semester until graduation. In order to meet residency requirements, doctoral and specialist students must register for 9 hours in two contiguous terms. Master's students in the Thesis option are required to enroll in at least 1 hour (XXX 6971) each semester once they have begun thesis work and enrollment, and until thesis completion and graduation. One hour of thesis credit does not constitute full-time status unless the student is using the one-time exception during the graduation semester.

Students receiving veterans' education benefits should contact Veterans' Affairs for additional information about course loads.

## Course Levels of Graduate Work

**7000-Level Courses.** These courses are designed for doctoral students. Master's students are not permitted to enroll; students must be in doctoral status.

**6000-Level Courses.** These courses are designed for graduate students. Post-baccalaureate or nondegree-seeking students should check with the colleges about their ability to enroll in 6000-level courses. Students in combined undergraduate/graduate programs should check with their academic adviser before registering for 6000-level courses. Undergraduate registration in 6000-level courses is allowed only in special situations with prior approval by the college. Undergraduate students must be within nine hours of graduation, have a minimum 3.0 GPA, and not register for more than a total of twelve hours in that term. See also "Senior Scholars Program" in this chapter.

**5000-Level Courses.** Courses at the 5000 level are taken to satisfy graduate degree requirements and are graduate-level courses. Nondegree-seeking students and seniors may enroll in 5000-level courses with permission from the program.

**Other.** Under special circumstances 4000-level courses may be applied toward a graduate degree, but not in excess of six semester hours. Only 4000-level courses with a grade of "B-" or higher are acceptable in a program of study. Courses at the 3000 level or below shall not be utilized in a graduate program of study unless permission is obtained from the college prior to enrollment in the course. Under no circumstances should 3000-level courses be used in a doctoral program except as transfer credits as explained under "Transfer Credit" for doctoral students in this catalog.

### Language Requirements

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

## Transfer of Credit When Accreditation Is Uncertain

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

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

## Credit by Examination or Waiver

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

## **Thesis, Research Report, and Dissertation Grades**

For thesis (XXX 6971 or 6973), dissertation (XXX 7980), and research report (XXX 6909) courses, satisfactory (S) or unsatisfactory (U) grades are used to reflect student progress in these courses. Should a student in a given term be given an incomplete (I), 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, as determined by their dissertation advisory committee, 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.

## **Application for Graduate Degree**

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

## **Application for Graduate Certificate**

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

## **Thesis and Dissertation Requirements**

An oral defense of an original thesis or dissertation is required with copies of the approved thesis or dissertation being prepared in accordance with program, college, and university requirements. Academic dishonesty in thesis, research report and dissertation work may result in reversion to post-baccalaureate status or termination from the degree program. Our emphasis on academic honesty requires quotations or ideas of others to be accompanied by appropriate citations. 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 the Office of Graduate Studies for binding. Graduate students can obtain the manual from the Office of Graduate Studies website ([www.graduate.ucf.edu](http://www.graduate.ucf.edu)).

Additionally, the Thesis/Dissertation Editor maintains online workshops to inform graduate students about procedures, deadlines, and requirements associated with preparing a thesis and dissertation [www.graduate.ucf.edu](http://www.graduate.ucf.edu).

All theses and dissertations that use research involving human subjects, including surveys, must obtain approval from an independent board, the Institutional Review Board (IRB), for this prior to starting the research. It is imperative that proper procedures are followed when using human subjects in research projects. Information about this process can be obtained from the Office of Research (<http://www.research.ucf.edu>). Failure to obtain this prior approval could jeopardize receipt of the student's degree.

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 Office of Graduate Studies by the dates shown in the Academic Calendar.

## **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 (SASS audit forms or program of study with approval signatures) are forwarded to the Office of 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 the Office of Graduate Studies.

## **Certification of Completion of a Graduate Certificate**

The college of the graduate certificate program must certify through the College Dean that all program and college requirements have been met. Completion of Graduate Certificate forms (available at [www.graduate.ucf.edu](http://www.graduate.ucf.edu)) are forwarded to the Office of Graduate Studies for final determination of program, college, and university requirements.

For each certificate program, a graduate program coordinator will be appointed to certify successful completion of the program's academic requirements. The Office of Graduate Studies will arrange for recording the completed certificate on the student's transcript. The certificate is mailed to the student unless the student or the graduate program requests other arrangements. Certificate recipients are not recognized at commencement.

## **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 the Office of Graduate Studies that no UCF resources will be utilized, a student must be registered in the term of graduation.

## **Readmission**

To Filename for readmission, the student must complete a Reactivation/Readmission Application and mail it to the Office of Graduate Studies, or the student may fax (407-823-6442) or e-mail ([graduate@mail.ucf.edu](mailto:graduate@mail.ucf.edu)) Graduate Studies stating a desire for readmission for a particular term. The Office of Graduate Studies will consult with the program about readmission. Readmission decisions are individually made, based on such factors as space in the program, reasons for the break in graduate education, progress in the degree program, among others.

## Graduate Certificate Programs

### Overview

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

It is the intent of these programs to be current, providing specialized and state-of-the-art content to area employees. Often certificate programs are offered using flexible and 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 are often ideal for nondegree students who would like to sample graduate courses before committing to a graduate degree program. Certificate programs may round out a graduate degree program, providing a special emphasis in addition to a graduate degree. Frequently a certificate program can provide an interdisciplinary focus to an existing program of study to provide more depth and understanding to enhance the graduate program.

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

### University Admission Standards

Students admitted to a graduate degree program or to post-baccalaureate status are eligible to take graduate certificate programs. Those with bachelor's, master's, or doctoral degrees are eligible to enroll in certificate programs and must apply by submitting a separate graduate certificate application that designates the graduate certificate. Entry to a certificate program does not guarantee admission to a graduate program. However, once a person is accepted into a regular graduate program, credits from a UCF certificate program may be applied toward an existing graduate program with the consent of the program. Post-baccalaureate students who are enrolled in a certificate program are not eligible for tuition waivers, assistantships, fellowships, or federal financial aid. Students are advised to apply for the graduate certificate program well in advance of completion of all required courses so that their additional graduate status can be on Filename and to enable the program and university to accurately track certificate activity.

## Course Requirements and Loads

A certificate program must comprise a minimum of nine semester hours and a maximum of 18. The course work must consist of an integrated and organized sequence of study; course substitutions are not permitted beyond the specified curriculum.

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

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

All courses that are offered as part of a certificate program must be graduate-level courses. Students must earn course grades of “B-” or better to get credit toward the certificate. Courses may be retaken to achieve a better grade. However, the certificate will only be awarded if the overall grade point average for all courses in the certificate program of study is 3.0 or higher.

## Applicable Credits

### Transfer of Credit

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

### Recency of Credit

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

### Completion of Graduate Certificate

Students will not be processed for completion of a graduate certificate unless there is a record of application that designated the graduate certificate and admission to the graduate certificate program. The Graduate Certificate Completion form can be downloaded from the Office of Graduate Studies website ([www.graduate.ucf.edu](http://www.graduate.ucf.edu)), and must be Filenamed with the program office when the student is registering for the final course in the certificate program. The students complete their name, address, and certificate name information and submit the form to the graduate certificate program office so that the required courses can be listed and final grades can be verified. The program coordinator approval signature signifies that requirements have been met according to the program of study and university policies. College review and approval signature is required before the completion form is submitted to the Office of Graduate Studies for final verification, processing, and release of the certificate completion.

## 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. The university encourages applications from a diverse population and values diversity in our graduate programs.

## **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. 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. A research report may be required in a non-thesis option master's program.

### **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. The Graduate Council must approve any exceptions to this requirement. Exceptions to this rule have been granted to Computer Science, Mathematics, Statistics, and English, with the understanding that additional 6000 level courses would be developed so that students can fulfill this requirement.

### **Directed Independent Studies Courses**

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

### **Residence Credit**

At least 21 semester credits must be UCF credits. Residence credits may be earned through enrollment in courses physically offered on the main campus; or at the UCF area campuses (Brevard, Daytona Beach, and Downtown); or at geographical locations where UCF courses are being taught by regular UCF faculty members. Residence credits also include UCF courses offered through the World Wide Web.

### **Transfer of Credits Taken Before Enrolling at UCF**

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

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

No more than nine semester hours total of graduate credit may be transferred into the graduate program from UCF post-baccalaureate work or from other accredited institutions. All of the hours taken in a graduate certificate program can be used in a graduate degree program with the consent of the program. These hours are not subject to the nine-hour limit.

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

Institutions not in the State University System must be fully accredited by a regional accrediting association of the Commission on Accreditation (e.g., the Southern Association of Colleges and Schools). In some instances, UCF will have conducted an independent evaluation of a nonaccredited institution. If judged to be equivalent, hours may be transferred from these schools. In all instances, only grades of B- or better will be transferred.

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

## **Accelerated Undergraduate and Graduate Programs**

Some programs combine undergraduate and graduate course work in a more seamless educational experience for students, reducing the time spent working on both degrees and providing a challenging educational experience to outstanding undergraduates. These accelerated bachelor’s and master’s (3+2 or 4+1) programs usually provide about five years of work toward both degrees.

While students are classified as undergraduate students, they are subject to undergraduate policies. Similarly, those who are classified as graduate students are subject to graduate policies.

The undergraduate requirements listed in the *Graduate Catalog* for specific programs are for informational purposes only. The official requirements are detailed in the *Undergraduate Catalog* and take precedence over what is described here.

## **Senior Scholars Program**

UCF undergraduates who successfully complete UCF graduate course work as part of their UCF undergraduate program are designated Senior Scholars. As Senior Scholars they are entitled to use up to nine hours of graduate credits toward a UCF graduate degree, with the consent of the program. Senior Scholars may include this honor on their resumes. Undergraduates wishing to participate in this program should consult their adviser.

## **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 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 Filename 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.

## Appointment of Committee or Adviser

It is the responsibility of the appropriate academic Dean of the college or the coordinator of the program to (1) determine whether an advisory committee or an adviser will be used and (2) approve the necessary appointments. The Academic Adviser is normally necessary when there is considerable flexibility in course work, or where the student is conducting research and working with a thesis adviser who is not a UCF faculty member. Both thesis and non-thesis programs may find it useful to appoint an Academic Adviser.

# Thesis

The thesis is the culminating or comprehensive experience for those who conduct an original research study. The thesis consists of a common theme with an introduction and literature, details of the study, and results and conclusions. Since the work is original, it is very important that care is taken in properly citing ideas and quotations of others. Academic dishonesty in thesis, research report and dissertation work may result in reversion to post-baccalaureate status or termination from the degree program.

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 and outlines the steps graduate students must follow to submit their theses to the Office of Graduate Studies for binding. Graduate students can obtain the manual from the Office of Graduate Studies website ([www.graduate.ucf.edu](http://www.graduate.ucf.edu)).

Additionally, the Thesis/Dissertation Editor maintains online workshops to inform graduate students about procedures, deadlines, and requirements associated with preparing a thesis ([www.graduate.ucf.edu](http://www.graduate.ucf.edu)).

All theses that use research involving human subjects, including surveys, must obtain approval from an independent board, the Institutional Review Board (IRB), for this prior to starting the research. Graduate students and the faculty that supervise them are required to attend training on IRB policies, so this needs to start well in advance of the research start date. It is imperative that proper procedures are followed when using human subjects in research projects. Information about this process can be obtained from the Office of Research (<http://www.research.ucf.edu>). Click on "Compliance" and the IRB Policy and Procedures Manual is available. In addition, should the nature of the research or the faculty supervision change since the IRB approval was obtained, then new IRB approval must be sought. Failure to obtain this prior approval could jeopardize receipt of the student's degree.

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 Office of Graduate Studies by the dates shown in the Academic Calendar.

### **Thesis Advisory Committee Composition**

A student writing a thesis must have a Thesis Advisory Committee. This committee will recommend to the Dean of the college 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. At least two members must be qualified regular faculty members from the student's department (or college, if a college-wide program) at UCF, one of whom must serve as the chair of the committee. Only one adjunct or visiting faculty member may serve as a member of a thesis advisory committee. An adjunct or visiting faculty may not serve as the chair, but may serve as a co-chair.

Program areas may specify additional committee membership beyond the minimum of three. Qualifications of additional members must be equivalent to that expected of UCF faculty members. UCF faculty members must form the majority of any given committee.

Committee membership must be approved by the Dean or designee of that College. All members must be in fields related to the thesis topic. The Office of Graduate Studies reserves the right to review appointments to a thesis advisory committee, place a representative on any thesis advisory committee, or appoint a co-chair. A student may request a change in membership of the thesis advisory committee.

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 committee.

### **Enrollment Requirement**

Master's level students who are engaged in thesis or research report-related activity must be enrolled for at least one credit hour of thesis (or research report) each semester continuously after completion of regular course work and required minimum thesis hours. This requirement does not negate other regulations regarding full-time enrollment or the requirement that all graduate students be enrolled in the term they graduate. (See "Registration in Term of Graduation" in the Policies section of the *Graduate Catalog*.)

### **Thesis Defense**

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

## **Education Specialist Programs**

### **Overview**

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. The primary goal of the Ed.S. degree is teaching or acquiring professional proficiency in a specialized education-related area. Because the purpose of the Ed.S. degree may

differ from that of the Ed.D., credit earned in an Ed.S. program is not automatically transferable to a doctoral program. Instead, if a holder of an Ed.S. degree enters a doctoral program at a later date, the doctoral advisory committee will decide how much of the credit earned in the Ed.S. program will be credited toward the doctorate. In any case, only 30 hours taken prior to doctoral status may be transferred into the doctoral program of study.

## 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

Educational Leadership majors must successfully complete one five-hour examination in their major area and one three-hour examination in an area of specialization. Curriculum and Instruction majors must successfully complete one three-hour examination in their teaching specialty and one three-hour examination in the Educational Foundations area. School Psychology (School Psychology Track) students must successfully complete one three-hour examination during the last semester of enrollment.

## Program of Study and Academic Standards

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

## Transfer of Credit

**Educational Leadership program.** A maximum of 9 semester hours earned in a master's degree may be applied to the program of study. Transfer credit decisions are made by the respective graduate program coordinators and the specialization advisers with the approval of the College of Education.

**Curriculum and Instruction program.** A maximum of 9 semester hours earned in a master's degree may be applied to the program of study. Transfer credit decisions are made by the respective graduate program coordinators and the specialization advisers with the approval of the College of Education.

**School Psychology program.** 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. Courses taken as an undergraduate student may not be used for transfer unless the credit was graduate level and not a part of the undergraduate degree program.

## Time Limitation and Continuous Attendance

The student has seven 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 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 Filename 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 Filenamed 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 Filenamed 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 doctoral dissertation (XXX 7980) hours.

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

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

## Completion of Qualifying Examination

Eligibility to continue a doctoral program should be limited to superior students who have demonstrated intellectual ability, high achievement, and adequate preparation for advanced study and research in a chosen field. The decision to allow a student continuing progress toward a doctorate is made by the graduate committee of the program area concerned and the Dean of the college on the basis of the qualifying examination and/or other criteria as specified by the individual program area. This exam is normally taken within the first year of a doctoral program.

## **Program of Study**

A program of study (i.e., required course work) will be specified by the student's program area and approved by the college. The particular plan of study, which may vary from student to student, should be formulated jointly by the student and the appropriate committee or adviser in the program area. Changes in the program of study may be made at any time by the advisory committee.

## **Course Requirements**

The course requirements for a doctoral degree will consist of lectures, seminars, discussions, independent research, and independent study. Each program of study will include a minimum of 72 semester hours of graduate credit beyond the baccalaureate degree, 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.

## **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 and Computer Science allows up to 36 credit hours, including up to 6 thesis credits, to be transferred from the master’s program.

Graduate programs are permitted to accept up to nine hours of graduate course work taken at UCF while an undergraduate student as part of an undergraduate program of study. Oversight of the appropriateness of and discretion for accepting such courses into a graduate program of study will be provided by the instructor, graduate program coordinator, and graduate college coordinator. This does not apply to 4000-level course work taken while an undergraduate student.

## **Time Limitation for Degree Completion**

The student has seven 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 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 Filename for readmission to the university, although seven years is measured from when the student was first admitted to the program. To Filename for readmission, the student must complete a Reactivation/Readmission Application, or contact the Office of Graduate Studies by fax (407-823-6442) or e-mail ([graduate@mail.ucf.edu](mailto:graduate@mail.ucf.edu)) and state a desire for readmission for a particular term. The Office of Graduate Studies will consult with the program about readmission. For more information about readmission, refer to the “Admission” and “Registration” sections of this catalog.

Doctoral students admitted to candidacy must continuously enroll in three hours of dissertation course work (XXX 7980) each semester until the dissertation is completed. Readmission decisions are individually made, based on such factors as space in the program, reasons for the break in graduate education, progress in the degree program, among others.

## **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 doctoral dissertation hours (XXX 7980). The admission to candidacy will be approved by the graduate college coordinator and forwarded to Office of 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 Filename in the program.

# **Dissertation**

Dissertations are required in all doctoral programs, with copies of the approved dissertation being prepared in accordance with program requirements. The dissertation is a significant contribution to the discipline for all completing a doctoral degree and consists of an original research study. The dissertation consists of a common theme with an introduction and literature, details of the study, and results and conclusions. Since the work is original, it is very important that care is taken in properly citing ideas and quotations of others. Failure to do so is academic dishonesty and subject to termination from the program without receiving the degree. An oral defense of the dissertation is required.

## **Enrollment in Dissertation Hours**

The student must continue to enroll for at least three semester hours of doctoral dissertation credit (XXX 7980) each semester after attaining candidacy status until the successful oral defense of the dissertation has been made. Post-candidacy enrollment is allowable for a maximum of four years subject to the seven-year time limitation.

## **Dissertation Advisory Committee Composition**

Doctoral students must have a Dissertation Advisory Committee prior to the Candidacy Examination. The Committee will consist of a minimum of four members. At least three members must be qualified regular faculty members from the student's department (or college, if a college-wide program) at UCF, one of whom must serve as the chair of the committee. One member must be from either outside the student's department at UCF (or college, if a college-wide program) or outside the university.

Only one adjunct or visiting faculty member may serve as a member of a dissertation advisory committee. An adjunct or visiting faculty may not serve as the chair, but may serve as a co-chair. One of the co-chairs must satisfy faculty qualifications for serving as a chair of a dissertation advisory committee. The other co-chair must satisfy the minimum requirements for serving as a member of a dissertation advisory committee.

Program areas may specify additional committee membership beyond the minimum of four. Qualifications of additional members must be equivalent to that expected of UCF faculty members. UCF faculty members must form the majority of any given committee. Committee membership must be approved by the Dean or designee of that College. All members must be in fields related to the dissertation topic. The Office of Graduate Studies reserves the right to review appointments to a dissertation advisory committee, place a representative on any

dissertation advisory committee, or appoint a co- chair. A student may request a change in membership of the dissertation advisory committee.

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 dissertations and outlines the steps graduate students must follow to submit their dissertations to the Office of Graduate Studies for binding. Graduate students can obtain the manual from the Office of Graduate Studies website ([www.graduate.ucf.edu](http://www.graduate.ucf.edu)).

Additionally, the Thesis/Dissertation Editor maintains online workshops to inform graduate students about procedures, deadlines, and requirements associated with preparing a dissertation ([www.graduate.ucf.edu](http://www.graduate.ucf.edu)). Those students who have just passed Candidacy are strongly encouraged to visit the online workshop.

All dissertations that use research involving human subjects, including surveys, must obtain approval from an independent board, the Institutional Review Board (IRB), for this prior to starting the research. Graduate students and the faculty that supervise them are required to attend training on IRB policies, so this needs to start well in advance of the research start date. It is imperative that proper procedures are followed when using human subjects in research projects. Information about this process can be obtained from the Office of Research (<http://www.research.ucf.edu>). Click on "Compliance" and the IRB Policy and Procedures Manual is available. In addition, should the nature of the research or the faculty supervision change since the IRB approval was obtained, then new IRB approval must be sought. Failure to obtain this prior approval could jeopardize receipt of the student's degree.

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 Office of Graduate Studies by the dates shown in the Academic Calendar. Doctoral students also must provide one unbound copy for microfilming by University Microfilms International (UMI). The editor will send dissertations to UMI, with the student's completed UMI form and microfilming fee.

### **Dissertation Defense**

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

University of Central Florida  
Graduate Catalog 2002-2003

# Degrees

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## Accounting

### Description

College of Business Administration School of Accounting Graduate Program Coordinator: Linda J. Savage, Ph.D., BA 433, (407) 823-5661. E-mail: [Linda.Savage@bus.ucf.edu](mailto:Linda.Savage@bus.ucf.edu)

The Master of Science in Accounting degree provides candidates with greater breadth and depth in accounting than is possible in baccalaureate programs. The program emphasis is on the preparation of individuals for careers as professional accountants and consultants in public practice, financial institutions, governments, industry, and nonprofit organizations. The program along with appropriate foundation work satisfies the Florida requirements to qualify to take the CPA Examination.

### Degree Offered

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

## Master of Science in Accounting

The Master of Science in Accounting (M.S.A.) degree is awarded upon satisfactory completion of a graduate program of a minimum of 30 credit hours. In the total program of study a minimum of 18 hours of the course work, including a minimum of 12 hours of accounting/tax course work, must be at the 6000 level. Students, with the assistance and approval of the program adviser, may select courses that reflect their interests.

### Admission Requirements

[Admission to Master's Programs in the College of Business Administration](#)

- GPA of 3.0 in last 60 hours and 3.0 in upper division accounting and tax courses and GMAT of 500
- TOEFL of 233 (computer test)
- resume

Both GPA and Test Scores must be officially reported to the Office of Graduate Studies.

[Application Deadlines](#)

For consideration for college financial assistance, apply at least one month before the application deadline.

## Accounting and Business Foundation Core

31.5 Credit Hours Minimum

The courses included in the accounting and business foundation core are listed below. A recent UCF accounting undergraduate degree satisfies the 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.

### Business Foundation Core

- ACG 5005 Accounting Foundations (1.5 credit hours)
- ECO 5006 Economic Foundations (1.5 credit hours)
- ECO 5414 Statistical Foundations (1.5 credit hours)\*
- FIN 5407 Financial Foundations (1.5 credit hours)\*
- ISM 5021 Introduction to Management Information Systems (1.5 credit hours)\*
- MAN 5021 Management Foundations (1.5 credit hours)\*
- MAR 5055 Marketing Foundations (1.5 credit hours)\*

## Accounting Foundation Core

- ACG 3XXX Financial Accounting Concepts and Analysis (3 credit hours)
- ACG 3XXX Intermediate Financial Accounting (3 credit hours)
- ACG 4401 Accounting Information Systems (3 credit hours)
- ACG 4651 Auditing or ACG 4XXX Internal Auditing (3 credit hours)
- BUL 3130 Legal and Ethical Environment of Business (3 credit hours)
- TAX 4XXX Taxation of Business Entities and Transactions (3 credit hours)

\* Or undergraduate course equivalent taken as an undergraduate student. If the course was not part of the undergraduate program, it must be taken at the 5000 level.

## Degree Requirements

Minimum Hours Required for the MSA—30 Credit Hours

[Academic Standards in the College of Business Administration](#)

### Required Courses—6 Credit Hours

- ACG 6636 Advanced Auditing Topics (3 credit hours)
- ACG 5405 Advanced Accounting Information Systems (3 credit hours)

### Restricted Electives--24 Credit Hours

Students must select eight elective courses for their programs of study. Five selections must be from the list of restricted electives listed below. At least three of these five selected courses must be accounting and/or taxation courses at the 6000 level.

### Accounting and Taxation Restricted Electives

- ACG 5205 Advanced Financial Accounting Topics (3 credit hours)
- ACG 5346 Advanced Managerial Accounting (3 credit hours)
- ACG 5517 Financial Accounting and Auditing for Governmental and Nonprofit Organizations (3 credit hours)\*
- ACG 6675 Operational Auditing (3 credit hours)
- ACG 6255 International and Multinational Accounting (3 credit hours)
- ACG 6519 Seminar in Governmental and Nonbusiness Accounting and Auditing (3 credit hours)
- ACG 6685 Seminar in Fraud Auditing (3 credit hours)
- ACG 6805 Seminar in Accounting Theory (3 credit hours)
- ACG 6415 Seminar in Accounting Information Systems (3 credit hours)
- ACG 6835 Seminar in Ethics and Professionalism in Accounting and Auditing (3 credit hours)
- ACG 6946 Graduate Accounting Internship (3 credit hours)
- TAX 5015 Advanced Tax Topics (3 credit hours)\*\*
- TAX 6065 Tax Research (3 credit hours)
- TAX 6135 Taxation of Corporations and Shareholders (3 credit hours)
- TAX 6205 Partnership Taxation (3 credit hours)
- TAX 6405 Taxation of Estates and Gifts (3 credit hours)
- TAX 6845 Tax Planning and Consulting (3 credit hours)

- TAX 6505 International Taxation (3 credit hours)

## Business Restricted Electives

- BUL 5XXX Advanced Business Law Topics (3 credit hours)\*\*
- ECO 6115 Economic Analysis of the Firm (3 credit hours)
- FIN 6406 Strategic Financial Management (3 credit hours)
- FIN 6425 Asset Management and Financial Decisions (3 credit hours)
- FIN 6475 Business Valuation (3 credit hours)
- FIN 6515 Analysis of Investment Opportunities (3 credit hours)
- ISM 6227 Management of Telecommunications (3 credit hours)
- ISM 6305 Information Resources Management (3 credit hours)
- ISM 6367 Strategic Information Systems (1.5 hours)
- ISM 6407 Decision Support Systems (1.5 hours)
- ISM 6485 Electronic Commerce (3 credit hours)
- ISM 6537 Quantitative Models for Business Decisions (3 credit hours)

\* Students, who have not completed ACG 3501 Financial Accounting for Governmental and Nonprofit Organizations, or equivalent, must complete ACG 5517 Financial Accounting and Auditing for Governmental and Nonprofit Organizations or ACG 6519 Seminar in Governmental and Nonbusiness Accounting and Auditing. It may be selected as an elective in the graduate program of study courses.

\*\* Students planning to take the CPA examination should include TAX 5015 Advanced Tax Topics and BUL 5XXX Advanced Business Law Topics in their elective course selections.

## Other Electives

The additional three elective courses may be from the list above of restricted electives, including accounting, taxation, and other business electives. They may also be selected from other graduate courses offered in the College of Business Administration or from outside the College. Courses not on the restricted elective list should be selected with the student's area of interest in mind and with approval of the program advisor. The university limits program of study courses outside the college to six semester hours.

Students must show clear evidence of proficiency in oral and written communication and computer usage.

## Comprehensive Examination

Satisfactory completion of an end-of-program comprehensive examination is required. The M.S.A. program does not require a thesis.

# Aerospace Engineering

## Description

College of Engineering and Computer Science Department of Mechanical, Materials and Aerospace Engineering Interim Chair of the Department: Dr. D. W. Nicholson Associate Chair of the Department: Dr. H. Hagedoorn Graduate Program Coordinator: Dr. Alain J. Kassab, ENGR 381, (407) 823-5778. E-mail: [kassab@mail.ucf.edu](mailto:kassab@mail.ucf.edu) Web address: <http://www-mmae.engr.ucf.edu/>

The aerospace engineering program offers two tracks for the master's (MSAE) degree: Space Systems Design and Engineering, which includes the fields of controls and dynamics, space environment, instrumentation and communications, structures and materials, thermal analysis and design; and Thermofluid Aerodynamic Systems Design and Engineering, which includes the fields of controls and dynamics, aerodynamics, propulsion, thermal analysis, and design.

## Degrees Offered

### Master of Science in Aerospace Engineering (M.S.A.E.)

- Space Systems Design and Engineering Track
- Thermofluid Aerodynamic Systems Design and Engineering Track

## Faculty

Professors: P. J. Bishop, Ph.D., P.E., Vice Provost and Dean of Graduate Studies; L. C. Chow, Ph.D.; V. H. Desai, Ph.D., P.E.; B. E. Eno, Ph.D., P.E.; A. J. Kassab, Ph.D.; F. A. Moslehy, Ph.D., P.E.; D. W. Nicholson, Ph.D.

Associate Professors: R. H. Chen, Ph.D.; L. Chew, Ph.D.; T. Conway, Ph.D.; S. T. Durrance, Ph.D.; L. A. Giannuzzi, Ph.D.; A. H. Hagedoorn, Ph.D., P.E.; R. W. Johnson, Ph.D., P.E.; J. Kapat, Sc.D.; K. C. Lin, Ph.D., P.E.; A. Minardi, Ph.D.; J. Nayfeh, Ph.D.; C. E. Nuckolls, Ph.D., P.E.; C. Suryanarayana, Ph.D.; G. G. Ventre, Ph.D., P.E.

Assistant Professors: Linan An, Ph.D.; Quanfang Chen, Ph.D.; Yong-ho Sohn, Ph.D.; Raj Vaidyanathan, Ph.D.; D. Zhou, Ph.D.

Emeritus Professors: E. R. Hosler, Ph.D., P.E.; J. D. McBrayer, Sc.D., P.E.; W. F. Smith, Sc.D., P.E.

Visiting Assistant Professors: C. Ham, Ph.D.; E. Divo, Ph.D.

Joint Appointees: K.D. Belfield, Ph.D., Department of Chemistry; K. A. Cerqua-Richardson, Ph.D., School of Optics; M. B. Chopra, Ph.D., Department of Civil and Environmental Engineering; N. S. Dhere, Ph.D., Florida Solar Energy Center; A. Kar, Ph.D., School of Optics; W. Luo, Physics, D.C. Malocha, Ph.D., School of Electrical Engineering and Computer Science; N. Misconi, Engineering Technology; K.V. Sundaram, School of Electrical Engineering and Computer Science; R. Y. Ting, Ph.D., AMPAC; K. Vajravelu, Ph.D., Department of Mathematics

Research Faculty: J. Bindell, Ph.D., Cirent Semiconductor; R. Irwin, Ph.D., Cirent Semiconductor; F. Stevie, M.S., Cirent Semiconductor; R. Zarda, Ph.D., Lockheed-Martin Missiles and Fire Control

## Master of Science in Aerospace Engineering

### Admission Requirements

The Master of Science degree in Mechanical Engineering (M.S.A.E.) is intended primarily for a student with a bachelor's degree in mechanical or aerospace engineering or a closely related discipline obtained from a recognized institution. Minimum requirements for admission to regular status are a 3.0 grade point average (4.0=A) in the last 60 attempted hours of undergraduate study at an accredited institution, 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 220 (computer-based test; or equivalent score on the paper-based test) on the Test of English as a Foreign Language (TOEFL).

In certain circumstances a trial program may be extended to students who have a GPA below 3.0 but otherwise meet university requirements. Additional courses may be required to correct deficiencies. Students should contact the MMAE graduate program coordinator for further information.

[Application Deadlines](#)

## Degree Requirements

All students are expected to identify an adviser and file an official degree program of study prior to the completion of nine semester hours of study. Students should consult with the MMAE graduate program coordinator for assistance in filling out a program of study. The Aerospace master's program is divided into two tracks: (1) Space Systems Design and Engineering Track and (2) Thermofluid Aerodynamic Systems Design and Engineering Track. Students will select one of these on entering the Aerospace Program and select a thesis or non-thesis alternative. (A plan of study must be completed and signed by your adviser by the end of the first semester.)

Thesis Alternative

Required Courses (Core)—9 credit hours

Optional Courses (at least four)—12 credit hours

Electives (at least one)—3 credit hours. Electives selected in consultation with adviser and taken from Optional Course List and/or [Other Support Course List](#)

Thesis—6 credit hours

Minimum Credit Hours Required for MMAE—30 credit hours

Non-Thesis Alternative

Required Courses (Core)—9 credit hours

Optional Courses (at least five)—15 credit hours

Electives (at least four)—12 credit hours. Electives selected in consultation with adviser and taken from Optional Course List and/or [Other Support Course List](#)

Final Examination—0 credit hours

Minimum Credit Hours Required for MMAE—36 credit hours

Comprehensive Examination—The Non-Thesis Alternative requires a comprehensive final examination.

## Space Systems Design and Engineering Track

There are three options available in the master's degree program (MSAE) in this track. Students should select one option. These options are:

- Controls/Dynamics
- Structures/Materials/Thermal
- Space Environment/Instrumentation/Communications

Prerequisite (or Equivalent) Requirements For This Track

- Mathematics through Differential Equations (MAP 2302)
- Modeling Methods in Mechanical and Aerospace Engineering (EML 3034)
- Engineering Analysis - Dynamics (EGN 3321)
- Feedback Control (EML 3312)
- Discrete Control in Aerospace Vehicles (EAS 3404) or Digital Control in Mechatronics (EML 3804)
- Flight Structures (EAS 4200)



# Controls/Dynamics Option

Required Courses (Core)—9 Credit Hours

- EAS 5407 Mechatronic Systems (3 credit hours)
- EAS 6507 Topics of Astrodynamics (3 credit hours)
- EML 5060 Mathematical Methods in Mechanical, Materials and Aerospace Engineering (3 credit hours)

Optional Course List

- EAS 5XXX Guidance, Navigation and Control (3 credit hours)
- EAS 6405 Advanced Flight Dynamics (3 credit hours)
- EAS 6XXX Aerospace Measurements/Instrumentation (3 credit hours)
- EAS 6XXX Attitude Determination and Control (3 credit hours)
- EEL 6616 Adaptive Control (3 credit hours)
- EEL 6621 Nonlinear Control Systems (3 credit hours)
- EML 5271 Intermediate Dynamics (3 credit hours)
- EML 5311 System Control (3 credit hours)
- EML 6808 Analysis and Control of Robot Manipulators (3 credit hours)

[Other Support Course List](#)

# Structures/Materials/Thermal Option

Required Courses (Core)—9 Credit Hours

- EAS 5407 Mechatronic Systems (3 credit hours)
- EAS 6507 Topics of Astrodynamics (3 credit hours)
- EML 5060 Mathematical Methods in MMAE (3 credit hours)

Optional Course List

- EMA 6628 Materials Failure Analysis (3 credit hours)
- EML 5152 Intermediate Heat Transfer (3 credit hours)
- EML 5211 Continuum Mechanics (3 credit hours)
- EML 5237 Intermediate Mechanics of Materials (3 credit hours)
- EML 5713 Intermediate Fluid Mechanics (3 credit hours)
- EML 6067 Finite Elements in MMAE (3 credit hours)
- EML 6157 Radiation Heat Transfer (3 credit hours)
- EML 6227 Nonlinear Vibration (3 credit hours)
- EML 6547 Engineering Fracture Mechanics in Design (3 credit hours)

[Other Support Course List](#)

# Space Environment/Instrumentation/Communications Option

Required Courses (Core)—9 Credit Hours

- EAS 5407 Mechatronic Systems (3 credit hours)
- EAS 6507 Topics of Astrodynamics (3 credit hours)
- EML 5060 Mathematical Methods in MMAE (3 credit hours)

Optional Course List

- EAS 6XXX Space Environment and Payload Instrumentation (3 credit hours)
- EEL 5432 Satellite Remote Sensing (3 credit hours)
- EEL 5542 Random Processes I (3 credit hours)

- EEL 5881 Software Engineering I (3 credit hours)
- EEL 6530 Communication Theory (3 credit hours)
- EML 5271 Intermediate Dynamics (3 credit hours)
- EML 5311 System Control (3 credit hours)

[Other Support Course List](#)

## Thermofluid Aerodynamic Systems Design and Engineering Track

There are three options available in the master's degree program (MSAE) in this track. Students should select one option. These options are:

- Aerodynamics
- Thermal Analysis and Design
- Propulsion

Prerequisite (or Equivalent) Requirements For This Track

- Mathematics through Differential Equations (MAP 2302)
- Mathematical Modeling Methods (EML 3034)
- High-Speed Aerodynamics (EAS 4134)
- Aerothermodynamics of Propulsion Systems (EAS 4300)
- Flight Mechanics (EAS 4105)
- Fluid Mechanics II (EML 4703)

Required Courses (Core) For This Track—9 Credit Hours

- EAS 5407 Mechatronic Systems (3 credit hours)
- EAS 6507 Topics of Astrodynamics (3 credit hours)
- EML 5060 Mathematical Methods in MMAE (3 credit hours)

### Aerodynamics Option

Optional Course List

- EAS 5123 Intermediate Aerodynamics (3 credit hours)
- EAS 5315 Rocket Propulsion (3 credit hours)
- EAS 6138 Advanced Gas Dynamics (3 credit hours)
- EAS 6185 Turbulent Flow (3 credit hours)
- EML 5402 Turbomachinery (3 credit hours)
- EML 5713 Intermediate Fluid Mechanics (3 credit hours)
- EML 6712 Mechanics of Viscous Flow (3 credit hours)
- EML 6725 Computational Fluid Dynamics and Heat Transfer I (3 credit hours)

[Other Support Course List](#)

### Thermal Analysis and Design Option

Optional Course List

- EAS 5302 Direct Energy Conversion (3 credit hours)
- EAS 5315 Rocket Propulsion (3 credit hours)
- EAS 6138 Advanced Gas Dynamics (3 credit hours)
- EML 5152 Intermediate Heat Transfer (3 credit hours)
- EML 5402 Turbomachinery (3 credit hours)
- EML 6155 Convection Heat Transfer (3 credit hours)

- EML 6157 Radiation Heat Transfer (3 credit hours)
- EML 6712 Mechanics of Viscous Flow (3 credit hours)

[Other Support Course List](#)

## Propulsion Option

Optional Course List

- EAS 5315 Rocket Propulsion (3 credit hours)
- EAS 6138 Advanced Gas Dynamics (3 credit hours)
- EAS 6138 Advanced Gas Dynamics (3 credit hours)
- EML 5105 Gas Kinetics and Statistical Thermodynamics (3 credit hours)
- EML 5131 Combustion Phenomena (3 credit hours)
- EML 5402 Turbomachinery (3 credit hours)
- EML 6712 Mechanics of Viscous Flow (3 credit hours)
- EML 6725 Computational Fluid Dynamics and Heat Transfer I (3 credit hours)

[Other Support Course List](#)

## Other Support Course List

For both tracks and all options

- CDA 5106 Advanced Computer Architecture I (3 credit hours)
- COT 5405 Design and Analysis of Algorithms (3 credit hours)
- EAS 5315 Rocket Propulsion (3 credit hours)
- EAS 5XXX Engineering Design for Aerospace Vehicle (3 credit hours)
- EEL 5173 Linear Systems Theory (3 credit hours)
- EEL 5245C Power Electronics (3 credit hours)
- EEL 5881 Software Engineering 1 (3 credit hours)
- EEL 6537 Detection and Estimation (3 credit hours)
- EEL 6543 Random Processes II (3 credit hours)
- EEL 6883 Software Engineering II (3 credit hours)
- EEL 6897 Software Development for Real-Time Engineering Systems (3 credit hours)
- EML 5025C Engineering Design Practice (3 credit hours)
- EML 5123 Intermediate Aerodynamics (3 credit hours)
- EML 5211 Continuum Mechanics (3 credit hours)
- EML 5237 Intermediate Mechanics of Materials (3 credit hours)
- EML 5532C Computer-Aided Design for Manufacture (3 credit hours)
- EML 5546 Engineering Design with Composite Materials (3 credit hours)
- EML 6067 Finite Elements in MMAE I (3 credit hours)
- EML 6547 Engineering Fracture Mechanics in Design (3 credit hours)
- EML 6712 Mechanics of Viscous Flow (3 credit hours)
- EML 6725 Computational Fluid Dynamics and Heat Transfer (3 credit hours)
- MAA 5405 Complex Variables (3 credit hours)
- MAP 5426 Special Functions (3 credit hours)

# Applied Economics

## Description

College of Business Administration Department of Economics Graduate Program Coordinator: S. Hamilton, Ph.D., BA 325E, (407) UCF-4728. E-mail: [shamilton@bus.ucf.edu](mailto:shamilton@bus.ucf.edu) Web address: [www.bus.ucf.edu](http://www.bus.ucf.edu)

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

## Degrees Offered

Master of Arts in Applied Economics (M.A.A.E.) Accelerated Undergraduate and Graduate Program in Applied Economics (B.S.B.A. and M.A.A.E.)

## Master of Arts in Applied Economics

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

[Academic Standards in the College of Business Administration](#)

## Admission Requirements

[Admission to Master's Programs in the College of Business Administration](#)

- GPA of 3.0 and GMAT of 500
- TOEFL of 233 (computer test)
- 3 letters of recommendation
- essay; for details, see the [college website](#)
- resume

Both GPA and Test Scores must be officially reported to the Office of Graduate Studies.

[Application Deadlines](#)

For consideration for college financial assistance, apply at least one month before the application deadline.

## Degree Requirements

Requirements for M.A.A.E.—30 Credit Hours Minimum

### MAAE Foundations—0-13.5 Credit Hours

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

- ECO 3401 Quantitative Business Tools I (3 credit hours) (or MAC 2233 and STA 2023)
- ECO 5414 Statistical Foundations (1.5 credit hours) (or ECO 3411)

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

- ECO 3101 Intermediate Price Theory (3 credit hours) (ECO 6XXX Microeconomic Analysis)
- ECO 3203 Aggregate Economic Conditions Analysis (3 credit hours) (ECO 6206)

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—15 Credit Hours

### FALL TERM

- ECO 6403 Mathematical Economics (3 credit hours)
- ECO 6416 Applied Business Research Tools (3 credit hours)

### SPRING TERM

- ECO 6XXX Microeconomic Analysis (3 credit hours)
- ECO 6206 Aggregate Economic Conditions and Analysis (3 credit hours)
- ECO 6424 Econometrics (3 credit hours)

## Economics Electives— 6-9 Credit Hours

A minimum of six additional hours of economics electives is required.

## Non-Economics Electives—0-3 Credit Hours

A maximum of three hours of an approved non-economics elective may be completed in disciplines such as accounting, finance, management, marketing, mathematics, statistics, public administration, health sciences, political science, computer science, and environmental engineering

## End-of-Program Requirements—6 Credit Hours

All candidates for the M.A. in Applied Economics degree must complete an end-of-program option. This requirement can be met by any of the following three equivalent options: 1) Thesis option, 2) Graduate internship option, or 3) All course work option. All candidates must satisfactorily complete a comprehensive, end-of-program, final examination.

### Thesis Option

Six credit hours of thesis may be used to complete the M.A. in Applied Economics degree. The student must register for a total of six semester hours of ECO 6971. The candidate may fulfill this requirement by completing a formal thesis on a topic selected in consultation with the candidate's advisory committee and meeting both departmental and university requirements. The final examination consists of an oral examination over the thesis.

### Graduate Internship Option

Six credit hours of graduate internship may be used to complete the M.A. in Applied Economics degree. The student must register for a total of six semester hours of ECO 6946. The candidate may fulfill this requirement by completing an internship consisting of work in a business or governmental agency and an end-of-project, thesis-quality report. The final examination consists of an oral examination over the end-of-project report.

## All Course Work Option

In lieu of a Thesis or Internship, two additional elective courses may be taken. No more than six hours outside the College of Business Administration may be used. Candidates choosing the course work only option will be required to write a comprehensive field research paper that draws upon the six hours of the field or area from the career-oriented electives and core courses. The final examination for this option consists of an oral examination over the research paper.

## 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.

### Environmental Economics and Policy

For candidates seeking careers in the area of environmental economics and policy, positions in environmental regulation, risk assessment as well as health and safety issues, selection among the following electives is recommended:

- CGN 6655 Regional Planning, Design and Development (3 credit hours)
- ECO 6XXX Resource and Environmental Management and Policy (3 credit hours)
- ECO 6XXX Benefit-Cost Analysis in Economic Policy (3 credit hours)
- ECO 6XXX Advanced Resource and Environmental Economics (3 credit hours)
- ECO 6505 Public Finance and Fiscal Policy (3 credit hours)
- ECP 6605 Economics of Urban and Regional Problems (3 credit hours)
- ECS 6015 Economic Development (3 credit hours)
- ENV 5071 Environmental Analysis of Transportation Systems (3 credit hours)
- PAD 6353 Environmental Program Management Research (3 credit hours)
- PCB 5045C Conservation Biology (4 credit hours)
- PUP 6007 Public Policy Analysis (3 credit hours)
- PUP 6201 Urban Environmental Policy (3 credit hours)
- PUP 6208 Environmental Politics (3 credit hours)

### Financial Economics

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

- ECO 6226 Seminar in Money, Banking, and Monetary Policy (3 credit hours)
- ECO 6433 Business Cycles and Forecasting (3 credit hours)
- ECP 6705 Managerial Economics (3 credit hours)
- FIN 6406 Strategic Financial Management (3 credit hours)
- FIN 6425 Asset Management and Financial Decisions (3 credit hours)
- FIN 6515 Analysis of Investment Opportunities (3 credit hours)
- FIN 6605 International Financial Management (3 credit hours)

### Human Resource Economics

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

- ECP 6205 Labor Economics (3 credit hours)
- ECS 6015 Economic Development (3 credit hours)
- EIN 5117 Management Information Systems I (3 credit hours)
- EIN 6258 Human Computer Interaction (3 credit hours)
- EVT 6267 Vocational Program Planning, Development, and Evaluation (2-4 credit hours)
- ISM 6121 Advanced Information Systems Analysis and Design (3 credit hours)

- MAN 6245 Organizational Behavior and Development (3 credit hours)
- MAN 6305 Human Resources Management (3 credit hours)
- PAD 6417 Human Resource Management (3 credit hours)

## International Political Economy

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

- ECO 6705 Seminar in International Economics (3 credit hours)
- ECS 6015 Economic Development (3 credit hours)
- FIN 6605 International Financial Management (3 credit hours)
- INR 6007 Seminar in International Politics (3 credit hours)

## Public Sector Economics

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

- ECO 6226 Seminar in Money, Banking, and Monetary Policy (3 credit hours)
- ECO 6505 Public Finance and Fiscal Policy (3 credit hours)
- ECP 6205 Labor Economics (3 credit hours)
- ECP 6405 Industrial Organization and Performance (3 credit hours)
- ECP 6605 Economics of Urban and Regional Problems (3 credit hours)
- ECP 6705 Managerial Economics (3 credit hours)
- Approved electives in Public Administration
- Approved electives in Political Science
- Approved electives in Political Theory

## Quantitative Economics

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

- ECO 6424 Econometrics (3 credit hours)
- ECO 6433 Business Cycles and Forecasting (3 credit hours)
- ECP 6705 Managerial Economics (3 credit hours)
- ISM 6537 Quantitative Models for Business Decisions (3 credit hours)
- MAR 6616 Marketing Research Methods (3 credit hours)

# Accelerated Undergraduate and Graduate Program in Applied Economics

The Master of Arts in Applied Economics component of the BSBA/MAAE accelerated degree requires 30 credit hours based on admission to the BSBA/MAAE program and completion of 120 credit hours of the BSBA component. Up to 15 hours of graduate courses will count toward the completion of the BSBA component of the BSBA/MAAE degree.

## Admission Requirements

[Admission to Master's Programs in the College of Business Administration](#)

# Degree Requirements

Requirements for BSBA/MAAE—135 Credit Hours Minimum

## Prerequisites—120 Credit Hours

- Admission to the BSBA/MAAE accelerated program
- Completion of the undergraduate requirements of the Economics BSBA/MAAE degree

## Courses taken toward the BSBA must include:

- ECO 3101 Intermediate Price Theory (3 credit hours)
- ECO 3203 Aggregate Economic Conditions Analysis (3 credit hours)
- ECO 4451 Research Methods in Economics (3 credit hours)
- Select one 3000-4000 level elective (3 credit hours)

## Shared BSBA/MAAE Courses

- ECO 6403 Mathematical Economics (3 credit hours)
- ECO 6416 Applied Business Research Tools (3 credit hours)

Select three 6000-level electives from the Career-Oriented Specialization (six hours in Economics required). A maximum of three hours of an approved non-economics elective may be completed from disciplines such as accounting, finance, management, marketing, mathematics, statistics, public administration, health sciences, political science, computer science, and environmental engineering.

## Career-Oriented Elective Concentration

Same as MAAE (See above)

## Courses Taken Toward MAAE—9 Credit Hours

- ECO 6XXX Microeconomic Analysis (3 credit hours)
- ECO 6206 Aggregate Economic Conditions and Analysis (3 credit hours)
- ECO 6424 Econometrics (3 credit hours)

## End-of-Program Option—6 Credit Hours

Same as MAAE (See above)

The baccalaureate degree will be awarded when program requirements for the BSBA are met and students have completed a minimum of 120 hours of credit. Students will then be reclassified as graduate students. The MAAE will be awarded on completion of the total program of study.



# Applied Experimental and Human Factors Psychology

## Description

College of Arts and Sciences Department of Psychology Department Chair: Dr. John M. McGuire Graduate Program Coordinator: Dr. Eduardo Salas, PH 314A, (407) 823-2552. E-mail: [esalas@pegasus.cc.ucf.edu](mailto:esalas@pegasus.cc.ucf.edu)

Web Address: <http://pegasus.cc.ucf.edu/~psych/>

A Ph.D. professional's degree track in Applied Experimental and Human Factors Psychology is offered to those with a baccalaureate or master's degree in psychology or an allied area. The track seeks to develop the capacity to design, conduct, and apply human factors research in a variety of professional settings. It is patterned on the scientist-practitioner model of the American Psychological Association (APA) and adheres to guidelines established by the committee for Education and Training of APA's Division 21 (Applied Experimental and Engineering Psychology). The track has been accredited by the Human Factors and Ergonomics Society. A variety of research, consulting, and internship arrangements are included in the track.

## Degrees Offered

### Doctor of Philosophy in Psychology (Ph.D.)

- o Applied Experimental and Human Factors Psychology Track

## Faculty

C. A. Bowers, Ph.D., Associate Professor and Assistant Dean R. D. Gilson, Ph.D., Professor P. A. Hancock, Ph.D., Professor M. Mouloua, Ph.D., Associate Professor E. Salas, Ph.D., Professor and Graduate Program Coordinator V. Sims, Ph.D., Assistant Professor J. A. Smither, Ph.D., Associate Professor J. L. Weaver, Ph.D., Assistant Professor

## Doctor of Philosophy in Psychology, Applied Experimental and Human Factors Psychology Track

Students receive training in the content and techniques of human factors psychology—including statistical and quantitative procedures, experimental design, survey methods, computer techniques, and other research methodologies. Students must also select a concentration area, which may be in human-computer interaction, human-machine-environment interface, human performance, human factors in simulation and training, or other areas of interest with the adviser's authorization. A dissertation representing a significant research contribution to the field is required.

## Admission Requirements

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 220 (computer-based test; or equivalent score on the paper-based test) on the Test of English as a Foreign Language (TOEFL).

In addition, students will not normally be admitted to the track without having completed a minimum amount of basic preparation in content

related to experimental psychology. This preparation will be judged on an individual basis but would typically consist of at least 18 semester hours including the following:

- Courses in research methods, computer applications, and statistical methods.
- General experimental psychology courses, e.g., learning, physiological, perception, human learning, cognition, motivation, and measurement. Applicants will be evaluated for program prerequisites and advised of any needs for additional preparation. Previous graduate work will be evaluated for credit on a case-by-case basis.

To be considered for admission, applicants must provide:

- 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.

All requested material must be submitted by the deadline. Applicants are encouraged to apply online. Acceptance decisions are made only in the spring semester for admission in the fall of each year.

[Application Deadlines](#)

## Residency Requirements

A minimum of one year full-time student status is required. 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.

## Degree Requirements

For students who enter with a baccalaureate degree, the program requires 91 semester hours minimum. Students who enter with a master's degree will be granted up to 30 hours of transfer credit with approval of the program faculty. These students will be required to complete a minimum of 60 semester hours at UCF.

## Required Courses—67 Credit Hours

- EIN 5248C Ergonomics (3 credit hours)
- EIN 6258 Human Computer Interaction (3 credit hours)
- EXP 5256 Human Factors I (3 credit hours)
- EXP 6257 Human Factors II (3 credit hours)
- EXP 6258 Human Factors III (3 credit hours)
- EXP 5208 Sensation and Perception (3 credit hours)
- EXP 6116 Visual Performance (3 credit hours)
- EXP 6255 Human Performance (3 credit hours)
- EXP 6506 Human Cognition and Learning (3 credit hours)
- EXP 6938 Teaching Seminar (3 credit hours)
- PSY 7XXX Human Factors Professional Issues (1 credit hour)
- INP 6317 Organizational Psychology and Motivation (3 credit hours)
- PSB 5005 Physiological Psychology (3 credit hours)
- PSY 6216 Advanced Research Methodology I (4 credit hours)
- PSY 6217 Advanced Research Methodology II (4 credit hours)
- PSY 6219C Advanced Research Methods III (4 credit hours)
- PSY 7980 Doctoral Dissertation (15 credit hours)
- SOP 5059 Advanced Social Psychology (3 credit hours)

## Internship—6 Credit Hours

Sometime during the last two years students will be required to complete an internship.

- EXP 6946 Human Factors Internship (6 credit hours)

## Electives—18 Credit Hours

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.

- DEP 5057 Developmental Psychology (3 credit hours)
- EIN 5251 Human-Computer Interaction: Usability Evaluation (3 credit hours)
- EXP 5067 Human Factors and Aging (3 credit hours)
- EXP 6XXX Aviation Psychology (3 credit hours)
- EXP 6541 Advanced Human-Computer Interaction (3 credit hours)
- EXP 6XXX Team Training (3 credit hours)
- PPE 5055 Personality Theories (3 credit hours)
- INP 5825 HCI Design: Team Approach (3 credit hours)

## Mathematics and Computer Skills

Students must demonstrate graduation proficiency in both mathematics and computer skills equivalent to first-level calculus and to a programming language beyond basic, respectively.

## Candidacy Exam

The goal of this exam is to ensure that the student possesses the appropriate critical thinking to perform applied experimental and human factors psychology work. The exam covers nine competency areas.

## Program Requirements

Other program requirements, including research productivity, are detailed in the Applied Experimental and Human Factors Psychology Graduate Student Handbook. The handbook is provided to each student at orientation.

# Applied Sociology

## Description

College of Arts and Sciences Department of Sociology and Anthropology Chair of the Department: Dr. Jay Corzine Graduate Program Coordinator: Dr. John Lynxwiler, PH 409F, (407) 823-2227. E-mail: [jlynxwil@mail.ucf.edu](mailto:jlynxwil@mail.ucf.edu) Web address: [http://www.cas.ucf.edu/soc\\_anthro](http://www.cas.ucf.edu/soc_anthro)

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 track 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.

## Degrees Offered

Master of Arts in Applied Sociology (M.A.)

- Domestic Violence Track

## Faculty

Professor: J. Corzine, Ph.D.; J. Wright, Ph.D.

Associate Professors: I. J. Cook, Ph.D.; D. R. Dees, Ph.D.; D. A. Gay, Ph.D.; L. Huff-Corzine, Ph.D.; J. P. Lynxwiler, Ph.D.; J. Morris, Ph.D.; E. Mustaine, Ph.D.

Assistant Professors: S. Boeringer, Ph.D.; T. Dietz, Ph.D.; J. Ford, Ph.D.; W. Goldstein, Ph.D.; J. Jasinski, Ph.D.; S. Keeton, Ph.D.; B. Marshall, Ph.D.; J. Wesely, Ph.D.; E. Wright II, Ph.D.

## Master of Arts in Applied Sociology

### Admission Requirements

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 undergraduate GPA of 3.0 or better in the last 60 attempted semester hours of their undergraduate degree and demonstrate the potential for academic success through their performance on the quantitative and verbal sections of the Graduate Record Examination. The minimum GPA requirement will be waived for applicants whose combined GRE score (quantitative and verbal) exceeds 1000. 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 five years old. International students and students whose native language is not English must score at least 220 (computer-based test; or equivalent score on the paper-based test) on the Test of English as a Foreign Language (TOEFL).

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 non-degree-seeking student and acceptance into this degree-granting

program. Consult the graduate program coordinator whenever questions arise.

[Application Deadlines](#)

## 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.

Requirements for MA—30 Credit Hours Minimum

### Required Courses—12 Credit Hours

- SYA 5625 Proseminar (3 credit hours)
- SYA 6126 Social Theory (3 credit hours)
- SYA 6305 Social Research (3 credit hours)
- SYA 6455 Research Analysis (3 credit hours)

### Electives—12 Credit Hours

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

### Thesis Option—6 Credit Hours

A minimum of 6 credit hours of thesis credit and a successful defense of a thesis is required. The thesis option is highly recommended for students interested in community college teaching and/or graduate work beyond the Master of Arts degree.

### Non-Thesis Option—6 Credit Hours

All of the department's graduate courses are research-oriented seminars; however, in lieu of the thesis, students must take additional courses (6 hours) in a chosen area of specialization. Non-thesis students may substitute up to 6 hours of their elective course work by completing a graduate practicum/internship (SYA 6946). The practicum must be approved by the student's advisory committee.

### Examination Requirements—Thesis Option

Mandatory requirements include the successful completion of a two-part written comprehensive examination and a final oral defense of thesis.

### Examination Requirements—Non-Thesis Option

Mandatory requirements include the successful completion of a two-part comprehensive written examination and an additional specialty project in the selected area of specialization.

Minimum Hours Required for M.A.—30 Semester Hours

## Domestic Violence Track

The specialty track in Domestic Violence is compatible with the Master of Arts in Applied Sociology Program's thesis and non-thesis options. The requirements of the track include a minimum of 30 credit hours, at least 15 of which must be at the 6000-level or above. Course work includes the following:

Requirements for MA—30 Credit Hours Minimum

## Required Courses

- SYA 5625 Proseminar (3 credit hours)
- SYA 6126 Social Theory (3 credit hours)
- SYA 6305 Social Research (3 credit hours)
- SYA 6455 Research Analysis (3 credit hours)

The following two required electives:

- SYP 5562 Seminar on Domestic Violence: Theory, Research and Social Policy (3 credit hours)
- SYP 6563 Reactions to Domestic Violence (3 credit hours)

Two of the following restricted electives:

- SYA 6657 Program Design and Evaluation (3 credit hours)
- SYP 6561 Child Abuse in Society (3 credit hours)
- SYP 6565 Elder Abuse and Neglect (3 credit hours)

## Six additional hours selected with adviser's approval.

Thesis Option—Minimum thesis hours (6 credit hours) and thesis defense

Non-Thesis Option—Two courses (6 credit hours) of graduate-level work and specialty project in an area selected by the student and approved by their Advisory Committee.

# Art Education

## Description

College of Education Department of Teaching and Learning Principles Interim Chair of the Department: Dr. Robert Williams Graduate Program Coordinator: T. Brewer, (407) UCF-3714. E-mail: [tbrewer@mail.ucf.edu](mailto:tbrewer@mail.ucf.edu) Web address: <http://edcollege.ucf.edu>

The University of Central Florida offers a master's program in Art Education, with the choice of a Master of Education or Master of Arts degree.

The Master of Education 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.

The Master of Arts program 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.

## Degrees Offered

Master of Education in Art Education (M.Ed.) Master of Arts in Art Education (M.A.)

## Master of Education in Art Education

The M.Ed. 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.

[Master's Programs in the College of Education](#)

[Application Deadlines](#)

## Degree Requirements

### Minimum Hours Required for M.Ed.—36 Credit Hours

Area A: Core—9 Credit Hours

- EDF 6155 Lifespan Human Development and Learning (3 credit hours)
- EDF 6481 Fundamentals of Graduate Research in Education (3 credit hours)
- EDF 6886 Multicultural Education (3 credit hours)

Area B: Specialization (Approved by adviser)—21 Credit Hours

Can include two studio (4000\*- or 5000- level ART) courses

Select One Option—6 Credit Hours

Option A: Research Report—6 Credit Hours

- ARE 6905 Research Trends (3 credit hours)
- ARE 6909 Research Report (2, 1 credit hours)

Option B: Thesis—6 Credit Hours

- EDF 6401 Statistics for Educational Data (3 credit hours)
- ARE 6971 Thesis (2,1 credit hours)

Option C: Non-Thesis (Approved by adviser)—6 Credit Hours

\* Six hours of 4000-level courses maximum

# Master of Arts in Art Education

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.

[Master's Programs in the College of Education](#)

[Application Deadlines](#)

## Degree Requirements

### Minimum Hours Required for M.A.—45 Credit Hours

Area A: Core—15 Credit Hours

- EDF 6155 Lifespan Human Development and Learning (3 credit hours)
- EDG 6236 Principles of Instruction (3 credit hours)
- EDF 6432 Measurement and Evaluation in Education (3 credit hours)
- EDF 6481 Fundamentals of Graduate Research in Education (3 credit hours)

Select One:

- EDF 6517 History and Philosophy of American Education (3 credit hours) OR
- EDF 6608 Social Factors in American Education (3 credit hours)

Area B: Specialization (Approved by adviser)—18 Credit Hours

- Can include two studio (4000\*- or 5000- level ART) courses

Select One Option—6 Credit Hours

Option A: Research Report—6 Credit Hours

- ARE 6905 Research Trends (3 credit hours)
- ARE 6909 Research Report (2,1 credit hours)

Option B: Non-Thesis (Approved by adviser)—6 Credit Hours

Area C: Internship—6 Credit Hours

- ARE 6946 Graduate Internship (6 credit hours)

Satisfactory completion of Graduate Internship requires the student to demonstrate proficiency in all 12 Florida Educator Accomplished Practices at the pre-professional level in accordance with State Board of Education Rule 6A-5.065.

Co-requisites



- ARE 4351 Teaching Art in the Elementary School (3 credit hours)
- ARE 4352 Teaching Art in the Secondary School (3 credit hours)
- \* Six hours of 4000-level courses maximum

Minimum undergraduate specialization requirements must be completed as pre- or co-requisites. A track is available for this program in Extended Content and requires 18 credit hours of graduate-level content in the program. Only six hours of independent study courses may be used to satisfy degree requirements. It is important to see an adviser if courses are not offered in content areas.

## Additional Program Requirements

- Complete a portfolio according to program guidelines. This portfolio requires demonstration of professional growth, reflection, and proficiency in the 12 Florida Educator Accomplished Practices.
- Pass the CLAST as well as the Professional Education and Subject Area subtests of the Florida Teacher Certification Examination.

# Biology

## Description

College of Arts and Sciences Department of Biology Chair of the Department: Dr. David T. Kuhn Graduate Program Coordinator: Dr. John F. Weishampel, BIO 140, (407) 823-6634. E-mail: [jweisham@mail.ucf.edu](mailto:jweisham@mail.ucf.edu) Web address: <http://www.cas.ucf.edu/biology>

The Master of Science degree in Biology is offered with the following areas of specialization: biology, botany, cell biology, development, genetics, limnology, conservation biology, and zoology. Thesis and non-thesis options are available. A graduate certificate in Conservation Biology is also offered. Qualified certificate program students in Conservation Biology may apply to and be accepted into the Biology M.S. program.

## Degrees Offered

Master of Science in Biology (M.S.)

## Faculty

Professors Emeritus: L. L. Ellis, Ph.D.; J. L. Koevenig, Ph.D.

Professors: L. M. Ehrhart, Ph.D.; D. T. Kuhn, Ph.D.; R. F. Noss, Ph.D.; J. A. Osborne, Ph.D.; F. F. Snelson, Jr., Ph.D.; I. J. Stout, Ph.D.; H. C. Sweet, Ph.D.; W. K. Taylor, Ph.D.; H. O. Whittier, Ph.D.; G. A. J. Worthy, Ph.D.

Associate Professors: D. H. Vickers, Ph.D.; J. F. Weishampel, Ph.D.

Assistant Professors: C. A. Bayer, Ph.D., Research; L. H. von Kalm, Ph.D.; C. L. Parkinson, Ph.D.; J. D. Roth, Ph.D., Research; L. J. Walters, Ph.D.; J. M. Waterman, Ph.D.

Visiting Assistant Professor: W. D. Sotero, Ph.D.

Instructors: P. Thomas, M.S.; R. Vajravelu, Ph.D.

Courtesy Appointments: K. S. Beach, Ph.D.; C. B. Cook, Ph.D.; M. Deyrup, Ph.D.; E. S. Dierenfeld, Ph.D.; J. Gelsleichter, Ph.D.; P. Klein, Ph.D.; E. Menges, Ph.D.; D. Odell, Ph.D.; L. Rea, Ph.D.; S. J. Stern, Ph.D.

## Master of Science in Biology

The Master of Science degree in Biology is offered with the following areas of specialization: conservation biology; genetics, cell, developmental, and molecular biology; and terrestrial, freshwater, and marine ecology.

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. M.S. students have five years to complete their program.

## Admission Requirements

For those students who wish to be considered for fellowships or assistantships, the application deadline for the fall semester is February 1st with notification in March. To apply, students should visit the biology website for more information and complete the graduate application available at <http://www.graduate.ucf.edu>.

The Graduate Record Examination (GRE) is required of all graduate students. 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. Certificate students must meet one or the other

requirement. In addition, the department requires three letters of recommendation and a written statement of past experience and research, area of interest, and immediate and long-range goals. Personal interviews are strongly encouraged but not required. The department requires international students and students whose native language is not English to have a minimum score of 230 (computer-based test; or equivalent score on the paper-based test) on the Test of English as a Foreign Language (TOEFL).

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

Applicants need not have an undergraduate degree in a biological science but are expected to have 18 hours of biological sciences, including ecology and genetics; organic chemistry; and a course in calculus and statistics. After acceptance, minor deficiencies must be remedied by enrollment in the appropriate course at the first opportunity. Students receiving assistantships are required to maintain full-time graduate status in approved graduate courses every term for departmental support.

[Application Deadlines](#)

## Degree Requirements

### Thesis Option

Requirements for M.S. Thesis Option—30 Credit Hours Minimum

A student selecting the biology thesis option will include in their program of study:

Group A—At Least 12 Credit Hours

(one course approved by the thesis committee from three of the five core areas)

1. Ecology
2. Evolutionary Biology
3. Genetics
4. Physiology
5. Cell and Developmental Biology

Group B—8 Credit Hours (both courses)

- BSC 6938 Biology Seminar (2 credit hours)
- BSC 6971 Thesis (6 credit hours)

Group C—8-10 Credit Hours

Restricted electives acceptable to the student's graduate advisory committee. Completion of a graduate certificate in Conservation Biology will satisfy electives in this category.

### Non-Thesis Option

Requirements for M.S. Non-Thesis Option—40 Credit Hours Minimum

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

Group A—At Least 12 Credit Hours The requirements are the same as the thesis option.

Group B—4 Credit Hours (both courses)

- BSC 6909 Research Report (2 credit hours)
- BSC 6938 Biology Seminar (2 credit hours)

Group C—22-24 Credit Hours Restricted electives acceptable to the student's graduate advisory committee.

## 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.

# Biomolecular Sciences

## Description

Graduate Program Coordinator: Antonis Zervos, Ph.D., Molecular Biology and Microbiology, 407-737-2583 E-mail: [biomoldoc@mail.ucf.edu](mailto:biomoldoc@mail.ucf.edu) Web address: <http://www.bmsc.ucf.edu/>

The Biomolecular Sciences Ph.D. program is an interdisciplinary program supported by the College of Arts and Sciences and the College of Health and Public Affairs. It is designed to provide doctoral education and training at the interface between the biological and physical sciences. The purpose of this training is to provide scientists who are not only capable of doing independent research but who can work as part of interdisciplinary teams to solve important problems at the interface of contemporary fields in the Biomolecular Sciences. The emphasis is on emerging areas such as bioinformatics, including genomics and proteomics, signal transduction, combinatorial (medicinal) chemistry, structural biology, and assay design.

Graduates of the Biomolecular Sciences Ph.D. program will have the diverse training necessary to enable them to pursue independent research in academia, biotechnology, or the pharmaceutical industry. They will have a core body of knowledge on the structure and function of biologically active molecules and be capable of critically reviewing the literature in the field. They will demonstrate the capacity to solve complex biomedical problems by designing and carrying out experiments, collecting data, and analyzing results. They will be able to communicate clearly the results and analysis to their peers in both oral and written form.

## Degree Offered

Doctor of Philosophy in Biomolecular Sciences (Ph.D.)

## Faculty

Professors: G. Cunningham, Ph.D., Chemistry; H. Daniell, Ph.D., Molecular Biology and Microbiology; D. M. Jacobs, Ph.D., Molecular Biology and Microbiology; D. Kuhn, Ph.D., Biology; H. Miles, Ph.D., Chemistry; R. White, Ph.D., Molecular Biology and Microbiology

Associate Professors: J. Ballantyne, Ph.D., Chemistry; K. Belfield, Ph.D., Chemistry; K. Chai, Ph.D., Molecular Biology and Microbiology; D. Chakrabarti, Ph.D., Molecular Biology and Microbiology; R. Chakrabarti, Ph.D., Molecular Biology and Microbiology; S. Elsheimer, Ph.D., Chemistry; C. Fernandez-Valle, Ph.D., Molecular Biology and Microbiology; S. Naser, Ph.D., Molecular Biology and Microbiology; O. Phanstiel, Ph.D., Chemistry; A. Zervos, Ph.D., Molecular Biology and Microbiology and CD3.

Assistant Professors: C. Parkinson, Ph.D., Biology; B. Rzigalinski, Molecular Biology and Microbiology, S. Tatulian, CD3; L. von Kalm, Ph.D., Biology

## Doctor of Philosophy in Biomolecular Sciences

## Fellowships and Research Assistantships

Graduate assistantships, graduate teaching assistantships, graduate research assistantships and other university assistantship enhancement awards are available to qualified students. Stipends begin at \$16,500 per year. A number of tuition waivers are also available. For more information about financial support, contact the graduate program coordinator. Additional information is available from the Office of Graduate Studies ([gradfaid@mail.ucf.edu](mailto:gradfaid@mail.ucf.edu) or <http://www.graduate.ucf.edu>).

## Admission Requirements

Students entering the graduate program with regular status are normally expected to have completed course work generally required for a bachelor's degree in Chemistry, Biochemistry, Genetics, Molecular Biology, or Microbiology. Applicants must submit official GRE scores and

official transcripts showing a baccalaureate degree and all courses taken for that degree, and any post baccalaureate education or degree. Students should also submit three letters of recommendation, a statement of research interest and purpose, and a resume. The research statement should include a summary of relevant work or research experience. A personal or telephone interview will also take place whenever possible. Admissions is based on an overall assessment of qualifications documented in credentials submitted and the interview. All admissions to graduate status are competitive and based on availability of faculty for sponsoring research.

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 U.S. institution, must score at least 220 (computer-based test; or equivalent score on the paper-based test) on the Test of English as a Foreign Language (TOEFL) and must submit official TOEFL scores.

### [Application Deadlines](#)

NOTE: Students applying for spring admission will be considered on an ad hoc basis.

## Degree Requirements

This program requires a minimum of 72 credit hours. This is composed of 15 credit hours of required core courses, a minimum of 12 credit hours of electives, a minimum of 15 credit hours of dissertation research, and the balance in additional electives and doctoral research.

### Required Core Courses

All entering students who are adequately prepared first take a two-semester interdisciplinary core course to provide an introduction to the interdisciplinary area of biomolecular sciences. In addition, a laboratory rotation will allow students to have a brief but intensive experience working in at least three different research laboratories of faculty members in the program in order to find the research area of interest for their dissertation research. Finally, a sequence of required seminars will immerse students in the literature of the fields and introduce them to the conceptual and technical frameworks in which they will work.

### Core Courses—15 Credit Hours

- IDS 7691, IDS 7693C Structure-Function-Relationships I, II (4 credit hours, 4 credit hours)
- IDS 7692L Experiments in Biomolecular Sciences (lab rotation) (3 credit hours)
- IDS 7690 Frontiers in Biomolecular Sciences (seminar), (four semesters, 1 credit hour each semester)

### Elective Courses—12 Credit Hours

By the completion of 9 credit hours students must choose a dissertation adviser and establish a program of study. Students are required to complete a minimum of 12 credit hours of electives that will give them the needed background in their area of emphasis. In addition to the electives taken from the list below, the dissertation committee may require the candidate to take any graduate course taught at UCF, if deemed appropriate for the candidate's area of emphasis.

- CHM 5305 Applied Biological Chemistry (3 credit hours)
- CHM 5450 Polymer Chemistry (3 credit hours)
- CHM 5451C Techniques in Polymer Science (3 credit hours)
- CHS 6251 Applied Organic Synthesis (2 credit hours)
- CHS 6535 Forensic Analysis of Biological Materials (2 credit hours)
- CHS 6535L Forensic Analysis of Biological Materials (3 credit hours)
- CHS 6536 Forensic Analysis of DNA Data (2 credit hours)
- MCB 5205 Infectious Processes (3 credit hours)
- MCB 5225 Molecular Biology of Disease (3 credit hours)
- MCB 5505 Virology (3 credit hours)
- MCB 5527 Genetic Engineering and Biotechnology (3 credit hours)
- MCB 5654 Applied Microbiology (3 credit hours)
- MCB 6226 Molecular Diagnostics (3 credit hours)
- MCB 6407C Laboratory Methods in Molecular Biology (5 credit hours)
- MCB 6417C Microbial Metabolism (3 credit hours)
- MCB 6938 ST: Plant Molecular Biology (3 credit hours)
- PCB 5107C Advanced Cell Biology (4 credit hours)

- PCB 5239 Tumor Biology (3 credit hours)
- PCB 5256C Advanced Developmental Biology (4 credit hours)
- PCB 5665C Human Genetics (4 credit hours)
- PCB 5677 Molecular Evolution (3 credit hours)
- PCB 6585C Advanced Genetics (4 credit hours)
- PCB 6596 Bioinformation and Genomics (3 credit hours)
- PCB 6595 Regulation of Gene Expression (3 credit hours)

Programmatic deficiencies expected of applicants from these diverse settings will be addressed early in the program by completion of appropriate course work. No more than 6 semester credit hours of 4000-level courses may be taken for credit. Students entering with a master's degree may request that up to 30 semester credit hours of previous course work be accepted toward the requirements for this degree subject to the approval of the dissertation committee. Students may register for doctoral research until they have been admitted to candidacy, after which they must register for dissertation research.

## Enrollment Requirements

All students receiving assistantships must enroll for 9 credit hours in fall and spring and 6 credit hours in summer before being admitted to candidacy. Students may enroll in dissertation research only after passing the candidacy exam. Once students have been admitted to candidacy and completed all course requirements, they must enroll for at least 3 credit hours of dissertation research each semester until graduation.

## Qualifying Examination

Continuation in doctoral status is contingent upon passing a qualifying examination administered to students two to four weeks after the end of their first academic year. It is based on the three areas of the core course: structure and function of macromolecules at an atomic and molecular level, cellular structures and processes, and biomolecular regulation of growth and development. Students who fail will be given a second and final opportunity at the next available exam. A student failing at the second attempt may continue toward a master's degree in one of the related disciplines.

## Candidacy Examination

No later than the end of the second academic year, each student will be required to generate, organize, and orally defend a written proposal outlining a novel research idea to a committee of faculty. After passing the candidacy examination, the student can register for dissertation hours.

## Dissertation Defense

Upon completion and approval of the doctoral dissertation by all appropriate faculty and university offices, the student will make a formal presentation of the research findings in seminar format to the dissertation committee and other university faculty and students who may wish to attend. The candidate will answer questions about the subject matter presented and defend the conclusions drawn. The dissertation committee will determine whether or not the candidate has passed this last assessment.

# Business Administration - MBA

## Description

College of Business Administration Graduate Program Coordinator: R. C. Ford, Ph.D., BA 240, (407) 823-2385. E-mail: [cbagrad@bus.ucf.edu](mailto:cbagrad@bus.ucf.edu)

The College of Business Administration at the University of Central Florida offers a Master of Business Administration (M.B.A.), a full-time, one-year MBA, and an Executive M.B.A. program. In addition, the college offers a doctoral (Ph.D.) program in Business Administration.

The program leading to the Master of Business Administration (M.B.A.) degree has been designed to provide students with the opportunity to apply advanced theoretical concepts and knowledge from all functional areas of business through an analytical, decision-making process which focuses on solving practical problems. Students in the M.B.A. program acquire new knowledge and use this knowledge to efficiently access and retrieve information through technology. The M.B.A. program promotes the use of networking, leadership, and interpersonal competencies to develop and sustain effective relationships with peers, and to create an appreciation for the value of a diverse workforce.

The Executive M.B.A. Program is designed to prepare executives and managers for the challenges they will face as they continue their career progression to positions of top leadership. The skills they develop and refine during this program will help them to achieve their full career potential and become an increasingly valuable organizational member.

## Degrees Offered

### Master of Business Administration (M.B.A.)

- o Executive M.B.A.
- o M.B.A (Traditional, part-time)
- o M.B.A (1 year, full-time program)

## Master of Business Administration

The M.B.A. curriculum provides a challenging and creative learning environment in an intensive program of study that has a broad-based administrative emphasis. Recognizing that the management methods of tomorrow may bear little resemblance to techniques in current use, the program emphasizes 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.

## Admission Requirements

### [Admission to Master's Programs in the College of Business Administration](#)

- GPA of 3.0 and GMAT of 500
- 3 letters of recommendation
- essay; for details, see the [college website](#)
- resume
- TOEFL of 233 (computer test), for international students only

Both GPA and Test Scores must be officially reported to the Office of Graduate Studies. See the [college website](#) for full-time MBA admission requirements.

### [Application Deadlines](#)

For consideration for college financial assistance, apply at least one month before the application deadline.



# Degree Requirements

## Requirements for M.B.A.—39-51 Credit Hours Minimum

Students entering the M.B.A. program must complete the Foundation Core first. This 10.5-credit-hour core of business foundation courses may be satisfied by a student's prior equivalent course work, provided such course work has been satisfactorily completed at a regionally accredited university either at the undergraduate or graduate level. There is also a one-year professional work experience requirement. For students entering the program without at least one-year of professional work experience, the Professional Business Practicum (2000 hours) must be taken as a co-requisite with the foundation core and/or Professional Core I.

Core I of the Professional Core, the Decision Making Tools courses, is a prerequisite for Core II, the Decision Applications courses. The M.B.A. program also requires the student to take three elective courses (9 credit hours). Students are encouraged to choose a concentration in a specific area to give focus to their elective hours. The professional core of the M.B.A. program totals 39 credit hours. The professional core must be completed in four consecutive years. If a course falls outside the four-year rule, the student will be required to retake the course.

[Academic Standards in the College of Business Administration](#)

## Foundation Core—10.5 Credit Hours

The foundation core is defined by the course requirements listed below, and its completion is a prerequisite to entering the professional core.

NOTE: 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.

- ACG 5005 Accounting Foundations (1.5 credit hours)
- ECO 5006 Economic Foundations (1.5 credit hours)
- ECO 5414 Statistical Foundations (1.5 credit hours)
- FIN 5407 Financial Foundations (1.5 credit hours)
- ISM 5020 MIS Foundations (1.5 credit hours)
- MAN 5021 Management Foundations (1.5 credit hours)
- MAR 5055 Marketing Foundations (1.5 credit hours)

## Practicum—1.5 Credit Hours

- GEB 5941 Professional Business Practicum—2000 clock hours, which is equivalent to one year of full-time professional employment (1.5 credit hours)

## Professional Core—39 Credit Hours

The professional core consists of 39 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, management, marketing; or specialized areas of information systems, entrepreneurship, or international business.

## Professional Core I: Decision-Making Tools—16.5 Credit Hours

- GEB 6895 Business Analysis (1.5 credit hours)
- BUL 6444 Law and Ethics (1.5 credit hours)
- ECO 6416 Applied Business Research Tools (3 credit hours)
- MAN 6245 Organizational Behavior and Development (3 credit hours)
- ISM 6407 Decision Support Systems (1.5 credit hours)
- ACG 6425 Managerial Accounting Analysis (3 credit hours)\*
- ECO 6115 Economic Analysis of the Firm (3 credit hours)

\* Accounting undergraduate majors may not take ACG 6425, but may substitute another accounting or tax elective or any other business elective in its place.

## Professional Core II: Decision Applications—13.5 Credit Hours

- MAR 6816 Strategic Marketing Management (3 credit hours)
- FIN 6406 Strategic Financial Management (3 credit hours)
- ISM 6367 Strategic Information Systems (1.5 credit hours)
- GEB 6365 International Business Analysis (3 credit hours)
- MAN 6721 Applied Strategy and Business Policy (3 credit hours)\*

\* Students must earn a grade of “B” or better in the MAN 6721 course, or the course must be repeated.

## Electives—9 Credit Hours

Electives may be taken in accounting, economics, finance, marketing, management, or management information systems. A student may petition to take up to two electives outside the College of Business Administration with permission from the Associate Dean for Graduate Programs. The M.B.A. program does not require a thesis.

## M.B.A. Concentrations

Concentrations in the M.B.A. program are available in the following areas: Entrepreneurship, Finance, Environmental Management and Policy, Human Resources Management, International Business, Management Information Systems, High Technology Marketing, and Sport Business Management. See the Graduate Adviser in BA 240 for requirements for the concentrations.

# Executive MBA Program

Interim Director: Sylvia Caceres, Ph.D., BA 237, (407) 823-2446. E-mail: [sylvia.caceres@bus.ucf.edu](mailto:sylvia.caceres@bus.ucf.edu)

The Executive MBA Program offered by the University of Central Florida is designed to prepare executives and managers for the challenges they will face as they continue their career progression to positions of top leadership. The skills they develop and refine during this program will help them to achieve their full career potential and become an increasingly valuable organizational member.

## Admission Requirements

[Admission to Master's Programs in the College of Business Administration](#)

## Degree Requirements

The EMBA program is comprised of eleven 3-credit hour courses, four 1.5-credit hour courses, and two off-campus residencies. The courses, delivered in the executive classroom at the Executive Development Center in the College of Business Administration, are designed to expose participants to new methods, concepts, and tools that will enhance their business and leadership skills. Innovative teaching methodologies such as team-based projects, interdisciplinary case studies, simulations, debating-the-issues activities, and self-assessment exercises are used to enhance the learning experience.

Each of the off-campus residencies is designed for very specific purposes. The first residency, at the beginning of the program, prepares participants for the academic and intellectual challenges of the EMBA faculty. The mid-program residency emphasizes managing in a global and multicultural environment.

### RESIDENCY I

Program introduces class participants and updates skills needed for future courses. Areas of study emphasized for skills review include Economics, Accounting, Statistics, and Finance.

#### Session 1

- Business Analysis (1.5 credit hours)
- Law and Ethics (1.5 credit hours)
- Applied Business Research Tools (3 credit hours)

#### Session 2

- Economic Analysis of the Firm (3 credit hours)
- Managerial Accounting Analysis (3 credit hours)

#### Session 3

- Strategic Financial Management (3 credit hours)
- Organizational Behavior and Development (3 credit hours)

#### RESIDENCY II

Program emphasizes managing in a global and multicultural environment.

- Contemporary Strategic Issues (3 credit hours). This course is spread over Residency II and Session 6.

#### Session 4

- Decision Support Systems (1.5 credit hours)
- Strategic Marketing Management (3 credit hours)
- Strategic Information Systems (1.5 credit hours)

#### Session 5

- Service Organizations and Operations Management (3 credit hours)
- International Business Analysis (3 credit hours)

#### Session 6

- Leadership (3 credit hours)
- Applied Strategy and Business Policy (3 credit hours)

#### GRADUATION

Curriculum Subject to Change All classes meet on Friday and Saturday every other week from 8:00 a.m. to 5:00 p.m., in Business Administration Building, Room 238, unless otherwise stated.

NOTE: The EMBA Program is constantly being revised and improved to reflect the demands and expectations of the community. The courses and subjects may be different for future classes.

# Business Administration – Ph.D.

## Description

College of Business Administration

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.

## Degrees Offered

### Doctor of Philosophy in Business Administration (Ph.D.)

- Accounting Track
- Finance Track
- Management Track
- Management Information Systems Track
- Marketing Track

## Doctor of Philosophy in Business Administration

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.

## Admission Requirements

Students applying for admission to the doctoral program in Business Administration will be required to submit scores on the Graduate Management Admission Test (GMAT). International students must submit a score of 233 (computer-based test; or equivalent score on the paper-based test) on the Test of English as a Foreign Language (TOEFL) if they are not a graduate from an accredited college or university in the United States. International students must also submit a minimum score of 240 on the Test of Spoken English (TSE).

Admission decisions are made on the recommendation of the faculty of the appropriate department or school. Admissions will generally be made only for fall semester, every other year; however, exceptions may be made in some cases.

All interested students should contact the program coordinator for their track for information about applying to this program. Work experience, test scores, GPAs in previous undergraduate and graduate programs, personal interviews, resume, goal statement, and three letters of recommendation are used by the Graduate Admissions Committee for the Ph.D. program in making a final admission decision for an applicant.

The college strongly encourages applications from minority and diverse populations. Race, national origin, and gender are not used in the evaluation of students for admission into graduate and professional programs.

All required application documents including application, official transcripts (evaluated, if international), and GMAT test scores must be received in the Office of Graduate Studies (Millican Hall 230) by the published application deadlines. Applicants interested in being considered for financial assistance should apply by the PRIORITY application deadline.

[Application Deadlines](#)

## 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:

# Area and Range of Semester Hours Required

## Preparation and Courses:

- MBA degree or equivalent<sup>1</sup>—30 hours
- Major—12-21 hours
- Minor/Support Area—6-9 hours
- Research Tools<sup>2</sup>—12-15 hours
- Teaching<sup>3</sup>—0-3 credit hours
- Candidacy Examination<sup>4</sup>
- Dissertation<sup>5</sup>—24 hours
- Total Semester Hours Required— 84-96 hours

## NOTES:

1. Each track may specify different requirements for this category. Consult the doctoral graduate program coordinator for a specific major.
2. All doctoral students are required to take two applied statistics courses. Other research tool courses will be specified by the track.
3. Each track will require some education related to teaching. It may take the form of classes, noncredit seminars, mentoring, or a teaching requirement. Consult the doctoral graduate program coordinator for a specific major.
4. The student must successfully complete a comprehensive Candidacy Examination. This examination has written and oral parts, and covers the candidate's program of study. Students are admitted to candidacy after satisfying all general degree requirements, passing the comprehensive exam, and fulfilling the residency requirement.
5. The student must successfully defend a written dissertation proposal in an oral examination conducted by the student's advisory/dissertation committee. The final defense of the successful dissertation will require a final oral examination that concentrates on, but is not limited to, the student's dissertation defense.

The general expectations for each major follow. Each program is tailored to the needs of the individual student and may require work that is not included in the following descriptions.

[Academic Standards in the College of Business Administration](#)

## Accounting Track

Graduate Program Coordinator: Dr. Robin Roberts, BA 407, (407) 823-6726. E-mail: [robin.roberts@bus.ucf.edu](mailto:robin.roberts@bus.ucf.edu)

Minimum Hours Required for Ph.D.—93 Credit Hours

Foundation Body of Knowledge—30 Credit Hours In Accounting, the foundation body of knowledge may be satisfied with a master's degree in Accounting, Business Administration, Taxation, or its equivalent from an AACSB-accredited school that includes certain accounting courses deemed essential by the Accounting Ph.D. Coordinator. Alternatively, this requirement may be satisfied by courses deemed essential by the School's doctoral advisory committee, consistent with the business knowledge breadth requirements of the College of Business Administration.

## Accounting Major Concentration—21 Credit Hours Minimum

Required Courses—18 Credit Hours

- ACG 7157 Seminar in Financial Accounting Research (3 credit hours)
- ACG 7399 Seminar in Behavioral Accounting Research (3 credit hours)
- ACG 7826 Seminar in the Social and Organizational Context of Accounting (3 credit hours)
- ACG 7885 Research Foundations in Accounting (3 credit hours)
- ACG 7887 Accounting Research Forum (6 credit hours) (Workshop, 1 credit hour per semester)

Elective Courses—3 Credit Hours—Select one course.

- ACG 7888 Seminar in Critical Accounting and AIS (3 credit hours)
- ACG 7917 Advanced Research Methods in Accounting (3 credit hours)
- Other accounting electives as they are developed for the program

## Minor/Support Area—6 Credit Hours

Students must select a minimum of six credit 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 areas with the advice and consent of the respective departments and advisory committee:

- Management Information Systems
- Marketing
- Economics
- Political Science
- Psychology
- Gender Studies
- Management
- Sociology
- Environmental Studies
- Communication
- Philosophy
- Public Affairs

## Research Tools—12 Credit Hours

The research tools requirement is intended to ensure a thorough exposure to research methods. All candidates are expected to demonstrate knowledge of statistical methods as well as usage of statistical packages, including design, analysis, and interpretation of results.

- ECO 7423 Applied Models I (3 credit hours, required course)
- Additional 9 credit hours of research tools courses, approved by the student's advisory committee. Examples of courses that will satisfy this requirement include GEB 7910, STA 5205, PSY 6216, PSY 6217, PSY 6308, ECO 6424, ECO 7425, and ISM 7029.

## Teaching Requirement

The requirements for the teaching component of the doctoral degree will be developed with the doctoral program coordinator based on the student's experience. Normally, this requirement will be satisfied through teaching a minimum of 3 credit 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 examination, fulfilling the residency requirement, and successfully defending a written dissertation proposal in an oral examination conducted by the student's advisory/dissertation committee.

## Dissertation—24 Credit 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 Track

Graduate Program Coordinator: Dr. Pradipkumar Ramanlal. E-mail: [robin.roberts@bus.ucf.edu](mailto:robin.roberts@bus.ucf.edu)

Minimum Hours Required for Ph.D.—84 Credit Hours

## Foundation Body of Knowledge— 30 Credit Hours

In Finance, the foundation body of knowledge includes (a) the common body of knowledge in an M.B.A. degree or its equivalent, and (b) graduate credit hours (6 credit hours total) in macro and microeconomic theory, and (c) graduate courses in financial management, investments, financial institutions, and international finance.

## Finance Major Concentration—12 Credit Hours

- FIN 7807 Corporate Finance Theory (3 credit hours)
- FIN 7811 Seminar in Financial Markets and Institutions (3 credit hours)
- FIN 7816 Investment Theory (3 credit hours)
- FIN 7930 Seminar in Finance (3 credit hours)

## Minor/Support Area—6 Credit Hours

- ECO 7116 Microeconomic Theory (3 credit hours)
- ECO 7205 Macroeconomic Theory (3 credit hours)

## Research Tools—12 Credit Hours

- ECO 6424 Econometrics (3 credit hours)
- ECO 7423 Applied Models I (3 credit hours)
- ECO 7425 Applied Models II (3 credit hours)
- ECO 7428 Time Series (3 credit hours)

## Teaching Requirement—0-3 Credit Hours

The requirements for the teaching component of the doctoral degree will be developed with the doctoral graduate program coordinator based on the student's experience.

## Candidacy Examination

The student must successfully complete a comprehensive candidacy examination. This examination has written and oral parts, and covers the candidate's program of study. Students are admitted to candidacy after satisfying all general degree requirements, passing the comprehensive examination, and fulfilling the residency requirement. The candidate is required to successfully defend a written dissertation proposal in an oral examination conducted by the student's advisory/dissertation committee following advancement to candidacy

## Dissertation—24 Credit 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.

## Management Track

Graduate Program Coordinator: Dr. Cameron Ford. E-mail: [cford@bus.ucf.edu](mailto:cford@bus.ucf.edu)

Minimum Hours Required for Ph.D.—90 Credit Hours

Foundation Body of Knowledge—30 Credit 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 or comparable school.

## Management Major Concentration—18 Credit Hours

- MAN 7275 Seminar in Organizational Behavior (3 credit hours)
- MAN 7207 Seminar in Organizational Theory (3 credit hours)
- MAN 7306 Seminar in Human Resources Management (3 credit hours)
- MAN 7777 Seminar in Strategic Management (3 credit hours)
- MAN 7XXX Foundations of Management Thought (3 credit hours)
- MAN 7900 Directed Readings in Management (3 credit hours)

## Minor/Support Area—6 Credit Hours

Students may select a minimum of six hours, typically within a unified area, approved by the student's doctoral study advisory committee. Each student's program of study is individually tailored to accommodate student interests whenever possible, and this course work may be developed from offerings in the following or other disciplines with the advice and consent of the respective departments and advisory committee: Accounting, Communication, Economics, Finance, Marketing, Psychology, Sociology, Statistics.

## Research Tools—12 Credit 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. This includes design, analysis and interpretation of results. ECO 7423, Applied Models I, is required. An additional 9 hours of research courses must be approved by the student's advisory committee. Examples of courses that will satisfy this requirement include ECO 7425, GEB 7910, STA 5205, PSY 6216, PSY 6217, PSY 6308, and ECO 6424.

## Teaching Requirement

Students are required to teach a minimum of 3 credit 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 admitted to candidacy after satisfying all general degree requirements, passing comprehensive exam requirements and fulfilling the residency requirement.

## Dissertation—24 Credit 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.

## Management Information Systems Track

Graduate Program Coordinator: Dr. Jim Courtney. E-mail: [robin.roberts@bus.ucf.edu](mailto:robin.roberts@bus.ucf.edu)

Minimum Hours Required for Ph.D.—85 Credit Hours

## Foundation Body of Knowledge—30 Credit Hours

For Management Information Systems (MIS) the foundation body of knowledge includes the common body of knowledge in an MS/MIS degree or its equivalent from an AACSB-accredited school. This incorporates the common body of knowledge in an MBA program, plus the technical courses such as programming languages (e.g., JAVA, VB, C, C++), data base technology (e.g., ISM 6938 Advanced Database Administration), and systems development (e.g., ISM 6121 Advanced Systems Analysis and Design).



## Management Information Systems Concentration—19-21 Credit Hours

- ISM 7936 Seminar on Technical Information Systems Research (3 credit hours)
- ISM 7916 Seminar on Behavioral Information Systems Research (3 credit hours)
- ISM 7939 Theoretical Foundations for Information Systems Research (3 credit hours)
- ISM 7027 Systems Support of Organizational Decision Making (3 credit hours)
- ISM 7909 Comprehensive Research Project (3 credit hours)
- ISM 7XXX MIS Research Forum (6 credit hours) (Workshop, 1 hour per semester)

## Minor/Support Area—6-12 Credit Hours

A minimum of six hours of course work is required in a minor/support area. The course work, typically in a unified area, is intended to accommodate and support the student's individual research interests whenever possible and will be developed with the advice and consent of the MIS Department's doctoral advisory committee. Typical support disciplines include any area in the College of Business Administration, Psychology, Computer Science, and Electrical Engineering. Students will be expected to have a faculty member from their support area on their dissertation committee.

## Research Tools—12-18 Credit Hours

Doctoral students majoring in MIS are required to take a minimum of 12 credit hours of research tools. The courses must include ECO 7423 Applied Models I. It is assumed that the research tools classes will be taken early in the program. The MIS department's doctoral advisory committee will determine the additional research tool courses.

## Teaching Requirement

The requirements for the teaching component of the doctoral degree will be developed with the doctoral graduate program coordinator based on the student's experience.

## Comprehensive 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.

## Admission to Candidacy and Dissertation—24 Credit Hours

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.

The student will select a dissertation chairperson and in conjunction with the chair will select a committee consistent with the College of Business Administration and University of Central Florida doctoral program policies. A dissertation proposal includes:

- an introduction, overview, and justification of a viable research topic
- a comprehensive review of the theoretical and empirical research relevant to the topic

The student will present the dissertation topic to the doctoral program committee for approval in an oral defense.

## Final Defense

The successful completion of a final oral examination is required. This examination concentrates on the student's dissertation but may include other topics. The final defense is open to the entire university community.

## Marketing Track

Graduate Program Coordinator: Dr. Raj Echambadi. E-mail: [raj.echambadi@bus.ucf.edu](mailto:raj.echambadi@bus.ucf.edu)

Minimum Hours Required for Ph.D.—90 Credit Hours

## Foundation Body of Knowledge—30 Credit Hours

In Marketing, this requirement may be satisfied with a master's degree in Marketing, Business Administration, or its equivalent from an AACSB-accredited school. Alternatively, this requirement may be satisfied by courses deemed essential by the Department's doctoral advisory committee.

## Marketing Major Concentration—15 Credit Hours

- MAR 7575 Seminar in Consumer Behavior (3 credit hours)
- MAR 7638 Seminar in Marketing Theory, Scaling, and Measurement (3 credit hours)
- MAR 7666 Seminar in Marketing Models (3 credit hours)
- MAR 7807 Seminar in Marketing Strategy (3 credit hours)
- MAR 7939 Special Topics: Comprehensive Research Project (3 credit hours)

## Minor/Support Area—9 Credit Hours

A minimum of nine hours of course work is required in a minor/support area. This course work, typically in a unified area, is intended to accommodate and support the student's individual research interests whenever possible and will be developed with the advice and consent of the department's doctoral advisory committee.

## Research Tools—12 Credit Hours

Doctoral students majoring in marketing are required to take a minimum of 12 credit hours of research tools. The courses required include ECO 7423 Applied Models I (3 credit hours). The department's doctoral advisory committee will determine the additional research tools courses.

## Teaching Requirement

The department's doctoral advisory committee, based on the student's experience, will develop the requirements for the teaching component of the doctoral degree.

## 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 department's doctoral advisory committee.

## Dissertation—24 Credit Hours

### Final Defense

The successful completion of a final oral examination is required. This examination concentrates on the student's dissertation defense.

# Civil Engineering

## Description

College of Engineering and Computer Science Department of Civil and Environmental Engineering Chair of the Department: Dr. A. E. Radwan Assistant Chair of the Department: Dr. M. B. Chopra Graduate Program Coordinator: Dr. R. L. Wayson, ENGR II211, (407) 823-2841. E-mail: [go\\_ucf@mail.ucf.edu](mailto:go_ucf@mail.ucf.edu) Web address: <http://www-cee.engr.ucf.edu/>

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.

The Civil and Environmental Engineering Department offers Master of Science degrees in Civil Engineering (M.S.C.E.). In addition, more specialized Master of Science (M.S.) degrees are offered in Structures and Foundations, Transportation Systems Engineering, and Water Resources Engineering. The department also offers the Doctor of Philosophy (Ph.D.) degree in Civil Engineering.

## Degrees Offered

### Master of Science in Civil Engineering (M.S.C.E.)

- Structural and Geotechnical Engineering Track
- Transportation Engineering Track
- Water Resources Engineering Track

### Master of Science in General Civil Engineering (M.S.)

- Structures and Foundations Engineering Track
- Transportation Systems Engineering Track
- Water Resources Engineering Track

### Doctor of Philosophy in Civil Engineering (Ph.D.)

## Faculty

Professors: C. D. Cooper, Ph.D., P.E.; S. S. Kuo, Ph.D., P.E.; A. E. Radwan Ph.D., P.E.; D. R. Reinhart, Ph.D., P.E., Associate Dean; J. S. Taylor, Ph.D., P.E.; M. P. Wanielista, Ph.D., P.E., Dean; R. L. Wayson, Ph.D., P.E., G. Yeh, Ph.D.

Associate Professors: H. M. Al-Deek, Ph.D., P.E.; M. A. Aty, Ph.D., P.E.; M. B. Chopra, Ph.D., P.E.; J. D. Dietz, Ph.D., P.E.; S. M. El-Tawil, Ph.D., P.E.; C. M. Head, Ph.D., P.E.; S. K. Kunnath, Ph.D., P.E.; F. N. Nnadi, Ph.D., P.E.; A. Oloufa, Ph.D., P.E.; U. O. Onyemelukwe, Ph.D., P.E.; A. A. Randall, Ph.D., P.E.;

Assistant Professors: S.C. Hagen, Ph.D.; S. K. Hong, Ph.D.

## Master of Science in Civil Engineering

The Civil and Environmental Engineering Department offers Master of Science degrees in Civil Engineering (M.S.C.E.), with tracks in Structural and Geotechnical Engineering, Transportation Engineering, and Water Resources Engineering.

There are two options for the master's degree programs: the thesis option and the non-thesis option. The thesis option is available in all

master's degree programs and requires a thesis that is equivalent to 6 credit hours out of a total of 30 credit hours. It is the required option for students supported on contracts and grants as well as any student receiving department financial support.

The non-thesis option is also available for all master's degree programs and requires 36 credit hours of course work and a comprehensive final oral and written examination as a requirement for graduation. This option is recommended only for part-time students on a limited access basis.

## Admission Requirements

For admission to the advanced degree program in Civil Engineering, students must have completed a bachelor of science degree. The Master of Science in Civil Engineering (M.S.C.E.) degree is designed for students who have an undergraduate degree in Civil Engineering or another closely related engineering degree. Applicants who are applying to the programs without a directly related undergraduate degree should closely check the prerequisites.

Admittance to the program requires a combined verbal and quantitative score of 1000 on the Graduate Record Examination (or 450 on the GMAT) or a grade point average of 3.0 or greater in the last 60 attempted semester hours of undergraduate studies.

International applicants must be in the top one-half of their graduating class if only meeting the GRE requirement. In addition, international applicants may have their transcript evaluated by the World Education Services (WES) to meet the minimum grade point average in cases where they do not meet the GRE requirement.

[Application Deadlines](#)

## Degree Requirements

The Master of Science in Civil Engineering (M.S.C.E.) degree is designed for 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 are required. The degree requires 30 credit hours of acceptable graduate work and includes a thesis (6 credit hours), or 36 credit hours of acceptable graduate work with a comprehensive final examination. Three defined tracks are available for this degree: Structural and Geotechnical Engineering, Transportation Engineering, and Water Resources Engineering. The student must develop an individual program of study with a faculty adviser by the second semester of study.

Required Courses—15 Credit Hours

Take any three of the following courses for all tracks:

- CEG 5015 Geotechnical Engineering II (3 credit hours)
- CEG 5700 Geo-Environmental Engineering (3 credit hours)
- CEG 6115 Foundation Engineering (3 credit hours)
- CES 5325 Bridge Engineering (3 credit hours)
- CES 5606 Advanced Steel Structures (3 credit hours)
- CES 5706 Advanced Reinforced Concrete (3 credit hours)
- CES 6715 Prestressed Concrete Structures (3 credit hours)
- CES 6840 Composite Steel Concrete Structures (3 credit hours)

For all tracks, take two of the following courses:

- TTE 5204 Traffic Engineering (3 credit hours) OR
- TTE 5805 Geometric Design of Transportation Systems (3 credit hours)
- CWR 5205 Hydraulic Engineering (3 credit hours) OR
- CWR 5545 Water Resources Engineering (3 credit hours) OR
- CWR 6125 Groundwater Hydrology (3 credit hours) OR
- CWR 6235 Open Channel Hydraulics (3 credit hours)

Courses that comprise the elective part of the program are selected in accordance with the general requirements of the College of Engineering and Computer Science, and often include courses taken from the following three sub-discipline areas, especially when a specific track is followed.

Tracks—9 or 21 Credit Hours

Take three courses with a thesis, or seven courses without a thesis from among the following tracks.

Thesis—6 Credit Hours

Minimum Credit Hours Required for M.S.C.E.—30 or 36 Credit Hours

## Structural and Geotechnical Engineering Track

Any of the structural/geotechnical courses not taken as a required course

- CEG 6065 Soil Dynamics (3 credit hours)
- CEG 6317 Advanced Geotechnical Engineering (3 credit hours)
- CES 5325 Bridge Engineering (3 credit hours)
- CES 5821 Masonry and Timber Design (3 credit hours)
- CES 6116 Finite Element Structural Analysis (3 credit hours)
- CES 6170 Boundary Element Methods in Civil Engineering (3 credit hours)
- CES 6209 Dynamics of Structures (3 credit hours)
- CES 6220 Wind and Earthquake Engineering (3 credit hours)
- CES 6230 Advanced Structural Mechanics (3 credit hours)
- CES 6715 Prestressed Concrete Structures (3 credit hours)
- CES 6840 Composite Steel Concrete Structures (3 credit hours)
- CES 6910 Research in Structural Engineering (3 credit hours)
- TTE 5835 Pavement Design (3 credit hours)
- Other courses with adviser's consent

## Transportation Engineering Track

Any of the transportation courses not taken as a required course

- CGN 6655 Regional Planning, Design, and Development (3 credit hours)
- TTE 5205 Highway Capacity and Traffic Flow Analysis (3 credit hours)
- TTE 5256 Traffic Operations (3 credit hours)
- TTE 5700 Railroad Engineering (3 credit hours)
- TTE 5835 Pavement Design (3 credit hours)
- TTE 6270 Intelligent Transportation Systems (3 credit hours)
- TTE 6315 Traffic Safety Analysis (3 credit hours)
- TTE 6526 Planning and Design of Airports (3 credit hours)
- TTE 6625 Mass Transportation Systems (3 credit hours)

## Water Resources Engineering Track

Any of the water resources courses not taken as a required course

- CWR 6102 Advanced Hydrology (3 credit hours)
- CWR 6126 Groundwater Modeling (3 credit hours)
- CWR 6236 River Engineering and Sediment Transport (3 credit hours)
- CWR 6535 Modeling Water Resources Systems (3 credit hours)
- CWR 6539 Finite Differences/Elements in Surface Water Modeling (3 credit hours)

## Master of Science in General Civil Engineering

The Civil and Environmental Engineering Department offers specialized Master of Science (M.S.) degrees in general Civil Engineering, with tracks in Structures and Foundations, Transportation Systems Engineering, and Water Resources Engineering.

There are two options for the master's degree programs: the thesis option and the non-thesis option. The thesis option is available in all master's degree programs and requires a thesis that is equivalent to 6 credit hours out of a total of 30 credit hours. It is the required option for students supported on contracts and grants as well as any student receiving department financial support.

The non-thesis option is also available for all master's degree programs and requires 36 credit hours of course work and a comprehensive final oral and written examination as a requirement for graduation. This option is recommended only for part-time students on a limited access basis.

## Admission Requirements

For admission to the advanced degree program in Civil Engineering, students must have completed a bachelor of science degree. The Master of Science (M.S.) degree in general civil engineering degree is designed for students with appropriate engineering baccalaureate backgrounds. Applicants who are applying to the programs without a directly related undergraduate degree should closely check the prerequisites.

Admittance to the program requires a combined verbal and quantitative score of 1000 on the Graduate Record Examination (or 450 on the GMAT) or a grade point average of 3.0 or greater in the last 60 attempted semester hours of undergraduate studies.

International applicants must be in the top one-half of their graduating class if only meeting the GRE requirement. In addition, international applicants may have their transcript evaluated by the World Education Services (WES) to meet the minimum grade point average in cases where they do not meet the GRE requirement.

[Application Deadlines](#)

## Degree Requirements

The M.S. degree in general civil engineering requires 30 credit hours of acceptable graduate work and includes a thesis (6 credit hours), or 36 credit hours of acceptable graduate work with a comprehensive final examination. Three defined tracks are available for this degree: Structures and Foundations Engineering, Transportation Systems Engineering, and Water Resources Engineering. The student must develop an individual program of study with a faculty adviser by the second semester of study.

## Structures and Foundations Engineering Track

The department offers a Master of Science (M.S.) degree in Structures and Foundations Engineering to students with appropriate engineering baccalaureate backgrounds. The degree requires 30 credit hours of acceptable graduate course work and includes a thesis (6 credit hours), or 36 credit hours of acceptable graduate course work with a comprehensive final examination. The student must develop an individual program of study with a faculty adviser and must have background or articulation course work as described below.

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 Credit Hours

Take 30 credit hours (thesis option) or 36 credit hours (non-thesis option) from the following courses, with at least 2 courses from each subgroup. Other courses may also be taken with the consent of the faculty adviser.

Sub-Group A: Geotechnical Engineering

- CEG 5015 Geotechnical Engineering II (3 credit hours)
- CEG 5700 Geo-Environmental Engineering (3 credit hours)
- CEG 6065 Soil Dynamics (3 credit hours)
- CEG 6115 Foundation Engineering (3 credit hours)

- CEG 6317 Advanced Geotechnical Engineering (3 credit hours)
- CES 6170 Boundary Element Methods in Civil Engineering (3 credit hours)
- TTE 5835 Pavement Design (3 credit hours)

#### Sub-Group B: Structural Engineering

- CES 5325 Bridge Engineering (3 credit hours)
- CES 5606 Advanced Steel Structures (3 credit hours)
- CES 5706 Advanced Reinforced Concrete (3 credit hours)
- CES 5821 Masonry and Timber Design (3 credit hours)
- CES 6116 Finite Element Structural Analysis (3 credit hours)
- CES 6209 Dynamics of Structures (3 credit hours)
- CES 6220 Wind and Earthquake Engineering (3 credit hours)
- CES 6230 Advanced Structural Mechanics (3 credit hours)
- CES 6715 Prestressed Concrete Structures (3 credit hours)
- CES 6840 Composite Steel Concrete Structures (3 credit hours)
- CES 6910 Research in Structural Engineering (3 credit hours)

Thesis—6 Credit Hours

Minimum Credit Hours Required for M.S.—30 or 36 Credit Hours

## Transportation Systems Engineering Track

The department offers a Master of Science (M.S.) degree in Transportation Systems Engineering for students with appropriate science or engineering baccalaureate backgrounds. Students without a bachelor's degree in science or engineering will not be admitted. Students must also have background (or articulation course work) as described below.

#### Prerequisites

- Probability and Statistics for Engineers (STA 3032)
- Engineering Economic Analysis (EGN 3613)
- Transportation Engineering (TTE 4004)

#### Required Courses—12 Credit Hours

- TTE 5204 Traffic Engineering (3 credit hours)
- TTE 5805 Geometric Design of Transportation Systems (3 credit hours)
- TTE 6256 Traffic Operations (3 credit hours)
- TTE 6270 Intelligent Transportation Systems (3 credit hours)

#### Elective Courses—12 or 24 Credit Hours

- CGN 6655 Regional Planning, Design, and Development (3 credit hours)
- ENV 5071 Environmental Analysis of Transportation Systems (3 credit hours)
- STA 5156 Probability and Statistics for Engineers (3 credit hours)
- TTE 5205 Highway Capacity and Traffic Flow Analysis (3 credit hours)
- TTE 6315 Traffic Safety Analysis (3 credit hours)
- TTE 5700 Railroad Engineering (3 credit hours)
- TTE 5835 Pavement Design (3 credit hours)
- TTE 6526 Planning and Design of Airports (3 credit hours)
- TTE 6625 Mass Transportation Systems (3 credit hours)

Thesis—6 Credit Hours

Minimum Credit Hours Required for M.S.—30 or 36 Credit Hours

## Water Resources Engineering Track

The department offers a Master of Science (M.S.) degree in Water Resources Engineering to students with appropriate science or engineering baccalaureate backgrounds. The degree requires 30 credit hours of acceptable graduate course work, which includes a thesis (6 credit hours), or 36 credit hours of acceptable graduate course work with a comprehensive final examination. Each student must have an individual program of study approved by the student's faculty committee and have completed all required articulation course work as described below.

#### Prerequisites

- CEG 4101C Geotechnical Engineering I
- CWR 4101C Hydrology
- CWR 4203C Hydraulics
- EGN 3613 Engineering Economic Analysis
- STA 3032 Probability and Statistics for Engineers

#### Required Courses (any five)—15 Credit Hours

- CWR 5205 Hydraulic Engineering (3 credit hours)
- CWR 5545 Water Resources Engineering (3 credit hours)
- CWR 6125 Groundwater Hydrology (3 credit hours)
- CWR 6235 Open Channel Hydraulics (3 credit hours)
- CWR 6236 River Engineering and Sediment Transport (3 credit hours)
- CWR 6535 Modeling Water Resources Systems (3 credit hours)

#### Technical Elective Courses—9 or 15 Credit Hours

- ENV 6046 Membrane Mass Transfer (3 credit hours)
- ENV 6055 Fate and Transport of Subsurface Contaminants (3 credit hours)
- ENV 6336 Site Remediation and Hazardous Waste Treatment (3 credit hours)
- CEG 6317 Advanced Geotechnical Engineering (3 credit hours)
- CWR 6539 Finite Differences/Elements in Surface Water Modeling (3 credit hours)
- STA 5156 Probability and Statistics for Engineers (3 credit hours) OR
- STA 5206 Statistical Analysis (3 credit hours)
- Other courses with adviser's consent (3 credit hours each)

#### Thesis—6 Credit Hours

#### Total Hours Required for M.S.—30 or 36 Credit Hours

## Doctor of Philosophy in Civil Engineering

The Doctor of Philosophy (Ph.D.) degree requires a student to have completed a master's degree in Civil 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.

## Admission Requirements

In addition to satisfying regular university admissions criteria, the student must have a master's degree in Civil Engineering or a closely related discipline from a recognized and accredited institution and achieve a combined verbal and quantitative score of 1100 on the Graduate Record Examination (or equivalent GMAT score). Prospective applicants should forward a detailed resume and a letter with research interests and three letters of recommendation for department review with the application.

[Application Deadlines](#)

## Degree Requirements

The Ph.D. degree requires a minimum of 36 to 42 credit hours beyond the master's degree, 18 of which will be dissertation credits, and a minimum of 6 credits of which must be from courses taken outside the student's program while at UCF. For those students who completed a



thesis as part of their master's degree with no additional course work beyond the minimum, 12 credit hours of electives are required. Otherwise, a minimum of 6 credit hours of electives are required. In addition, a minimum of 12 credit hours of formal classroom work is required while 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.

Hours that must be taken in formal courses at UCF—12 credit hours

Hours taken at the discretion of the adviser—6 credit hours or 12 credit hours\*

Dissertation—18 credit hours

Minimum hours required for Ph.D.—36-42 credit hours beyond the master's degree

\* The student must take 12 credit hours if the student completes the thesis with no additional course work past the minimum. Hours taken at the discretion of the adviser include research hours, special topics, directed studies, as well as additional formal courses.

## Examinations

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. 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.

# Clinical Psychology

## Description

College of Arts and Sciences Department of Psychology Department Chair: Dr. John M. McGuire

## Degrees Offered

Master of Arts in Clinical Psychology (M.A.) Doctor of Philosophy in Psychology, Clinical Psychology Track

## Master of Arts in Clinical Psychology

Graduate Program Coordinator: Dr. Robert J. Kennerley, DB 140-310B, (386) 254-4412, ext. 4033. E-mail: [rkenner1@mail.ucf.edu](mailto:rkenner1@mail.ucf.edu)

The Master of Arts degree in Clinical Psychology is offered at the Daytona Beach area campus and is concerned with the application of psychological principles to individuals. The two primary areas of emphasis include assessment or evaluation skills, and intervention or psychotherapy skills. 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. M.A. 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. The program curriculum is consistent with the educational criteria for licensure as a Mental Health Counselor in the state of Florida.

Admission into the clinical master's program is 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, interview performance [if held]) considered in admission's decisions. Many applicants who meet minimum university requirements may not be admitted to the program.

## Admission Requirements

The Graduate Record Examination (GRE) is required of all graduate students. Competitive applicants will score a minimum of 500 on the verbal and 500 on the quantitative sections of the GRE and have a GPA of 3.0 for the last 60 semester hours of attempted work for the baccalaureate degree. International students and students whose native language is not English must score at least 220 (computer-based test; or equivalent score on the paper-based test) on the Test of English as a Foreign Language (TOEFL).

Applicants are encouraged to apply online. To be considered for admission, applicants must provide:

- A completed UCF graduate degree program application form
- 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 background and goals
- Three letters of reference, with at least two furnished by college or university professors who are acquainted with the applicant.

A department admissions committee reviews each student's credentials and may invite candidates for an interview. Final selection is based on both submitted credentials and the interview, if held.

[Application Deadlines](#)

## Competency/Prerequisite Requirements

Applicants must have either a baccalaureate degree with a major in psychology or a baccalaureate degree in another content area and completion of a minimum 15 semester hours of undergraduate psychology courses prior to matriculation. Competitive students will have completed courses in the following areas: abnormal psychology; developmental (lifespan preferred) or child psychology; personality theories; learning;

physiological psychology; and courses in research methods and statistics.

## Degree Requirements

The M.A. degree program in Clinical Psychology is a two-year, six-semester program for full-time students, with summer course work required in both years. Part-time students should plan their curriculum carefully in consultation with their advisor. The program consists of a minimum of 60 semester hours of work as follows.

Requirements for M.A.—60 Credit Hours Minimum

### Academic Course Work—48 Credit Hours

- CLP 5166 Advanced Abnormal Psychology (3 credit hours)
- CLP 6181 Psychological Theories of Substance Abuse Treatment (3 credit hours)
- CLP 6191 Cross-Cultural Psychotherapy (3 credit hours)
- CLP 6321 Psychotherapy in Community Settings (3 credit hours)
- CLP 6441C Individual Psychological Assessment I (3 credit hours)
- CLP 6456 Individual Counseling - Theory and Practice (3 credit hours)
- CLP 6457C Group Psychotherapy (3 credit hours)
- CLP 6458C Behavior Therapy (3 credit hours)
- CLP 6459 Human Sexuality, Marriage, and Sex Therapies (3 credit hours)
- CLP 6460C Introduction to Child, Adolescent, and Family Therapies (3 credit hours)
- CLP 6932 Ethical and Professional Issues in Mental Health Practice (3 credit hours)
- CLP 6943C Clinical Practicum (2 hours)
- DEP 5057 Developmental Psychology (3 credit hours)
- PSY 6216 Advanced Research Methodology I (4 credit hours)
- MHS 6020 Mental Health Care Systems (3 credit hours)\*
- SDS 6330 Career Development (3 credit hours)\*

\* These courses are offered in the Mental Health Counseling Track in the Counselor Education Program of the College of Education

### Internship—12 Credit Hours

(See description below.)

- CYP 6948C Psychology Internship (12 credit 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 is the prototype. The intern is assigned to an acceptable agency for a total of 1000 hours during three consecutive academic semesters (20 hours per week for 16 weeks during Fall and Spring Terms, and 30 hours per week for 12 weeks during the Summer Term). An additional commitment of two 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 the following courses is generally required prior to internship: CLP 5166, CLP 6191, CLP 6321, CLP 6441, CLP 6456, CLP 6458, CLP 6943., and MHS 6020. Internship placements are assigned by the program coordinator.

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 is completed through a case presentation. During their final semester of internship training, students must present a 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 write a paper on the case (ensuring ethical consideration of confidentiality issues) and present it to their faculty internship supervisor for final approval.

# Doctor of Philosophy in Psychology, Clinical Psychology Track

Clinical Psychology Ph.D. Graduate Program Coordinator: Mark D. Rapport, PH 409J, (407) 823-2974, E-mail: [mrapport@pegasus.cc.ucf.edu](mailto:mrapport@pegasus.cc.ucf.edu)

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.

## Faculty

M. D. Rapport, Ph.D., Professor and Director of Clinical Training

Jack McGuire, Ph.D., Professor and Department Chair

Clint Bowers, Ph.D., Associate Professor

Michael Dunn, Ph.D., Assistant Professor

Stacey Dunn, Ph.D., Assistant Professor

Kim Renk, Ph.D., Assistant Professor

Charles Negy, Ph.D., Associate Professor

Log on to the Department's website to review clinical faculty research and training interests. (Web address: <http://www.pegasus.cc.ucf.edu/~psych/>).

## Admission Requirements

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 220 (computer-based test; or equivalent score on the paper-based test) on the Test of English as a Foreign Language (TOEFL). Previous graduate work will be considered on a case-by-case basis (including acceptance of a previously completed master's thesis). A maximum of 30 semester hours may be transferred for credit.

During the past two years (2000, 2001), for example, the Clinical Psychology Program received 65 and 82 applications for admission and a total of 7 (2000) and 7 (2001) students entered the Ph.D. program. The mean GRE verbal (585, 576) and quantitative (596, 590) scores for students accepted for graduate study in 2000 and 2001, respectively, were complemented by a cumulative grade point average of 3.6 and 3.8.

To be considered for admission, applicants must provide:

- 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, coupled with a clear statement concerning the type of research you wish to pursue as a graduate student at UCF and the clinical faculty member you believe would be best suited to serve as your major professor and mentor. (Note: Interested applicants may wish to read about clinical faculty research interests on the department website at <http://pegasus.cc.ucf.edu/~psych/faculty.html>.)
- Three letters of reference, with at least two furnished by college or university professors who are acquainted with the applicant

All requested material must be submitted by January 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 submitted credentials and the interview, if held.

## Competency/Prerequisite Requirements

Applicants must have at least 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). Students who enter with a master's degree will be granted a maximum of 30 hours of transfer credit.

## Degree Requirements

The Clinical Ph.D. track is designed to be completed in five years of full-time study beyond the baccalaureate or 3-4 years beyond the master's. The program 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 107 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 may earn the M.S. degree in route to the Ph.D. Students who enter with a master's degree must complete at least 77 semester hours at UCF. (Note: courses listed under the Ph.D. program that are required for the M.S. degree are listed separately after the Ph.D. courses.) A master's thesis and a dissertation, which represents a significant contribution to the discipline, are both required. Successful completion of the Qualifying and Comprehensive Examination is required prior to initiation of dissertation research.

## Requirements for Ph.D.

108 Credit Hours Minimum

Psychology Foundation Courses—15 Credit Hours

- DEP 5057 Developmental Psychology (3 credit hours)
- SOP 5059 Advanced Social Psychology (3 credit hours)
- PSY 5605 History and Systems of Psychology (3 credit hours)
- PSB 5005 Physiological Psychology (3 credit hours)
- EXP 6506 Human Cognition and Learning (3 credit hours)

Research Courses—34 Credit Hours

- PSY 6216 Advanced Research Methodology I (4 credit hours)
- PSY 6217 Advanced Research Methodology II (4 credit hours)
- PSY 6219C Advanced Research Methodology III (4 credit hours)
- PSY 6946 Research Practicum (1 credit hour)
- PSY 6971 Thesis (6 credit hours)
- PSY 7980 Doctoral Dissertation (15 credit hours)

#### Clinical Courses—38 Credit Hours

- CLP 6191 Cross-Cultural Psychotherapy (3 credit hours)
- CLP 6460C Introduction to Child/Adolescent/Family Therapy (3 credit hours)
- CLP 6441C Individual Psychological Assessment I (3 credit hours)
- CLP 6445C Individual Psychological Assessment II (3 credit hours)
- CLP 6195C Introduction to Psychotherapy (3 credit hours)
- PSB 6446 Advanced Abnormal and Clinical Psychopharmacology (3 credit hours)
- CLP 6932 Ethical and Professional Issues in Mental Health Practices (3 credit hours)
- CLP 6943C Clinical Practicum (taken 4 times @ 2 hours; 8 hours)
- CLP 6949 Predoctoral Internship (6 credit hours)
- Clinical Treatment Elective (3 credit hours)

#### Unique/Niche Courses—12 Credit Hours

- EXP 6938 Teaching Seminar (3 credit hours)
- CLP 6491C Treatment Development Seminar (3 credit hours)
- CLP 6944 Clinical Supervision Seminar/Practicum (3 credit hours)
- PSY 6933 Administration Seminar/Practicum (3 credit hours)

#### Electives—9 Credit Hours

- Non-Psychology Electives (2 @ 3 credit hours; 6 hours)
- Other Elective—Psychology or Non-Psychology (3 credit hours)

## M.S. Requirements

For students who wish to complete the master's degree in route to the Ph.D., the M.S. degree is granted after successful completion of the course work listed immediately below and after the student has successfully defended their thesis.

#### 49 Credit Hours Minimum

#### Psychology Foundation Courses—6 Credit Hours

Any two of the following 3 courses:

- DEP 5057 Developmental Psychology (3 credit hours)
- PSY 5605 History and Systems of Psychology (3 credit hours)
- PSB 5005 Physiological Psychology (3 credit hours)

#### Research Courses—19 Credit Hours

- PSY 6216 Advanced Research Methodology I (4 credit hours)
- PSY 6217 Advanced Research Methodology II (4 credit hours)
- PSY 6219C Advanced Research Methodology III (4 credit hours)
- PSY 6946 Research Practicum (1 credit hour)
- PSY 6971 Thesis (6 credit hours)

#### Clinical Courses—24 Credit Hours

- CLP 6191 Cross-Cultural Psychotherapy (3 credit hours)
- CLP 6441C Individual Psychological Assessment I (3 credit hours)
- CLP 6445C Individual Psychological Assessment II (3 credit hours)

- CLP 6195C Introduction to Psychotherapy (3 credit hours)
- PSB 6446 Advanced Abnormal and Clinical Psychopharmacology (3 credit hours)
- CLP 6932 Ethical and Professional Issues in Mental Health Practices (2 credit hours)
- CLP 6943C Clinical Practicum (taken 2 times @ 2 hours; 4 credit hours)
- Clinical Treatment Elective (3 credit hours)

## Doctoral Examinations

Domain A: Research (required)

- Theoretical or Review Article, or
- Empirical Article

Domain B: Government Proposals/Policy

- Grant Proposal, or
- Mental Health Policy/Administration

Domain C: Teaching

- Undergraduate Instructor Experience, or
- Professional Presentation Experience

Domain D: Clinical Practice/Consultation

- Comprehensive Case Presentation, or
- Program Development (Rx/Prevention)

**Purpose**—The purpose of the qualifying and comprehensive examination is to develop and assess competency of professional behaviors in doctoral-level graduate students in the Clinical Psychology Program that are consistent with the program’s professional training goals. These goals include but are not limited to the development and demonstration of skills and abilities that enable graduating students to (a) conduct and publish independent empirical research; (b) competently serve as innovative teachers/instructors in colleges, universities, and medical schools, and as presenters at local, regional, national, and international professional conferences; (c) prepare/review grants and develop knowledge and expertise in the area of administration and policies/legislation relevant to mental health issues; and (d) be expertly trained, empirically oriented clinicians capable of designing, implementing, and assessing programs concerned with mental health and mental health delivery broadly defined.

**Requirements, Rationale, and Objectives**—Successful completion of qualifying and comprehensive examination requirements reflect the program’s desire to ensure overall breadth of training in the field of clinical psychology that are complemented by individually tailored professional training experiences and competencies consistent with a student’s professional career goals. The four professional domains outlined above are consistent with this intent. All students are required to complete the Research domain owing to the importance and centrality of research competency to the Ph.D. degree in Clinical Psychology. Two of the other three professional competency domains must be fulfilled to complete qualifying/comprehensive examination requirements. Students are free to select any two of the three domains (Teaching, Government Proposals/Policy, Clinical Practice/Consultation) and are expected to discuss possible selections with their major professor/faculty adviser prior to formalizing their choices. Choice of domain is expected to reflect individual professional training goals and the desire for additional knowledge and expertise in a selected area. All competency domains contain two options, and students are free to select either option (see options “a” and “b” under each domain in above matrix) in consultation with their faculty adviser.

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.

# Communication

## Description

College of Arts and Sciences Nicholson School of Communication Director of the School: Dr. Milan D. Meeske Graduate Program Coordinator: Dr. Burt Pryor, COMM 248, (407) 823-5670 or (407) 823-4655. E-mail: [apryor@pegasus.cc.ucf.edu](mailto:apryor@pegasus.cc.ucf.edu) or [kseitz@mail.ucf.edu](mailto:kseitz@mail.ucf.edu)  
Web address: <http://www.cas.ucf.edu/communication/>

The University of Central Florida offers a Master of Arts in Communication. The curriculum focuses on theoretical and applied perspectives of communication theory and research, with tracks in Interpersonal Communication and 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.

## Degrees Offered

### Master of Arts in Communication (M.A.)

- Interpersonal Communication Track
- Mass Communication Track

## Faculty

Professors: R. H. Davis, Ph.D.; F. E. Fedler, Ph.D.; M. D. Meeske, Ph.D.; B. Pryor, Ph.D.; R. F. Smith, M.A.; K. P. Taylor, Ph.D.

Associate Professors: J. F. Butler, Ph.D.; W. J. Hall, Ed.D.; J. Maunez-Cuadra, Ph.D.; J. B. O'Hara, Ph.D.; M. C. Santana, Ph.D.; L. A. Tanzi, Ph.D.; E. B. Wycoff, Ph.D.

Assistant Professors: G. M. Bagley, M.A.; R. L. Barfield, Ph.D.; T. M. Bridges, M.A.; R. E. Costain, M.A.; D. E. DeLorme, Ph.D.; F. L. Johnson, M.A.; S. G. Lawrence, Ph.D.; M. Rabby, Ph.D.

## Master of Arts in Communication

### Admission Requirements

Applicants must complete an application for graduate admission (available at [www.graduate.ucf.edu](http://www.graduate.ucf.edu)) and submit a statement of academic and professional goals. Students wishing to be considered for fellowships or assistantships must apply by the priority deadline and submit three letters of recommendation with their application.

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 combined score of at least 1000 on the verbal and quantitative sections of the General (Aptitude) test of the GRE. The department requires international students and students whose native language is not English to have a minimum score of 220 (computer-based test; or equivalent score on the paper-based test) on the Test of English as a Foreign Language (TOEFL).

[Application Deadlines](#)

### Degree Requirements

Students must select either the thesis or the comprehensive exam option. The thesis option for the Interpersonal and Mass Communication Tracks requires 30 hours of course work and the preparation and defense of a thesis (4 hours), for a total of 34 credits. The comprehensive exam option requires 33 credit hours of course work for the Interpersonal and Mass Communication Tracks, and the successful completion of



the comprehensive exams. The decision whether to write a thesis and defend it in an oral examination or to take the comprehensive exams should be made in consultation with the School of Communication graduate program coordinator. Typically, students entering or continuing professional careers following the M.A. would select the comprehensive exam option, while those who plan to enter doctoral programs would select the thesis option.

## Core Requirements

### Interpersonal Communication Track—15 Credit Hours

- COM 6046 Interpersonal Communication (3 credit hours)
- COM 6303 Communication Research I (3 credit hours)
- COM 6304 Communication Research II (3 credit hours)
- SPC 6219 Modern Communication Theory (3 credit hours)
- EDF 6401 Statistics for Educational Data (3 credit hours)

### Mass Communication Track—12 Credit Hours

- MMC 6402 Mass Communication Theory (3 credit hours)
- MMC 6445 Mass Media Research I (3 credit hours)
- MMC 6446 Mass Media Research II (3 credit hours)
- EDF 6401 Statistics for Educational Data (3 credit hours)

## Restrictive Electives for All Tracks

Interpersonal Communication Track—15 credit hours in Thesis Option, 18 credit hours in Comprehensive Exam Option

Mass Communication Track—18 credit hours in Thesis Option, 21 credit hours in Comprehensive Exam Option

- MMC 6307 International Communication (3 credit hours)
- COM 6121 Communication Management (3 credit hours)
- COM 6467 Studies in Persuasion (3 credit hours)
- COM 6468 Communication and Conflict (3 credit hours)
- COM 6525 Communication Strategy and Planning (3 credit hours)
- COM 6XXX Seminar in Intercultural Communication (3 credit hours)
- MMC 6202 Legal and Ethical Issues for Communication (3 credit hours)
- MMC 6407 Visual Communication Theory (3 credit hours)
- MMC 6567 Seminar in New Media (3 credit hours)
- **MMC 6600 Media Effects and Audience Analysis (3 credit hours)**
- MMC 6606 Advertising and Society (3 credit hours)
- MMC 6607 Communication and Society (3 credit hours)
- MMC 6612 Communication and the Government (3 credit hours)
- PUR 6403 Crisis Public Relations (3 credit hours)
- SPC 6442 Small Group Communication (3 credit hours)

Core courses from other tracks, special topics, independent studies, 5000-level courses, and approved courses taken outside the Nicholson School of Communication may be counted as restricted electives.

# Communicative Disorders

## Description

College of Health and Public Affairs Department of Communicative Disorders Chair: R. Jane Lieberman, Ph.D. Graduate Program Coordinator: Thomas Mullin, HPA 2, Room 101, (407) 823-4798. Email: [tmullin@mail.ucf.edu](mailto:tmullin@mail.ucf.edu) Academic Support Coordinator: Samad Mukati. E-mail: [dewolf@mail.ucf.edu](mailto:dewolf@mail.ucf.edu) Web address: <http://www.cohpa.ucf.edu/comdis>

The Department of Communicative Disorders offers two program options, leading to the Master of Arts degree in Speech-Language Pathology, to individuals interested in working with children and adults who have communication disorders. Both options are designed to provide the academic and clinical education experiences necessary for certification by the American Speech-Language-Hearing Association (ASHA) and licensure by the State of Florida.

The first option, the traditional master's program, typically requires six to seven semesters of full-time attendance, including at least one summer, for students with undergraduate degrees in Speech-Language Pathology and Audiology.

The second option is designed specifically for individuals who have bachelor's degrees in Speech-Language Pathology and Audiology and who have been providing speech and language services in the Florida Public Schools for at least one year prior to application.

Since 1986, the Council on Academic Accreditation of the American Speech-Language-Hearing Association has accredited the program.

## Degree Offered

Master of Arts in Communicative Disorders (M.A.)

## Master of Arts in Communicative Disorders

The Master of Arts Program offers two options to individuals interested in working with children and adults who have communication disorders. Both options are designed to provide the academic and clinical education experiences necessary for certification by the American Speech-Language-Hearing Association (ASHA) and licensure by the State of Florida.

The first option, the traditional master's program, typically requires six to seven semesters of full-time attendance, including at least one summer, for students with undergraduate degrees in Speech-Language Pathology and Audiology. Currently, the department admits in-field applicants (that is, those with undergraduate degrees in speech-language pathology) in the fall, spring, and summer. Applicants who have undergraduate degrees in other fields, and who have fewer than eight credit hours of applicable courses in speech-language pathology and audiology, are considered out-of-field. Out-of-field students require approximately three semesters of full-time course work to complete the necessary undergraduate prerequisites before enrolling for graduate work. To complete the prerequisite course work in three semesters, out-of-field students must first enroll during fall or summer semesters.

The second option is designed specifically for individuals who have bachelor's degrees in Speech-Language Pathology and Audiology and who have been providing speech and language services in the Florida Public Schools for at least one year prior to application. The second option is referred to as the Consortium Program and is available only to bachelor's level individuals who are providing speech and language services in the ten county school districts in central Florida. Students admitted through this option may complete their course work in as few as three years, but not more than five years. Typically, students enroll for 6 credit hours of course work during the fall and spring semesters and for 9 to 12 credit hours during the summer semester.

Both the traditional master's and the consortium programs consist of 70 to 71 credit hours of academic course work and supervised clinical practice. The academic course work includes 31 credit hours of core courses and 6 to 12 credit hours of electives. Electives may be selected through one of three special emphases, Medical Speech-Language Pathology, Multicultural/Multilingual Speech-Language Pathology or Child Language, or through a Generalist emphasis. The purpose of the special emphases is to provide students with in-depth knowledge and skills in areas of the scope of practice in Speech-Language Pathology in which students intend to work. Each of the special emphases targets an area that is becoming increasingly significant in the discipline as the population changes relative to age as well as cultural and linguistic diversity.

The research component of the program may be fulfilled either through completion of a thesis (6 credit hours) or a directed research project (1 credit hour). Students selecting the thesis option may substitute thesis for 6 credit hours of electives.

Supervised clinical practice is an integral part of the graduate program in Communicative Disorders. It provides students with an opportunity to apply classroom knowledge to the evaluation and management of individuals with a wide variety of communication disorders. Students in both options complete three clinical practica (9 credit hours) and a diagnostic practicum (1 credit hour) in the Communication Disorders Clinic on campus as well as half-time (6 credit hours) and full-time (12 credit hours) externships in external facilities such as schools, hospitals, rehabilitation centers, skilled nursing facilities, long-term care, community clinics, and private practices. Through these practica and externships, students complete a minimum of 375 clock hours of clinical experience in accordance with the guidelines outlined by the American Speech-Language-Hearing Association.

Since 1986, the Council on Academic Accreditation of the American Speech-Language-Hearing Association has accredited the program.

## Admission Requirements

Applications for admission to graduate status in the Master of Arts (M.A.) in Communicative Disorders degree program should include 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 for admission, 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 professors.
- A letter of intent, describing background and experience, interest in the field, future goals, the semester in which admission is desired, and specifying consortium or regular program.
- A copy of all official transcripts from previously attended colleges and universities.
- A copy of the graduate application and official GRE score report.

International students and students whose native language is not English must take the Test of English as a Foreign Language (TOEFL) and score at least 220 on the computer-based test (or equivalent score on the paper-based test).

Admission into the graduate program will be determined in fall and spring for all semesters including summer. The program in Communicative Disorders is highly competitive. Meeting minimum university standards may not guarantee admission to the program.

[Application Deadlines](#)

## Degree Requirements

### Prerequisites

Successful applicants must have completed a baccalaureate in Speech-Language and Hearing (Communicative Disorders) or specific prerequisite courses to be arranged in consultation with the graduate program coordinator and academic advisers. All students must complete 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 6805, Research in Communicative Disorders.

Minimum Hours Required for M.A.—70 Semester Hours

### Required Courses—70-71 Credit Hours

Sample Schedule for Fall entry (non-thesis)

Term 1

- SPA 6553 Differential Diagnosis in Speech and Language (3 credit hours)
- SPA 6404 Preschool Language Disorders (3 credit hours)
- SPA 6410 Aphasia and Related Disorders (3 credit hours)
- SPA 6505 Clinical Practicum (3 credit hours)

Term 2

- SPA 6211 Voice Disorders (3 credit hours)
- SPA 6236 Motor Speech Disorders in Adults and Children (3 credit hours)
- SPA 6413 School-Aged Language Disorders (3 credit hours)
- SPA 6505 Clinical Practicum (3 credit hours)

#### Term 3

- SPA 6805 Research in Communicative Disorders (3 credit hours)
- SPA 6225 Fluency Disorders (3 credit hours)
- Elective (3 credit hours)
- SPA 6505 Clinical Practicum (3 credit hours)

#### Term 4

- SPA 6204 Advanced Articulation/Phonological Disorders (3 credit hours)
- Elective (3 credit hours)
- Elective (3 credit hours)
- SPA 6553L Differential Diagnosis in Speech and Language Laboratory (1 credit hour)

#### Term 5

- SPA 6132 Advanced Speech Science (3 credit hours)
- Elective (3 credit hours)
- SPA 6946 Externship (6 credit hours)

#### Term 6

- SPA 6918 Directed Research (1 credit hour)
- SPA 6946 Externship (12 credit hours)

## Practicum credit toward degree—27 Credit Hours

All students must register for 9 credit hours of Clinical Practicum (SPA 6505), 1 credit hour of Differential Diagnosis Lab (SPA 6553L), and 18 credit hours of Externship (SPA 6946).

## Research

To fulfill the research component of the degree, each student will complete either a thesis or a directed research report.

## Thesis Option—6 Credit Hours

Students selecting the thesis option will complete a thesis in an area of speech/language pathology for six semester hours of credit that may be used to substitute for six credit hours of electives. Students will select an advisory committee of three faculty members, chaired by a departmental faculty member, to guide them through the thesis process. Oral defenses of the thesis prospectus and completed thesis are required.

## Non-Thesis Option—1 Credit Hour

Students selecting the non-thesis option will complete a directed research project for one hour of credit during their full-time externship. Typically, the research project is connected to some aspect of the externship experience. Students must register for one hour of Directed Research (SPA 6918) in the semester in which they complete their full-time externship.

## Examinations

To be considered degree candidates, students must pass a comprehensive examination. Beginning with the Fall 2002 semester, the PRAXIS

Examination in Speech-Language Pathology will serve as the comprehensive examination for degree candidates in Communicative Disorders and must be completed during either of the last two semesters in the program. Students must submit an official notice of their examination scores on the PRAXIS to the Coordinator of Academic Support in the Department two weeks prior to graduation. Scores achieved prior to the second to the last semester will not be accepted.

# Computer Engineering

## Description

College of Engineering and Computer Science School of Electrical Engineering and Computer Science Director of School: Dr. Erol Gelenbe  
Graduate Program Coordinator: Dr. Taskin Kocak, ENGR I , Room 407, (407) 823-4758. E-mail: [tkocak@mail.ucf.edu](mailto:tkocak@mail.ucf.edu) Web address: [www.seecs.ucf.edu](http://www.seecs.ucf.edu)

The School of Electrical Engineering and Computer Science offers Master of Science and Doctor of Philosophy degrees in Computer Engineering. Students in the Computer Engineering program receive a broad background in the areas of software engineering, digital systems, computer architectures and knowledge-based systems while specializing in a research area of their interest. Research interests of the Computer Engineering faculty include digital systems, computer architecture, software engineering, artificial intelligence, expert systems, simulation, computer communications, and computer vision, and VLSI.

## Degrees Offered

### Master of Science in Computer Engineering (M.S.Cp.E.)

- Computer Architecture Track
- Digital Systems Track
- Knowledge-based Systems Track
- Software Engineering Track

### Doctor of Philosophy in Computer Engineering (Ph.D.)

## Faculty

Professors: C. S. Bauer, Ph.D.; A. J. Gonzalez, Ph.D.

Associate Professors: R. DeMara, Ph.D.; H. I. Klee, Ph.D.; B. E. Petrasko, D. Eng.; J. Zalewski, Ph.D.; G. Walton, Ph.D.

Assistant Professors: A. Ejnoui, Ph.D.; T. Kocak, Ph.D.; F. Gonzalez, Ph.D.

Lecturers: See <http://www.seecs.ucf.edu>

## Master of Science in Computer Engineering

The Master of Science in Computer Engineering Program is designed for students with a baccalaureate degree in Computer Engineering or a closely related discipline. The master's program offers four tracks: Computer Architecture, Digital Systems, Knowledge-based Systems, and Software Engineering. All tracks offer a thesis option and a non-thesis (course work only) option.

## Admission Requirements

The Master of Science in Computer Engineering (M.S.Cp.E.) degree requires a baccalaureate degree in Computer Engineering or a closely related discipline from an accredited 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). Students must submit an application for graduate admission, including a resume, goals statement, and two letters of recommendation.

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 U.S. college or university, are required to submit a score of at least 220 (computer-based test; or equivalent score on the paper-based test) on the Test of English as a Foreign Language (TOEFL).

Students with a grade point average of less than 3.0 may be admitted on a trial program basis in some circumstances. Additional courses may also be required to correct any course deficiencies. Students should contact the Computer and Electrical Engineering graduate coordinator for further information.

[Application Deadlines](#)

## 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 program coordinator in consultation with the student's adviser on a case-by-case basis.

In general, all students must have had the following undergraduate program or equivalent before admission to graduate study. Students without this background must take the appropriate course work. Courses taken to correct deficiencies cannot be used to satisfy minimum degree requirements.

- 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)

## Degree Requirements

Each of the four tracks (Computer Architecture, Digital Systems, Knowledge-based Systems, and Software Engineering) in the master's program in computer engineering has a thesis option and a non-thesis (course work only) option. The thesis option requires a minimum of 30 credit hours, including 6 credit hours of thesis. The non-thesis option requires a minimum of 36 credit hours of course work. Each option requires a minimum of 15 credit hours at the 6000 level. The actual program of study must be approved by an adviser prior to completing 9 credit hours of course work. A maximum of 9 credit hours of graduate course work taken prior to admission to the program can be used in a graduate degree program.

### Thesis Option

The thesis option requires 30 credit hours, at least 15 credit hours of which must be at the 6000 level and will include 6 credit hours of thesis. The prerequisites for the program are shown below. The Core requirements for all students will be met by taking the Required Courses. A program adviser and committee must be selected prior to completing 9 credit hours of course work. Non-Core courses taken before a student is in regular status and has a chair may not be accepted toward the M.S.Cp.E. The entire graduate committee must be appointed and a thesis abstract provided to them prior to registering for thesis credit.

### Non-Thesis Option

The non-thesis option requires a minimum of 36 credit 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 credit hours of course work. Students are required to pass a final comprehensive examination or another appropriate culminating experience. Please see the graduate program coordinator for details.

### Transfer Credits

Graduate students (subject to approval from an adviser) with a bachelor's degree from Computer Engineering at UCF may transfer up to 9 credit hours of 5000-level work toward a non-thesis M.S. option, and up to 3 credit hours of 5000-level work toward a thesis M.S. option. Up to 9 credit hours may be transferred from graduate work conducted elsewhere or in non-degree status from a regional accredited institution.

## Required Courses (Core)—9 Credit Hours

- EEL 5708 High Performance Computer Architecture (3 credit hours)
- EEL 5874 Expert Systems and Knowledge Engineering (3 credit hours)
- EEL 5881 Software Engineering I (3 credit hours)

## Computer Architecture Track

### THESIS OPTION

Minimum Hours Required for M.S.Cp.E.—30 Credit Hours

- Core (9 credit hours)
- EEL 6707 Parallel Processing (3 credit hours)
- EEL 6763 Current Topics in Parallel Processing (3 credit hours)
- EEL 6769 Parallel Knowledge Processing Systems (3 credit hours)
- Electives (Selected in consultation with adviser) (6 credit hours)
- Thesis (6 credit hours)

### NON-THESIS OPTION

Minimum Hours Required for M.S.Cp.E.—36 Credit Hours

- Core (9 credit hours)
- EEL 6707 Parallel Processing (3 credit hours)
- EEL 6763 Current Topics in Parallel Processing (3 credit hours)
- EEL 6769 Parallel Knowledge Processing Systems (3 credit hours)
- EEL 6883 Software Engineering II (3 credit hours)
- Electives (selected in consultation with adviser) (15 credit hours)

## Digital Systems Track

### THESIS OPTION

Minimum Hours Required for M.S.Cp.E.—30 Credit Hours

- Core (9 credit hours)
- EEL 6707 Parallel Processing (3 credit hours)
- EEL 6763 Current Topics in Parallel Processing (3 credit hours)
- Two courses in one of the following areas: Controls, Digital Signal Processing, or Microelectronics (6 credit hours)
- Electives (Selected in consultation with adviser) (3 credit hours)
- Thesis (6 credit hours)

### NON-THESIS OPTION

Minimum Hours Required for M.S.Cp.E.—36 Credit Hours

- Core (9 credit hours)
- EEL 6707 Parallel Processing (3 credit hours)
- EEL 6763 Current Topics in Parallel Processing (3 credit hours)
- EEL 6883 Software Engineering II (3 credit hours)
- Three courses in one of the following areas: Controls, Digital Signal Processing, or Microelectronics (9 credit hours)
- Electives (Selected in consultation with adviser) (9 credit hours)

## Knowledge-based Systems Track



## THESIS OPTION

Minimum Hours Required for M.S.Cp.E.—30 Credit Hours

- Core (9 credit hours)
- EEL 4872 Engineering Applications of Intelligent Systems (3 credit hours)\*
- EEL 6875 Engineering of Artificial Intelligence Systems (3 credit hours)
- At least one of the following courses (3 credit hours):
  - EEL 6876 Current Topics in Artificial Intelligence in Engineering Systems
  - EEL 6878 Modeling and Artificial Intelligence
- Electives (Selected in consultation with adviser) (6 credit hours)
- Thesis (6 credit hours)

## NON-THESIS OPTION

Minimum Hours Required for M.S.Cp.E.—36 Credit Hours

- Core (9 credit hours)
- EEL 4872 Engineering Applications of Intelligent Systems (3 credit hours)\*
- EEL 6875 Engineering of Artificial Intelligence Systems (3 credit hours)
- EEL 6876 Current Topics in Artificial Intelligence in Engineering Systems (3 credit hours)
- EEL 6878 Modeling and Artificial Intelligence (3 credit hours)
- EEL 6883 Software Engineering II (3 credit hours)
- Electives (selected in consultation with adviser) (12 credit hours)

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

# Software Engineering Track

## THESIS OPTION

Minimum Hours Required for M.S.Cp.E.—30 Credit Hours

- Core (9 credit hours)
- EEL 6883 Software Engineering II (3 credit hours)
- At least one of the following courses:
  - EEL 6885 Software Engineering Quality Assurance Methods (3 credit hours)
  - EEL 6887 Software Engineering Life-Cycle Control (3 credit hours)
  - EEL 6897 Software Development for Real-Time Engineering Systems (3 credit hours)
- Electives (selected in consultation with adviser) (9 credit hours)
- Thesis (6 credit hours)

## NON-THESIS OPTION

Minimum Hours Required for M.S.Cp.E.—36 Credit Hours

- Core (9 credit hours)
- EEL 6883 Software Engineering II (3 credit hours)
- At least two of the following courses (6 credit hours):
  - EEL 6885 Software Engineering Quality Assurance Methods
  - EEL 6887 Software Engineering Life-Cycle Control
  - EEL 6897 Software Development for Real-Time Engineering Systems
- Electives (selected in consultation with adviser) (18 credit hours)

# Doctor of Philosophy in Computer Engineering

The Doctor of Philosophy (Ph.D.) degree is primarily intended for students with a master's degree in Computer Engineering or a closely related discipline wishing 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 Requirements

Students must satisfy university requirements and have completed either a master's degree in computer engineering or a closely related discipline with a minimum grade point average of 3.5 (on a 4.0 scale) and a minimum of 1100 on the combined verbal-quantitative sections of the Graduate Record Examination (GRE) or a bachelor's degree in computer engineering or a closely related discipline with a minimum grade point average of 3.5 (on a 4.0 scale) in the last 60 attempted semester hours of the bachelor's degree, and a minimum of 1100 on the combined verbal-quantitative sections of the GRE. Students must submit an application for graduate admission, including a resume, goals statement, and three letters of recommendation. Admissions decisions using these results and supplemental information are made by the graduate program coordinator.

[Application Deadlines](#)

## Degree Requirements

The Ph.D. degree requires a minimum of 72 credit hours beyond the bachelor's degree. Of these 72 hours, a minimum of 36 credit hours should be regular course work and a minimum of 15 credit hours should be dissertation hours. The remaining 21 credit hours could be course work (including courses such as Independent Study or Directed Research) or dissertation hours.

The Ph.D. degree requires a minimum of 36 credit hours beyond the master's degree (depending on the number of transfer credits from the master's degree). Of these 36 hours, a minimum of 12 credit hours should be regular course work and a minimum of 15 hours should be dissertation hours. The remaining 9 credit hours could be course work (including courses such as Independent Study or Directed Research) or dissertation hours.

At least 6 credit hours must be taken outside the student's program while at UCF. There is a residency requirement of two contiguous semesters in full-time graduate student status (minimum of 9 credit hours) after acceptance to the graduate program at UCF. The program of study must be developed in consultation with an adviser within the first 9 credit hours of course work and must meet with departmental approval, at which time transfer credit will be evaluated on a course-by-course basis. Students are required to pass a Qualifying Examination, after which the student must form a dissertation committee. The degree must be completed within seven years from the entry date to the doctoral program.

## Transfer Credits

A limited number of up to 36 credit hours may be transferred from a master's degree toward thesis requirements, including a maximum of 6 credit hours of 4000-level courses; no 3000-level courses, and no courses with grades less than "B" (3.0) grades.

## Qualifying Examination

The prospective doctoral student must take a written Qualifying Examination. 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. It is expected that a Ph.D. student will pass the Qualifying Examination within the first year of graduate studies.

The Qualifying Examination consists of a four-hour written examination, held twice a year on the first Friday of November and April of each year. The written examination may be followed by an oral examination, to be held approximately within two weeks from the evaluation of the written examination. The oral examination is required at the discretion of the Computer Engineering examination committee. The qualifying exam is open books and open notes, but published solution manuals for texts are not allowed. It is the policy of the Computer Engineering Program that any calculator used during the Qualifying examination may not be used to store user-defined programs.

## Written Exam Format

The exam is comprised of problems in at most four areas. The student must respond to a total of nine questions. The student must respond to four questions in their primary area and two questions in their secondary area. The primary area will be chosen prior to the exam date by notifying the Computer Engineering Graduate Secretary, or on the day of the exam. The primary area and secondary area can be chosen from

the following list of areas.

- Software Engineering
- Digital Systems and Computer Architecture

The student must also respond to three questions in no more than two of the areas listed below.

- Knowledge-Based Systems
- Communications
- Digital Signal Processing
- Controls
- Electro-optics
- Electromagnetics
- Physical Electronics
- Analog Electronics

## 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 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 major professor determines the format 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 Dean, through the Chairs, is responsible for committee formation, additions, and deletions. The doctoral committee must consist of a minimum of five members: three must be faculty members from within the student's department, and one must be at large from outside the School of Electrical Engineering and Computer Science. The committee Chair must be a member of the department graduate faculty approved to direct dissertations. Joint faculty members serve as department-faculty committee members. Adjunct faculty and off-campus experts may serve as the outside-the-college person in the committee. Program areas may further specify additional committee membership. The Office of Graduate Studies reserves the right to review appointments to advisory committees, place a representative on any advisory committee, or appoint a co-adviser.
- In unusual cases, with approval from the program Chair, two professors may chair the committee jointly. Joint faculty members may serve as committee chairs, but off-campus experts and adjunct faculty may not serve as committee chairs, although they may serve as co-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.

# Computer Science

## Description

College of Engineering and Computer Science School of Electrical Engineering and Computer Science Director of School: Dr. Erol Gelenbe  
Graduate Program Coordinator: Dr. Ronald Dutton, CSB 263, (407) 823-2779. E-mail: [dutton@cs.ucf.edu](mailto:dutton@cs.ucf.edu) Web address:  
<http://www.seecs.ucf.edu>

The School of Electrical Engineering and Computer Science offers Master of Science and Doctor of Philosophy degrees in Computer Science. Students in the computer science program receive a broad background in the areas of programming systems and languages, computer architecture, and computer science theory while specializing in a research area. Research interests of the CS 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.

## Degrees Offered

Master of Science in Computer Science (M.S.) Doctor of Philosophy in Computer Science (Ph.D.)

## Faculty

Professors: M. A. Bassiouni, Ph.D.; R. C. Brigham, Ph.D.; N. Deo, Ph.D., Millican Endowed Chair in Computer Science; R. D. Dutton, Ph.D.; K. Hua, Ph.D.; T. J. Frederick, Ph.D.; E. Gelenbe, Ph.D.; F. Gomez, Ph.D.; R. K. Guha, Ph.D.; C. E. Hughes, Ph.D.; G. Marin, Ph.D.; D. Marinescu, Ph.D.; J. M. Moshell, Ph.D.; A. Mukherjee, Ph.D.; M. A. Shah, Ph.D.

Associate Professors: O. Favorov, Ph.D.; S. D. Lang, Ph.D.; J. Leeson, Ph.D.; A. Orooji, Ph.D.; S. Pattanaik, Ph.D.; N. da Vitoria Lobo, Ph.D.; D. A. Workman, Ph.D.

Assistant Professors: H. Foroosh, Ph.D.; J. Lee, Ph.D.; C. Lisetti, Ph.D.; J. P. Rolland, Ph.D.; A. Wu, Ph.D.

Lecturer: W. Allen, M.S.; M. Llewellyn, Ph.D.; E. Montagne, M.S.

# Master of Science in Computer Science

## Admission Requirements

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 220 (computer-based test; or equivalent score on the paper-based test) on the Test of English as a Foreign Language (TOEFL).
- Applicants desiring financial support (assistantships or fellowships) are advised to take the Computer Science Graduate Record Examination in order to receive favorable consideration.

[Application Deadlines](#)

# Degree Requirements

Minimum Hours Required for M.S.—30-36 Credit Hours

Required Courses—9 Credit Hours

(Students must receive a 3.0 or above grade in each of these courses.)

- CDA 5106 Advanced Computer Architecture I (3 credit hours)
- COT 5405 Design and Analysis of Algorithms (3 credit hours)

And one of these courses:

- COP 5611 Operating Systems Design Principles (3 credit hours)
- COP 5021 Program Analysis (3 credit hours)
- COT 5310 Formal Languages and Automata Theory (3 credit hours)

Restricted Electives—21-27 Semester Hours

Restricted electives must include two 6000-level Computer Science courses taught by Computer Science faculty, exclusive of independent study, and may not include any courses for which the grade received is below a 3.0. Additional credits will normally be taken from 5000- and 6000-level Computer Science courses. Approval may be granted for at most 6 semester hours to be taken from graduate courses outside Computer Science.

Two options are available. The Non-Thesis option is a 36-credit-hour program with at most 6 hours of independent study. The Thesis option is a 30-credit-hour program and allows no independent study. Six credits of thesis (XXX 6971) are intended to span two semesters. Beyond these two semesters, students are required to be enrolled in at least one credit hour of thesis until the thesis requirement is satisfied. Students are 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 Electrical Engineering and Computer Science.

The plan of study for each student must satisfy the following:

- Contain 30-36 credit hours depending on the option selected
- Grades of 2.0 or better with at most 6 credit hours of 2.0 work and an overall grade point average of 3.0 or better
- No courses below the 5000 level
- No more than 6 credit hours (or two courses) of independent study in the Non-Thesis option and none in the Thesis option
- Two 6000-level courses, with grades of 3.0 or better, taught by Computer Science faculty
- Six credits of thesis (XXX 6971) for those in the Thesis option; for those in the Non-Thesis option, a comprehensive examination or another culminating experience is required at the completion of course work. Please contact the graduate program coordinator for details.

# Doctor of Philosophy in Computer Science

## Admission Requirements

Outstanding students with a bachelor's degree are encouraged to apply directly into the doctoral program. 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 requirements, students must pass Phase I of the Ph.D. qualifying examination. Any transfer credits toward requirements for the Ph.D. program must be approved by the student's research committee, the graduate program committee, and the university. Normally, these credits must correspond to equivalent requirements and performance levels expected for the program. Students must submit an application for graduate admission, including a resume, goals statement, and three letters of recommendation.

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 220 (computer-based test; or equivalent score on the paper-based test) on the Test of English as a Foreign Language (TOEFL).
- Applicants desiring financial support (assistantships or fellowships) are advised to take the Computer Science Graduate Record Examination in order to receive favorable consideration.

### [Application Deadlines](#)

## Degree Requirements

The Ph.D. plan of study will consist of a minimum of 15 credit hours of Ph.D. dissertation (CAP, CDA, COP, or COT 7980) credits and at least 57 additional credit hours of graduate (5000-level or above) credits. The latter must include CDA 5106, COT 5310, COT 5405, at least 15 credit hours of advanced (6000-level) computer science courses, exclusive of Special Topics courses, and 6 graduate credit hours from outside computer science. No more than 12 credits of Independent Study can be used.

## Ph.D. Qualifying Examination

Phase I of the qualifying examination, normally taken within the first two semesters of graduate work, determines whether a student will be allowed to continue for the Ph.D.

Phase I consists of a written examination in which students must successfully pass questions covering four areas from a list of areas supplied by the program. Students must clearly convey a strong undergraduate knowledge of each area. Phase I examinations will be offered in the Fall and Spring terms. Students are allowed two attempts to pass the Phase I examination. Upon passing, students are officially placed in the Ph.D. program.

Phase II of the qualifying examination consists of the acceptance of a professional paper, normally under the supervision of the student's adviser, by a peer-reviewed conference or journal. It is expected that the Phase II goal will be satisfied within the first eighteen months of graduate work.

## Dissertation Committee

- The Dean, through the Chairs, is responsible for committee formation, additions, and deletions. The doctoral committee must consist of a minimum of five members: three must be faculty members from within Computer Science, and one must be at large from outside the School of Electrical Engineering and Computer Science. Committee Chairs must be members of the school graduate faculty. Joint faculty members may serve as school-faculty committee members. Adjunct faculty and off-campus experts may serve as the outside-the-college member. The Computer Science Graduate Committee may further specify additional membership. The Office of Graduate Studies reserves the right to review appointments to advisory committees, place a representative on any advisory committee, or appoint a co-adviser.
- In unusual cases, with approval from the program Chair, two professors may co-chair the committee. Joint faculty members may serve as committee chairs, but off-campus experts and adjunct faculty may not, although they may serve as co-chairs.
- 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.

## Candidacy Examination

The candidacy examination consists of a written doctoral research prospectus followed by an oral presentation of the proposal. Students cannot register for dissertation credit (XXX 7980) until the term following successful passing of the candidacy examination.

## Residence Requirement

Students in the Ph.D. program are normally expected to be registered for a minimum of 9 credit hours for at least two consecutive semesters.

## Time Limitation

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

## Dissertation and Oral Defense

Students must write a dissertation on their research that 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 adviser and committee, the school director or designee, and the dean of the college or designee. Format approval from the Thesis and Dissertation Editor, and final approval of satisfaction of degree requirements by the Office of Graduate Studies is required.

# Counselor Education

## Description

College of Education Department of Child, Family and Community Sciences Chair of Department: Dr. Bill Wienke Graduate Program Coordinator: E. H. Robinson, (407) UCF-3819. E-mail: [erobinso@pegasus.cc.ucf.edu](mailto:erobinso@pegasus.cc.ucf.edu) Web address: <http://edcollege.ucf.edu>

Counselor Education offers two degree programs: Mental Health Counseling and School Counseling.

The Mental Health Counseling degree is a Master of Arts designed to help students obtain licensure as a mental health counselor and practice in community agencies, hospitals, colleges, universities, and private practice.

The School Counseling degrees are designed to prepare students to work as professional counselors in pre-K through postsecondary school settings. The School Counseling Program has two tracks: Master of Education (M.Ed.) and Master of Arts (M.A.). The M.Ed. program is for students who already possess a teaching credential. The M.A. degree is for an individual who has a baccalaureate degree in a discipline other than education and wants initial certification as a school counselor.

All master's degree students are required to complete clinical experiences in the UCF Community Counseling Clinic and on-site in the community. Mental Health Counseling requires a total of 1,100 clock hours of such experiences. School Counseling requires 700 hours.

## Degrees Offered

Master of Education in Counselor Education, School Counseling Track. Master of Arts in Counselor Education, School Counseling Track. Master of Arts in Counselor Education, Mental Health Counseling Track.

## Admission Requirements

### [Master's Programs in the College of Education](#)

To be considered for admission to any of the counselor education program tracks, an applicant must secure, complete, and submit an application by the deadline. A formal interview is required and will be considered for final admission after the College of Education admission requirements are met. Interviews are conducted on the second Friday in March and the second Friday in October. This program can accommodate only a limited number of students; therefore, there is a possibility of being denied admission even when all criteria are met. The College of Education reserves the right to refuse student entrance or terminate a student after admission to the Counselor Education Program, if in the judgment of the faculty the student demonstrates unacceptable personal fitness to work in the counseling field with children, youth, and/or adults.

### [Application Deadlines](#)

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.
- Complete a portfolio and receive approval by Counselor Education faculty.
- Pass comprehensive written examinations satisfactorily.
- Complete a professional exit examination.

## Master of Education in Counselor Education

### School Counseling Track



# Minimum Hours Required for M.Ed.—51 Credit Hours

Prerequisite: Eligible for teacher certification

## Area A: Core—12 Credit Hours

- EDF 6155 Lifespan Human Development and Learning (3 credit hours)
- EDF 6481 Fundamentals of Graduate Research in Education (3 credit hours)
- EGC 6971 Thesis or 2 electives (6 credit hours)

## Area B: Specialization—30 Credit Hours

- MHS 5005 Introduction to the Counseling Profession (3 credit hours)
- MHS 6220 Individual Psychoeducational Testing I (3 credit hours)
- MHS 6400 Theories of Counseling and Personality (3 credit hours)
- MHS 6401 Techniques of Counseling (3 credit hours)
- MHS 6420 Counseling Special Populations (3 credit hours)
- MHS 6500 Group Procedures and Theories in Counseling (3 credit hours)
- MHS 6780 Ethical and Legal Issues (3 credit hours)
- SDS 6330 Career Development (3 credit hours)
- SDS 6411 Counseling with Children and Adolescents (3 credit hours)
- SDS 6620 Organization and Administration of School Counseling Programs (3 credit hours)

## Area C: Professional Clinical Experience—9 Credit Hours

- MHS 6800 Practicum in Counselor Education (3 credit hours)
- MHS 6830 Counseling Internship I (3 credit hours)
- MHS 6830 Counseling Internship II (3 credit hours)
- NOTE: Courses should be taken in the following sequence: MHS 5005, 6400, 6401, 6500, 6800, and 6830.

# Master of Arts in Counselor Education

## School Counseling Track

# Minimum Hours Required for M.A.—60 Credit Hours

## Area A: Core—12 Credit Hours

- EDF 6155 Lifespan Human Development and Learning (3 credit hours)
- EDF 6481 Fundamentals of Graduate Research in Education (3 credit hours)
- EGC 6971 Thesis or 2 approved electives (6 credit hours)

## Area B: Specialization—30 Credit Hours

- MHS 5005 Introduction to the Counseling Profession (3 credit hours)
- MHS 6220 Individual Psychoeducational Testing I (3 credit hours)
- MHS 6400 Theories of Counseling and Personality (3 credit hours)
- MHS 6401 Techniques of Counseling (3 credit hours)
- MHS 6420 Counseling Special Populations (3 credit hours)
- MHS 6500 Group Procedures and Theories in Counseling (3 credit hours)
- MHS 6780 Ethical and Legal Issues (3 credit hours)
- SDS 6330 Career Development (3 credit hours)
- SDS 6411 Counseling with Children and Adolescents (3 credit hours)
- SDS 6620 Organization and Administration of School Counseling and Guidance Programs (3 credit hours)

Area C: Professional Clinical Experience—9 Credit Hours

- MHS 6800 Practicum in Counselor Education (3 credit hours)
- MHS 6830 Counseling Internship I (3 credit hours)
- MHS 6830 Counseling Internship II (3 credit hours)

Area D: Required DOE Certification—9 Credit Hours

Foundations: Select one of the following:

- EDF 6517 Perspectives on Education (3 credit hours)
- EDF 6608 Social Factors in American Education (3 credit hours)
- EDF 6886 Multicultural Education (3 credit hours)
- General Methods (Approved by adviser)—6 Credit Hours

## Mental Health Counseling Track

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

### Minimum Hours Required for M.A.—63 Credit Hours

Area A: Core—12 Credit Hours

- EDF 6155 Lifespan Human Development and Learning (3 credit hours)
- EDF 6481 Fundamentals of Graduate Research in Education (3 credit hours)
- EGC 6971 Thesis or 2 approved electives (6 credit hours)

Area B: Specialization—39 Credit Hours

- MHS 5005 Introduction to the Counseling Profession (3 credit hours)
- MHS 6020 Mental Health Care Systems (3 credit hours)
- MHS 6070 Diagnosis and Treatment in Counseling (3 credit hours)
- MHS 6220 Individual Psychoeducational Testing I (3 credit hours)
- MHS 6400 Theories of Counseling and Personality (3 credit hours)
- MHS 6401 Techniques of Counseling (3 credit hours)
- MHS 6420 Counseling Special Populations (3 credit hours)
- MHS 6450 Counseling Substance Use and Abuse (3 credit hours)
- MHS 6480 Human Sexuality and Relationships (3 credit hours)
- MHS 6500 Group Procedures and Theories in Counseling (3 credit hours)
- MHS 6780 Ethical and Legal Issues (3 credit hours)
- SDS 6330 Career Development (3 credit hours)
- Elective approved by adviser (3 credit hours)

Area D: Professional Clinical Experiences—12 Credit Hours

- MHS 6800 Practicum in Counselor Education I (3 credit hours)
- MHS 6800 Practicum in Counselor Education II (3 credit hours)
- MHS 6830 Counseling Internship I (3 credit hours)
- MHS 6830 Counseling Internship II (3 credit hours)

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

# Criminal Justice

## Description

College of Health and Public Affairs Department of Criminal Justice and Legal Studies Chair of Department: Dr. Bernard J. McCarthy  
Graduate Program Coordinator: Dr. K. Michael Reynolds, HPA 311, (407) 823-2943. E-mail: [kreynold@mail.ucf.edu](mailto:kreynold@mail.ucf.edu) Web address:  
<http://www.cohpa.ucf.edu/crim.jus/>

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.

## Degree Offered

Master of Science in Criminal Justice (M.S.)

## Faculty

Professors: B. R. McCarthy, Ph.D., Dean; B. Bohm, Ph.D.; D. Fabianic, Ph.D.; R. Surette, Ph.D.

Associate Professors: C. Bast, J.D.; D. Bishop, Ph.D.; P. Griset, Ph.D.; D. Hall, Ph.D.; M. Lanier, Ph.D.; S. Mahan, Ph.D.; R. Pyle, Ph.D.; J. Sanborn, Ph.D.

Assistant Professors: B. Applegate, Ph.D.; D. Becker, M.S.; S. Holmes, Ph.D.; K. Lucken, Ph.D.; R. Remis, J.D.; K. M. Reynolds, Ph.D.; D. Slaughter, J.D.; R. Watkins

LS Internship Coordinator: K. Cook, J.D., Instructor

CJ Internship Coordinator: M. Eastep, M.S., Instructor

Instructors: J. Flagg, J.D.; R. Lynch, J.D.; J. Randall, M.S.

## Master of Science in Criminal Justice

The M.S. Program in Criminal Justice offers two plans of study. 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 Requirements

The Graduate Record Examination (GRE) is required of all graduate students. Minimum requirements for regular admission are a grade point average (GPA) of 3.0 for the last 60 attempted semester hours of undergraduate study and a total score of 800 or higher on the verbal-quantitative sections of the GRE. Applicants that fail to meet the minimum requirements will be considered for admission on a case-by-case basis.

Also, applicants are required to submit a personal statement reflecting their educational and career goals. Individuals whose native language is other than English are required to have a minimum score of 220 (computer-based test; or equivalent score on the paper-based test) on the Test of English as a Foreign Language (TOEFL).

[Application Deadlines](#)

## Degree Requirements

The M.S. program in Criminal Justice consists of 30 credit hours. Each student completes a core of 4 courses (12 credit hours) and an advanced curriculum of 6 courses (18 credit hours) selected in consultation with an adviser. Students may select a thesis option or a non-thesis option, depending on their intended career plans.

Students may transfer up to 6 hours of related graduate course work toward the Master of Science degree. Only courses where the student earned a grade of “B” or above will be accepted for transfer from an accredited university or college.

Minimum Hours Required for M.S.—30 Credit Hours

### Minimum Core Requirements—12 Credit Hours

- CCJ 5015 The Nature of Crime (3 credit hours)
- CCJ 5456 The Administration of Justice (3 credit hours)
- CCJ 5704 Research Methods in Criminal Justice (3 credit hours)
- CCJ 6706 Quantitative Methods and Computer Utilization in Criminal Justice (3 credit hours)

### Advanced Curriculum-18 Credit Hours-Select six courses.

- CCJ 5024 Foundations of Law Enforcement (3 credit hours)
- CCJ 5040 International Perspectives on Law and Justice (3 credit hours)
- CCJ 5073 Data Management Systems for Crime Analysis (3 credit hours, fall only)
- CCJ 5467 Justice and Safety System Manpower (3 credit hours)
- CCJ 6077 Advanced Crime Mapping and Analysis in Criminal Justice (3 credit hours, summer only)
- CCJ 6079 Crime Mapping and Analysis in Criminal Justice (3 credit hours, spring only)
- CCJ 6106 Policy Analysis in Criminal Justice (3 credit hours)
- CCJ 6217 Law and Social Control (3 credit hours)
- CCJ 6362 Death Penalty (3 credit hours)
- CCJ 6485 Issues in Justice Policy (3 credit hours)
- CCJ 6705 Applied Criminal Justice Research (3 credit hours)
- CJJ 6020 The Juvenile Justice System (3 credit hours)
- CCJ 6730 Planned Change and Innovation in Criminal Justice (3 credit hours)
- CCJ 6908 Independent Study (3 credit hours)
- CCJ 6934 Criminal Justice, Crime, and Popular Culture (3 credit hours)
- CCJ 6938 Special Topics in Criminal Justice (3 credit hours) (topic varies from semester to semester)
- CCJ 6946 Criminal Justice Practicum (3 credit hours)
- CCJ 6971 Thesis (3 credit hours)

NOTE: Students should obtain the most recent course information for electives from the "Course Catalog" at <https://connect.ucf.edu>. Consult the "Class Schedule" at <https://connect.ucf.edu> for those courses offered each term. A student may not take more than 6 credit hours total of Independent Study or Practicum.

# Curriculum and Instruction

## Description

College of Education Department of Educational Studies Chair of Department: Dr. Karen Biraimah Ed.D. and Ed.S. Graduate Program Coordinator: Dr. M. L. Kysilka, (407) UCF-2011. E-mail: [kysilka@mail.ucf.edu](mailto:kysilka@mail.ucf.edu) Master's Graduate Program Coordinator: Dr. D. Boote, (407) UCF-4160. E-mail: [dboote@mail.ucf.edu](mailto:dboote@mail.ucf.edu) Web address: <http://edcollege.ucf.edu>

The University of Central Florida offers master's, specialist, and doctoral degrees in Curriculum and Instruction.

The master's program offers the Master of Education and Master of Arts degrees and is designed for those who are interested in curricular studies, a more general, broadly based master's program, or have interest in the flexibility this program offers to pursue graduate course work in middle school education, pre-K handicapped, multicultural, and gifted education.

The Education Specialist program in Curriculum and Instruction is designed for individuals in teaching and in other instruction or training leadership positions.

The Doctor of Education (Ed.D.) program in Curriculum and Instruction is 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.

## Degrees Offered

Master of Education in Curriculum and Instruction (M.Ed.)

- Curriculum Studies Track
- Gifted Education Track
- Middle School Education Track
- Multicultural Education Track
- Pre-K Handicapped Education Track

Master of Arts in Curriculum and Instruction (M.A.)

Education Specialist in Curriculum and Instruction (Ed.S.)

Doctor of Education in Curriculum and Instruction (Ed.D.)

## Doctor of Education in Curriculum and Instruction

The Doctor of Education program provides advanced study for the education practitioner who desires a more in-depth understanding of curricular theory.

[Doctoral Programs in the College of Education](#)

[Application Deadlines](#)

## Admission Requirements

Prerequisites—9 Credit Hours

- EDG 6223 Curriculum Theory and Organization (3 credit hours)

- EDF 6401 Statistics for Educational Data (3 credit hours) (or equivalent)
- EDF 6481 Fundamentals of Graduate Research in Education (3 credit hours)

#### Curriculum/Instruction Core—12 Credit Hours

- EDF 7232 Analysis of Learning Theories in Instruction (3 credit hours)
- EDG 7221 Advanced Curriculum Theory (3 credit hours)
- EDG 7356 Models of Teaching and Instructional Theory (3 credit hours)
- EDG 7692 Issues in Curriculum (3 credit hours)

All core courses and the core examination must be completed in the first six semesters of enrollment in the doctoral program.

#### Specialization Area—45 Credit Hours Minimum

- Includes selected courses in Curriculum, Instruction, Foundations, Educational Leadership, and Community College Research and Data Analysis—6 Credit Hours
- EDF 7403 Quantitative Foundations of Educational Research (3 credit hours)
- EDF 7463 Analysis of Survey, Record, and Other Qualitative Data (3 credit hours)
- Dissertation—21 Credit Hours Minimum

Doctoral students must present a prospectus for the dissertation to the doctoral adviser, prepare a proposal and present to the dissertation committee, and defend the final research submission with the dissertation committee.

## Candidacy

To enter candidacy for the Ed.D., students must have an overall 3.0 grade point average on all graduate work included in the planned program and pass all required examinations.

### Candidacy Examinations

- Examinations must be completed prior to admission to candidacy.
- Examinations will be scheduled near the tenth week of the fall and spring semesters. Summer examinations will be scheduled for the sixth week of the term.
- All Curriculum and Instruction Ed.D. (Doctor of Education) candidates will be required to write examinations. Students must be enrolled in the university during the semester an examination is taken.
- Specialization/Teaching Field—5-hour examination
- Curriculum/Instruction Core—3-hour examination
- Research/Data Analysis—3-hour examination

# Education Specialist in Curriculum and Instruction

The Education Specialist program in Curriculum and Instruction is designed for individuals in teaching and in other instruction or training leadership positions.

[Specialist Programs in the College of Education](#)

[Application Deadlines](#)

## Admissions Policy

Admissions will occur three times a year, fall, spring and summer. Admitted students may begin course work during the first new semester after admission.

Completed Filenames 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 Filename is started.

Admission to an Education Specialist Program in Curriculum and Instruction or Educational Leadership is separate from admission to the Doctoral Program. Upon completion of the Education Specialist degree, the candidate may apply for admission to a doctoral program.

## General Degree Requirements

- Complete a minimum of 36 credit hours beyond the master's degree including the selected program requirements.
- Have an overall 3.0 grade point average 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.

## Degree Requirements

### Area I—Curriculum and Instruction Core—9 Credit Hours

- EDF 7232 Analysis of Learning Theories in Instruction (3 credit hours)
- EDG 7221 Advanced Curriculum Theory (3 credit hours)
- EDG 7356 Models of Teaching and Instructional Theory (3 credit hours)

### Area II—Specialization—21 Credit Hours

- EDA 6061 Organization and Administration of Schools (3 credit hours)
- EDA 6232 Legal Aspects of School Operation (3 credit hours)
- EDA 6240 Educational Financial Affairs (3 credit hours)
- EDA 6260 Educational Systems Planning and Management (3 credit hours)
- EDA 6931 Contemporary Issues in Educational Leadership (3 credit hours)
- EDS 6123 Educational Supervisory Practices I (3 credit hours)
- EDS 6130 Educational Supervisory Practices II (3 credit hours)

### Area III—Measurement and Evaluation—6 Credit Hours Minimum

- EDF 6432 Measurement and Evaluation in Education (3 credit hours)
- EDF 7403 Quantitative Foundations of Educational Research (3 credit hours)
- EDF 7463 Analysis of Survey, Record, and Other Qualitative Data (3 credit hours)

Minimum Hours Required for Ed.S.—36 Credit Hours beyond the master's degree.

## Examinations

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.

# Master of Education in Curriculum and Instruction

The Master of Education program in Curriculum and Instruction is designed for those who are interested in curricular studies, a more general, broadly based master's program, or have interest in the flexibility this program offers to pursue graduate course work in middle school education, pre-K handicapped, multicultural, and gifted education.



## Minimum Hours Required for M.Ed.—33 Credit Hours

### Area A: Core—18 Credit Hours

- EDF 6233 Analysis of Classroom Teaching (3 credit hours)
- EDF 6259 Learning Theories Applied to Classroom Instruction and Management (3 credit hours)
- EDF 6481 Fundamentals of Graduate Research in Education (3 credit hours)
- EDF 6446 Assessment of Learning (3 credit hours)
- EDG 6223 Curriculum Theory and Organization (3 credit hours)
- EME 6602 Integrating Technology into the Curriculum (3 credit hours)

### Area B: Track—15 Credit Hours

Option I: Curriculum Studies—Select 15 credit hours from the following electives.

- ESE 6235 Curriculum Design (3 credit hours)
- EDG 6253 Curriculum Inquiry (3 credit hours)
- EDG 6285 Evaluation of School Programs (3 credit hours)
- EDG 6224 Curriculum Policy Analysis (3 credit hours)
- EDF 6206 Challenges of Classroom Diversity (3 credit hours)
- EDF 6809 Comparative and International Education (3 credit hours)
- EDF 6517 Perspectives on Education (3 credit hours)
- EDG 6046 Contemporary Issues in Education (3 credit hours)

### Option II: Middle School Education

Students will take the following courses and complete an elective approved by the adviser.

- EDM 6401 Principles of Middle Level Education (3 credit hours)
- EDM 6047 Understanding the Young Adolescent (3 credit hours)
- EDM 6321 Middle Level Instruction (3 credit hours)
- EDM 6235 Contemporary Issues in Middle Level Education (3 credit hours)

The recommended elective is:

- EDM 6908 Research Project (3 credit hours)

### Option III: Gifted Education

- EGI 6051 Understanding the Gifted/Talented Student (3 credit hours)
- EGI 6245 Program Planning and Methodology for Gifted/Talented Students (3 credit hours)
- EGI 6246 Education of Special Populations of Gifted Students (3 credit hours)
- SDS 6426 Guidance and Counseling of Gifted/Talented Individuals (3 credit hours)
- EGI 6305 Nature and Development of Creativity (3 credit hours)

### Option IV: Multicultural Education

- EDF 6206 Challenges of Classroom Diversity (3 credit hours)
- EDF 6809 Introduction to Comparative and International Education (3 credit hours)
- EDF 6884 Education as a Cultural Process (3 credit hours)
- EDF 6886 Multicultural Education (3 credit hours)

An elective selected from the following courses:

- TSL 5345 Methods of ESOL Teaching (3 credit hours)

- TSL 6142 Critical Approaches to ESOL (3 credit hours)
- TSL 6440 Problems in Evaluation in ESOL (3 credit hours)

Other TSL courses with approval of adviser or another elective with adviser approval.

Option V: Pre-K Handicapped

NOTE: This is an approved graduate certificate program that is currently being offered at off-campus sites in Orange County.

- EEX 5702 Planning Curriculum for Pre-kindergarten Children with Disabilities (3 credit hours)
- EEX 5750 Communication with Parents and Agencies (3 credit hours)
- EEX 6017 Typical and Atypical Applied Child Development (3 credit hours)
- EEX 6224 Observation and Assessment of Young Children (3 credit hours)
- Approved elective (3 credit hours)

# Master of Arts in Curriculum and Instruction

The Master of Arts program in Curriculum and Instruction is designed for prospective teachers who want to satisfy the certification requirements of the state of Florida while obtaining a degree that is flexible enough to meet their individual needs and that will help them ensure quality instructional and curricular practices in schools and other educational settings.

[Master's Programs in the College of Education](#)

[Application Deadlines](#)

## Minimum Hours Required for M.A.—39-45 Credit Hours

Area A: Core—12-15 Credit Hours

Required:

- EDF 6233 Analysis of Classroom Teaching (3 credit hours)
- EDF 6481 Fundamentals of Graduate Research in Education (3 credit hours)
- EDG 6223 Curriculum Theory and Organization (3 credit hours)
- EME 6602 Integrating Technology into the Curriculum (3 credit hours)

Electives:

- EDF 6259 Learning Theories Applied to Classroom Instruction and Management (3 credit hours)
- EDF 6446 Assessment of Learning (3 credit hours)
- EDF 6517 Perspectives on Education (3 credit hours)
- EDG 6046 Contemporary Issues in Education (3 credit hours)

Area B: Professional Teaching Certificate Courses—15 Credit Hours

- EDF 6608 Social Factors in American Education (3 credit hours)
- EDG 6236 Principles of Instruction (3 credit hours)
- EDF 6155 Lifespan Human Development and Learning (3 credit hours)
- EDF 6432 Measurement and Evaluation in Education (3 credit hours)
- An approved special methods course in teaching field (3 credit hours)

Area C: Concentration—9-12 Credit Hours

- Option I: Approved electives in subject area to meet certification (9-12 credit hours)
- Option II: Select one of the track options offered in the M.Ed. Program (12-15 credit hours)

Area D: Internship—Optional—Only required for students who have no teaching experience.

- EDG 6940 Graduate Internship (6 hours)

M.A. students who wish to write a thesis will substitute 6 hours of thesis for one course in Area A (3 credit hours) and one course in Area C (3 credit hours).

# Early Childhood Education

## Description

College of Education Department of Child, Family and Community Sciences Chair of Department: Dr. Bill Wienke Graduate Program Coordinator: Dr. Lynn Hartle, (407) 823-4163. E-mail: [lhartle@mail.ucf.edu](mailto:lhartle@mail.ucf.edu) Web Address: [edcollege.ucf.edu](http://edcollege.ucf.edu)

The master's degree programs in Early Childhood Education are designed to meet the needs of both prospective and practicing teachers through the delivery of relevant, rigorous course work and related academic experiences. Students who already hold early childhood certification will enroll in the Master of Education (M.Ed. in ECE) Track, which includes a full range of courses including the choice of four areas of specialization. Prospective teachers who do not hold certification in the area of early childhood will enroll in the Master of Arts Initial Certification in Early Childhood (M.A. in ECE, Initial) Track, which leads to certification in this area. Students who hold Elementary Education Certification and desire the addition of the PreKindergarten-Primary Certification will enroll in the Master of Arts Additional Early Childhood Certification (M.A. in ECE, Additional) Track.

## Degrees Offered

### Master of Education in Early Childhood Education (M.Ed.)

- Early Literacy Specialization
- Educational Leadership Specialization
- Family, School, and Community Specialization
- Pre-Kindergarten Handicapped Endorsement

### Master of Arts in Early Childhood Education (M.A.)

- Initial Certification Track
- Additional Certification Track

## Admission Requirements

Students will be admitted to the program three times a year (in the fall, spring, and summer ) and must apply for graduate admission by the application deadline established for this program. Students may apply online at the Office of Graduate Studies website (<http://www.graduate.ucf.edu>). Admission criteria for the M.Ed. in ECE Track include the completion of a bachelor's degree and Florida Pre-Kindergarten Primary (Age 3 to Grade 3) teacher certification. Admission to the M.A. in ECE, Additional Track includes completion of a bachelor's degree and Florida Elementary Education teacher certification. No admissions decisions will be made using race, sex, or ethnic origin of the student. Admission to the M.A. in ECE, Initial Track requires completion of a bachelor's degree, but NOT Florida Teacher Certification. Minimum requirements for admission to both programs include:

- A grade point average of at least 3.0 for the last 60 attempted Credit Hours of undergraduate study at an accredited institution and a minimum score of 840 on the combined verbal-quantitative sections of the Graduate Record Examination; or
- A minimum GRE score of 1000 or above on the combined verbal-quantitative sections of the exam.

Students who do not meet published admission requirements may be admitted provisionally and will be interviewed by a faculty program committee whose recommendations will be forwarded to the Master's Admission and Retention Committee in accordance with College of Education Code for final admission action. Other admission factors that may be used in selecting students for provisional admission to the program are: previous teaching experience or work (i.e., social service agencies) with pre-kindergarten or primary age children and their families.

[Master's Programs in the College of Education](#)

[Application Deadlines](#)

## Master of Education in Early Childhood

# Education

## Minimum Hours Required for M.Ed.—36 Credit Hours

Core courses and specialization courses may be taken in any sequence preceding the Capstone Experience. The capstone experience serves as the culminating experience in the curriculum and substitutes for the comprehensive examination.

### Area A: Core—9 Credit Hours

- EDF 6432 Measurement and Evaluation in Education (3 credit hours)
- EDF 6481 Fundamentals of Graduate Research in Education (3 credit hours)
- EEC 5205 Programs and Trends in Early Childhood Education (3 credit hours)

### Area B: Specializations—24 Credit Hours

Select two of the 12-hour specializations.

#### Early Literacy Specialization—12 Credit Hours

- EEC 6XXX Communicative Arts in Early Childhood Education (3 credit hours)
- LAE 6XXX Early Childhood Children's Literature (3 credit hours)
- LAE 6616 Trends in Language Arts Education (3 credit hours)
- RED 6116 Trends in Reading Education (3 credit hours)

#### Educational Leadership Specialization—12 Credit Hours

- EDA 6061 Organization and Administration of Schools (3 credit hours)
- EDA 6931 Contemporary Issues in Educational Leadership (3 credit hours)
- EDS 6123 Educational Supervisory Practices I (3 credit hours)
- EEC 6XXX Early Childhood Administration (3 credit hours)

#### Family, School, and Community Specialization—12 Credit Hours

- EEC 6XXX Home-School-Community Interaction in Early Childhood Education (3 credit hours)
- EEC 6406 Guiding and Facilitating Social Competence (3 credit hours)
- EEC 6946 Practicum in Family Liaison Building (3 credit hours)
- EEX 5750 Communication with Parents and Agencies (3 credit hours)

#### Pre-Kindergarten Handicapped Endorsement Specialization—12 Credit Hours

- EEX 5702 Planning Curriculum for Pre-Kindergarten Children with Disabilities (3 credit hours)
- EEX 5750 Communication with Parents and Agencies (3 credit hours)
- EEX 6017 Typical and Atypical Applied Child Development (3 credit hours)
- EEX 6224 Observation and Assessment of Young Children (3 credit hours)

### Area C: Capstone Experience—3 Credit Hours

- EDE 6938 Master's Seminar (Action Research) (3 credit hours)

# Master of Arts in Early Childhood Education

## Initial Certification in Early Childhood Education Track

### Minimum Hours Required for M.A.—51-57 Credit Hours

Core courses and professional teaching certificate courses may be taken in any sequence preceding the Graduate Internship.

Area A: Core—6 Credit Hours

- EDF 6432 Measurement and Evaluation in Education (3 credit hours)
- EDF 6481 Fundamentals of Graduate Research in Education (3 credit hours)

Area B: Professional Teaching Certificate Courses—45 Credit Hours

Child growth and development from conception to age eight—3 Credit Hours

- EEX 6017 Typical and Atypical Applied Child Development (3 credit hours)

Historical, Philosophical, and Sociological Perspectives in Early Childhood Education—3 Credit Hours

- EEC 5205 Programs and Trends in Early Childhood Education (3 credit hours)

Developmentally appropriate integrated curriculum and practices in programs serving children ages three through five. (Choose six of the following courses.)—18 Credit Hours

- EEC 5206 Organization of Instruction in Early Childhood Education (3 credit hours)
- EEC 5208 Creative Activities in Early Childhood (3 credit hours)
- EEC 6XXX Communicative Arts in Early Childhood Education (3 credit hours)
- EEC 6268 Play Development, Intervention, and Assessment (3 credit hours)
- EEC 6275 Studies in Curriculum Enrichment for Early Childhood Education (3 credit hours)
- LAE 6XXX Early Childhood Children's Literature (3 credit hours)
- TSL 5345 Methods of ESOL Teaching (3 credit hours)
- TSL 5525 ESOL Cultural Diversity (3 credit hours)

Issues and practices to promote family and community involvement—6 Credit Hours

- EEC 6XXX Home-School-Community Interaction in Early Childhood Education (3 credit hours)
- EEX 5750 Communication with Parents and Agencies (3 credit hours)

Health, nutrition, and safety for children ages three through five—3 Credit Hours

- EEC 4731 Health, Safety, and Nutrition for Young Children (3 credit hours)

Diagnosis, assessment, and evaluation—3 Credit Hours

- EEX 6224 Observation and Assessment of Young Children (3 credit hours)

Special needs of all children and their families—6 Credit Hours

- EEX 5051 Exceptional Children in the Schools (3 credit hours)
- EEX 5702 Planning Curriculum for Pre-Kindergarten Children with Disabilities (3 credit hours)

Child guidance and classroom management—3 Credit Hours

- EEC 6406 Guiding and Facilitating Social Competence (3 credit hours)

Area C: Internship—6 Credit Hours

- Required only for students who do not have at least one year of experience in early childhood settings (pre-Kindergarten through grade three).
- EDG 6940 Graduate Internship (6 credit hours)

## Additional Program Requirements

- Complete a portfolio according to program guidelines. This portfolio requires demonstration of professional growth, reflection, and proficiency in the 12 Florida Educator Accomplished Practices.
- Pass the CLAST as well as the Professional Education and Subject Area subtests of the Florida Teacher Certification Examination.

## Additional Certification in Early Childhood Education Track

### Minimum Hours Required for M.A.—39-45 Credit Hours

Core courses and professional teaching certificate courses may be taken in any sequence preceding the Graduate Internship.

#### Area A: Core—6 Credit Hours

- EDF 6432 Measurement and Evaluation in Education (3 credit hours)
- EDF 6481 Fundamentals of Graduate Research in Education (3 credit hours)

#### Area B: Professional Teaching Certificate Courses—33 Credit Hours

##### Child growth and development from conception to age eight—3 Credit Hours

- EEX 6017 Typical and Atypical Applied Child Development (3 credit hours)

##### Historical, Philosophical, and Sociological Perspectives in Early Childhood Education—3 Credit Hours

- EEC 5205 Programs and Trends in Early Childhood Education (3 credit hours)

##### Developmentally appropriate integrated curriculum and practices in programs serving children ages three through five. (Choose three of the following courses.)—9 Credit Hours

- EEC 5206 Organization of Instruction in Early Childhood Education (3 credit hours)
- EEC 5208 Creative Activities in Early Childhood (3 credit hours)
- EEC 6XXX Communicative Arts in Early Childhood Education (3 credit hours)
- EEC 6268 Play Development, Intervention, and Assessment (3 credit hours)
- EEC 6275 Studies in Curriculum Enrichment for Early Childhood Education (3 credit hours)
- LAE 6XXX Early Childhood Children's Literature (3 credit hours)
- TSL 5345 Methods of ESOL Teaching (3 credit hours)
- TSL 5525 ESOL Cultural Diversity (3 credit hours)

##### Issues and practices to promote family and community involvement. (Choose one of the following courses.)—3 Credit Hours

- EEC 6XXX Home-School-Community Interaction in Early Childhood Education (3 credit hours)
- EEX 5750 Communication with Parents and Agencies (3 credit hours)
- EEX 6524 Organization and Collaboration in Special Education (3 credit hours)

##### Health, nutrition, and safety for children ages three through five—3 Credit Hours

- EEC 4731 Health, Safety, and Nutrition for Young Children (3 credit hours)

##### Diagnosis, assessment, and evaluation—3 Credit Hours

- EEX 6224 Observation and Assessment of Young Children (3 credit hours)

##### Special needs of all children and their families—6 Credit Hours

- EEX 5051 Exceptional Children in the Schools (3 credit hours)
- EEX 5702 Planning Curriculum for Pre-Kindergarten Children with Disabilities (3 credit hours)

##### Child guidance and classroom management—3 Credit Hours

- EEC 6406 Guiding and Facilitating Social Competence (3 credit hours)

Area C: Internship—6 Credit Hours

- Required only for students who do not have at least one year of experience in early childhood settings (pre-Kindergarten through grade three).
- EDG 6940 Graduate Internship (6 credit hours)



# Education - Ph.D.

## Description

College of Education The Doctor of Philosophy in Education Program is a college-wide program. Graduate Program Coordinator: Dr. E. H. Robinson, (407) UCF-3819. E-mail: [edphd@mail.ucf.edu](mailto:edphd@mail.ucf.edu) Web Address: <http://edcollege.ucf.edu>

The Ph.D. in Education is a research-oriented degree appropriate for educators from school districts, businesses, industry, educational agencies, and other educational settings who need a strong research base in their careers. It is the intent of this program to be interdisciplinary, allowing flexibility for students who will work in research clusters and learning communities with faculty on education-related research. Programs of study can be designed for those educators who seek faculty positions in a research university or research-oriented education positions in business and industry. The doctoral program offers six tracks: Counselor Education, Elementary Education, Exceptional Education, Exercise Physiology, Instructional Technology, and Mathematics Education.

## Degrees Offered

### Doctor of Philosophy in Education (Ph.D.)

- Counselor Education Track
- Elementary Education Track
- Exceptional Education Track
- Exercise Physiology Track
- Instructional Technology Track
- Mathematics Education Track

## Admission Requirements

[Doctoral Programs in the College of Education](#)

[Application Deadlines](#)

## Degree Requirements

Minimum Hours Required for Ph.D.—99 Credit Hours

## Prerequisites

Master's degree in education with an emphasis related to one of the six tracks in the Ph.D. program: Counselor Education, Elementary Education, Exceptional Education, Exercise Physiology, Instructional Technology, and Mathematics Education, including master's level competency in educational research and statistics.

## Core Courses—24 Credit Hours

- IDS 7501 Issues and Research in Education (3 credit hours)
- IDS 7XXX Research Cluster Seminar (3 credit hours)
- IDS 7500 Seminar in Educational Research (variable credit and repeatable, 6 credit hours)
- EDF 7475 Qualitative Research Methods in Education (3 credit hours)
- EDF 7403 Quantitative Foundations of Educational Research (3 credit hours)
- EDF 7463 Analysis of Survey, Record and other Qualitative Data (3 credit hours)
- IDS 7502 Case Studies in Educational Research (3 credit hours)

## Counselor Education Track— 51 Credit Hours Minimum

- MHS 7406 Advanced Theories in Counseling (3 credit hours)
- MHS 7901 Advanced Practicum in Counselor Education (3 credit hours)
- MHS 6510 Advanced Group Counseling (3 credit hours)
- MHS 7700 Professional Issues in Counselor Education (3 credit hours)
- MHS 7311 Technology Issues in Counselor Education (3 credit hours)
- MHS 7611 Supervision in Counselor Education (3 credit hours)
- MHS 7808 Practicum in Counseling Supervision (3 credit hours)
- MHS 7840 Internship in Counselor Education (repeatable) (6 credit hours)
- MHS 7340 Advanced Career Development (3 credit hours)
- MHS 6221 Individual Psychoeducational Testing II (3 credit hours)
- MHS 7730 Research Seminar in Counselor Education (3 credit hours)

## Elementary Education Track—51 Credit Hours Minimum

- Philosophical Foundations for Studies in Education (3 credit hours)
- Writing for Professional Publication in Education (3 credit hours)
- Elementary Education Internship (variable credit) (3-6 credit hours)
- Area/s of emphases: four (4) additional courses in one or more areas including: Science Education, Literacy Education., Technology Education, or Arts Education with one course from outside the college in a related field of study (12 credit hours)

## Exceptional Education Track—51 Credit Hours Minimum

- MHS 7901 Advanced Practicum (3 credit hours)
- MHS 7406 Advanced Theory of Counseling (3 credit hours)
- MHS 6510 Advanced Group Counseling (3 credit hours)
- MHS 7700 Professional Issues in Counselor Education (3 credit hours)
- MHS 7311 Technology Issues in Counselor Education (3 credit hours)
- MHS 7340 Advanced Career Development (3 credit hours)
- MHS 7611 Supervision in Counselor Education (3 credit hours)
- MHS 7808 Practicum in Counseling Supervision (3 credit hours)
- MHS 6221 Individual Psychoeducational Testing II (3 credit hours)
- MHS 7840 Internship in Counselor Education (6 hours)
- MHS 7730 Research Seminar in Counselor Education (3 credit hours)
- EEX 7XXX Program Evaluation and Planning in Special Education (3 credit hours)

## Instructional Technology Track—51 Credit Hours Minimum

- Previous master's in related area (up to 30 credit hours)
- Cognate or elective; approved by adviser (3 credit hours)
- EME 7XXX Theories of Adult Learning (3 credit hours)
- EME 7XXX International Issues in Technology (3 credit hours)
- EME 7XXX Instructional Technology Internship (3 credit hours)
- EME 7634 Advanced Instructional Systems Design (3 credit hours)
- IDS 7XXX Research Seminar in Instructional Technology (6 credit hours)

## Mathematics Education Track—51 Credit Hours Minimum

- MAE 7940 History of Mathematics Education (3 credit hours)
- MAE 7795 Seminar on Research in Mathematics Education (6 credit hours)
- MAE 6946 Mathematics Education Internship (6 credit hours)
- MAE 6XXX Technology in Mathematics Education (3 credit hours)
- MAE 6XXX Seminar in Mathematics Education (3 credit hours)
- MAE 6946 Practicum in Mathematics Education (3 credit hours)

## Internship—3 Credit Hours Minimum

Specialization in all tracks must include 3 credit hours of internship (minimum)

## Dissertation—24 Credit Hours Minimum

Doctoral students must present a prospectus for the dissertation to the doctoral adviser, prepare a proposal and present to the dissertation committee, and defend the final research submission with the dissertation committee.

## Candidacy

To enter candidacy for the Ph.D., students must have an overall 3.0 grade point average on all graduate work included in the planned program and pass all required examinations.

## Candidacy Examinations

- Examinations must be completed prior to admission to candidacy.
- Examinations will be scheduled by the student and major adviser. The Associate Dean for Graduate Studies and Research must be notified of the date and location of the exam 30 days in advance.
- All Ph.D. candidates will be required to complete two examinations. Students must be enrolled in the university during the semester an examination is taken.
- Research in the Specialization—8-hour written examination
- Specialization—3-hour oral examination

# Educational Leadership

## Description

College of Education Department of Educational Research, Technology and Leadership Chair of Department: Dr. Jeffrey Cornett Web address: <http://edcollege.ucf.edu>

The University of Central Florida offers master's, specialist, and doctoral programs in Educational Leadership.

Two master's degrees are offered in Educational Leadership: Master of Education (M.Ed.) and Master of Arts (M.A.). The M.Ed. in Educational Leadership is intended for individuals who wish to work in leadership positions and administrative careers in education. The M.A. options are designed to prepare individuals for leadership positions in student personnel administration in higher education and education-related fields. The M.A. options do not fulfill state certification requirements.

## Degrees Offered

Master of Education in Educational Leadership (M.Ed.) Master of Arts in Educational Leadership (M.A.)

- Student Personnel Administration in Higher Education Track

Education Specialist in Educational Leadership (Ed.S.) Doctor of Education in Educational Leadership (Ed.D.)

## Doctor of Education in Educational Leadership

Graduate Program Coordinator: Dr. W. Bozeman, RP 215, (407) 384-2189 OR (386) 254-4428 (UCF-DAYTONA BEACH OFFICE. E-mail: [bozeman@mail.ucf.edu](mailto:bozeman@mail.ucf.edu))

The purpose of this program is to provide advanced graduate studies for individuals aspiring to leadership positions in education. The general program of study leading to the Ed.D. degree in Educational Leadership permits students to concentrate their doctoral study in either K-12 or higher education administration. Specific program information may be found on the Educational Leadership web page at <http://pegasus.cc.ucf.edu/~educlead/content.html>.

[Doctoral Programs in the College of Education](#)

[Application Deadlines](#)

NOTE: Please contact the Coordinator of the Daytona doctoral program for information about the deadlines for new students: Dr. W. Bozeman, [bozeman@mail.ucf.edu](mailto:bozeman@mail.ucf.edu).

## Degree Requirements

Prerequisite Courses

- As necessary

Educational Leadership Core Courses—19 Credit Hours

- EDA 7101 Organizational Theory in Education (3 credit hours)
- EDA 7192 Educational Leadership (4 credit hours)
- EDA 7195 Politics, Governance, and Financing of Educational Organizations (4 credit hours)
- EDA 7205 Planning, Research, and Evaluation Systems in Educational Administration (4 credit hours)
- EDA 7225 Educational Personnel, Contracts, and Negotiations (4 credit hours)

Cognate Courses—6 Credit Hours Minimum

Area of Specialization—15 Credit Hours Minimum

Research and Data Analysis—9 Credit Hours Minimum

- EDF 6401 Statistics for Educational Data (3 credit hours)
- EDF 7403 Quantitative Foundations of Educational Research (3 credit hours)
- EDF 7463 Analysis of Survey, Record, and Other Qualitative Data (3 credit hours)

Dissertation—21 Credit Hours Minimum

Doctoral students must present a prospectus for the dissertation to the doctoral adviser, prepare a proposal and present to the dissertation committee, and defend the final research submission with the dissertation committee.

## Candidacy

To enter candidacy for the Ed.D., students must have an overall 3.0 grade point average on all graduate work included in the planned program and pass all required examinations.

## Candidacy Examinations

- Examinations must be completed prior to admission to candidacy.
- Examinations will be scheduled near the tenth week of the fall and spring semesters. Summer examinations will be scheduled for the sixth week of the term.
- All Educational Leadership Ed.D. candidates will be required to write examinations. Students must be enrolled in the university during the semester an examination is taken.
  - General Educational Leadership—5-hour examination
  - Area of Specialization—3-hour examination
  - Research/Data Analysis—3-hour examination

# Education Specialist in Educational Leadership

Graduate Program Coordinator, Educational Leadership: Dr. M. A. Lynn, RP 215, (407) 384-2193. E-mail: [malynn@mail.ucf.edu](mailto:malynn@mail.ucf.edu)

## Admissions Policy

Admissions will occur three times a year, fall, spring and summer. Completed Filenames must be on campus by September 20 for spring admission screening and February 20 for summer admission screening, and June 20 for fall admission screening. Admitted students may begin course work during the first new semester after admission.

Completed Filenames 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 Filename is started.

Admission to an Education Specialist Program in Curriculum and Instruction or Educational Leadership is separate from admission to the Doctoral Program. Upon completion of the Education Specialist degree, the candidate may apply for admission to a doctoral program.

[Specialist Programs in the College of Education](#)

[Application Deadlines](#)

## Degree Requirements

- Complete a minimum of 36 credit hours beyond the master's degree including the selected program requirements.
- Have an overall 3.0 grade point average on all graduate work attempted.
- The completed planned program must include a minimum of 12 graduate-level credit hours in the specialization area AND a minimum of 6 graduate-level credit hours in Research/ Statistics.
- Pass all required examinations.

## Minimum Hours Required for Ed.S.—36 Credit Hours beyond the master's degree

### Area I—Educational Leadership Core—9 Credit Hours

- EDA 7101 Organizational Theory in Education (3 credit hours)
- EDA 6946 Internship (3 credit hours)
- EDA 6909 Research Report (3 credit hours)

### Area II—Specialization—21 Credit Hours

- EDA 6061 Organization and Administration of Schools (3 credit hours)
- EDA 6232 Legal Aspects of School Operation (3 credit hours)
- EDA 6240 Educational Financial Affairs (3 credit hours)
- EDA 6260 Educational Systems Planning and Management (3 credit hours)
- EDA 6931 Contemporary Issues in Educational Leadership (3 credit hours)
- EDS 6123 Educational Supervisory Practices I (3 credit hours)
- EDS 6130 Educational Supervisory Practices II (3 credit hours)

### Area III—Co-requisites/Electives—6 Credit Hours Minimum

- EDF 6401 Statistics for Educational Data (3 credit hours)\*
- EDF 6481 Fundamentals of Graduate Research in Education (3 credit hours)\*
- EDG 6223 Curriculum Theory and Organization (3 credit hours)
- Elective (as approved by adviser) (3 credit hours)

\* Required, if not completed in master's degree

## Examinations

Educational Leadership majors must successfully complete one 5-hour examination in general educational leadership.

# Master of Education in Educational Leadership

Graduate Program Coordinator: M. A. Lynn, RP 215, (407) 384-2193. E-mail: [malynn@mail.ucf.edu](mailto:malynn@mail.ucf.edu)

The Master of Education (M.Ed.) degree is a 39-credit-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. Students are required to pass a comprehensive examination.

## Modified Leadership Core Program

If an individual holds a graduate degree with a major other than educational administration, 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. The Educational Leadership graduate program coordinator should be contacted to request an evaluation of prior graduate course work (required for admission into the

program).

## Admission Requirements

[Master's Programs in the College of Education](#)

[Application Deadlines](#)

## Degree Requirements

### Minimum Hours Required for M.Ed.—39 Credit Hours

#### Area A: Core—9 Credit Hours

- EDF 6432 Measurement and Evaluation in Education (3 credit hours)
- EDF 6481 Fundamentals of Graduate Research in Education (3 credit hours)

Select One:

- EDF 6155 Lifespan Human Development and Learning (3 credit hours)
- EDF 6259 Learning Theories Applied to Classroom Instruction and Management (3 credit hours)
- EDF 6517 Perspectives on Education (3 credit hours)
- EDF 6608 Social Factors in American Education (3 credit hours)
- EDF 6886 Multicultural Education (3 credit hours)

#### Area B: Specialization—24 Credit Hours

It is recommended that these courses be taken in the following sequence:

- EDA 6061 Organization and Administration of Schools (3 credit hours)\*
- EDA 6232 Legal Aspects of School Operation (3 credit hours)\*
- EDA 6240 Educational Financial Affairs (3 credit hours)\*
- EDA 6260 Educational Systems Planning and Management (3 credit hours)\*
- EDA 6931 Contemporary Issues in Educational Leadership (3 credit hours)\*
- EDS 6123 Educational Supervisory Practices I (3 credit hours)\*
- EDS 6130 Educational Supervisory Practices II (3 credit hours)\*
- EDA 6946 Graduate Internship (3 credit hours)\*

#### Area C: Electives—6 Credit Hours

- EDA 6300 Community School Administration (3 credit hours)
- EDA 6502 Organization and Administration of Instructional Programs (3 credit hours)
- EDG 6223 Curriculum Theory and Organization (3 credit hours)
- EDG 6253 Curriculum Inquiry (3 credit hours)

\* Students must have teaching experience to complete the internship.

## Master of Arts in Educational Leadership

Graduate Program Coordinator: C. Wilson, RP 215, (407) 384-2801. E-mail: [cwilson@mail.ucf.edu](mailto:cwilson@mail.ucf.edu)

The Master of Arts degree in Educational Leadership is designed to prepare individuals for leadership positions in student personnel administration in higher education and education-related fields. The M.A. options do not fulfill state certification requirements. Students are required to pass a comprehensive examination.

# Admission Requirements

[Master's Programs in the College of Education](#)

[Application Deadlines](#)

## Degree Requirements

### Minimum Hours Required for M.A.—42 Credit Hours

#### Area A: Core—15 Credit Hours

- EDF 6155 Lifespan Human Development and Learning (3 credit hours)
- EDF 6481 Fundamentals of Graduate Research in Education (3 credit hours)
- EDF 6517 Perspectives on Education (3 credit hours) OR
- EDF 6608 Social Factors in American Education (3 credit hours)
- EDF 6401 Statistics for Educational Data (3 credit hours) OR
- EDF 6432 Measurement and Evaluation in Education (3 credit hours)
- EDA 6909 Research Report (2,1 credit hours)

#### Area B: Specialization—9 Credit Hours

Approved by adviser

#### Area C: Administration—18 Credit Hours

It is recommended that these courses be taken in the following sequence:

- EDA 6061 Organization and Administration of Schools (required) (3 credit hours)
- EDS 6123 Educational Supervisory Practices I (3 credit hours) OR
- EDS 6130 Educational Supervisory Practices II (3 credit hours)
- EDA 6232 Legal Aspects of School Operation (3 credit hours)
- EDA 6240 Educational Financial Affairs (3 credit hours)
- EDA 6260 Educational Systems Planning and Management (3 credit hours)
- EDA 6931 Contemporary Issues in Educational Leadership (required) (3 credit hours)

## Student Personnel Administration in Higher Education Track

### Minimum Hours Required for M.A.—39 Credit Hours

#### Area A: Core—6 Credit Hours

- EDF 6481 Fundamentals of Graduate Research in Education (3 credit hours)
- EDF 6432 Measurement and Evaluation in Education (3 credit hours) OR
- EDF 6401 Statistics for Educational Data (3 credit hours)

#### Area B: Specialization—24 Credit Hours

- EDA 6540 Organization and Administration of Higher Education (3 credit hours)
- EDH 6065 History and Philosophy of Higher Education (3 credit hours)
- EDH 6505 Finance in Higher Education (3 credit hours)
- MHS 6400 Theories of Counseling and Personality (3 credit hours)
- MHS 6780 Ethical and Legal Issues (3 credit hours)
- SDS 6040 Student Personnel Services in Higher Education (3 credit hours)
- SDS 6330 Career Development (3 credit hours)
- SDS 6624 The College Community and the Student (3 credit hours)



Area C: Electives—3 Credit Hours

Approved by adviser

Area D: Professional Field Experience— 6 Credit Hours

- EDH 6946 Higher Education Internship (3 credit hours)
- EDH 6947 Practicum in Student Personnel (3 credit hours)

# Electrical Engineering

## Description

College of Engineering and Computer Science School of Electrical Engineering and Computer Science Director of School: Dr. Erol Gelenbe  
Graduate Program Coordinator: Dr. Michael Georgiopoulos, ENGR I, Room 407, (407) 823-3027. E-mail: [michaelg@mail.ucf.edu](mailto:michaelg@mail.ucf.edu) Web address: [www.seecs.ucf.edu](http://www.seecs.ucf.edu)

The School of Electrical Engineering and Computer Science offers Master of Science and Doctor of Philosophy degrees in electrical engineering. Students in the Electrical Engineering Program receive a broad background in areas such as communications, controls/power, digital signal processing, electromagnetics, electronics/power electronics, electro-optics, solid state and microelectronics, and VLSI while specializing in a research area of their interest.

Research interests of the Electrical Engineering faculty include antennas, microwave and millimeter circuits and devices, communication systems, digital signal/image processing, electronic circuits, IFF devices, electromagnetic theory, radar and microwave remote sensing, 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 conjunction, infrared detectors, fourier optics, lens design, and nonlinear optics.

## Degrees Offered

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

- Communications Track
- Controls/Power Track
- Digital Signal Processing Track
- Electromagnetics Track
- Electronics/Power Electronics Track
- Electro-optics Track
- Solid State and Microelectronics Track

### Doctor of Philosophy in Electrical Engineering (Ph.D.)

## Faculty

Professors: I. Batarseh, Ph.D., P.E., Assistant Dean of the College of Engineering and Computer Science; M. Georgiopoulos, Ph.D.; W. L. Jones, Ph.D.; J. J. Liou, Ph.D.; D. C. Malocha, Ph.D., P.E.; W. B. Mikhael, Ph.D.; R. L. Phillips, Ph.D.; Z. Qu, Ph.D.; N. S. Tzannes, Ph.D.; P. F. Wahid, Ph.D.; J. S. Yuan, Ph.D.

Associate Professors: T. Kasparis, Ph.D.; S. M. Richie, Ph.D., K. B. Sundaram, Ph.D.; L. Wei, Ph.D.

Assistant Professors: M. G. Haralambous, D. Sc., P.E.; T. Wu, Ph.D.

Joint Appointees: See [www.seecs.ucf.edu](http://www.seecs.ucf.edu)

## Master of Science in Electrical Engineering

Graduate Program Coordinator: Dr. Michael Georgiopoulos, ENGR I, Room 407, (407) 823-3027. E-mail: [michaelg@mail.ucf.edu](mailto:michaelg@mail.ucf.edu) Web address: [www.seecs.ucf.edu](http://www.seecs.ucf.edu)

The Master of Science in Electrical Engineering degree offers tracks in Communications, Controls/Power, Digital Signal Processing, Electronics/Power Electronics, Electro-optics, and Solid State and Microelectronics. The program is intended for students with a baccalaureate

degree in electrical engineering or a related field. Detailed information on the tracks and research activities is available in the department or on the school website.

## Admission Requirements

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 a regionally accredited institution. Admission requirements include a minimum grade point average of 3.0 (A = 4.0) on the last 60 attempted credit hours of the bachelor's degree, and a minimum combined score of 1000 on the verbal-quantitative sections of the Graduate Record Examination (GRE). Students must submit an application for graduate admission, including a resume, goals statement, and two letters of recommendation.

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 220 (computer-based test; or equivalent score on the paper-based test) on the Test of English as a Foreign Language (TOEFL).

Students with a grade point average of less than 3.0 may be admitted on a trial program basis in some circumstances. Additional courses may also be required to correct any course deficiencies. Students should contact the graduate program coordinator for further information.

[Application Deadlines](#)

## Articulation

Undergraduate articulation courses may be required for students with BS and/or MS degrees in fields other than electrical engineering. The articulation courses will be determined by the graduate program coordinator in consultation with student's research adviser on a case-by-case basis. In general, students with a non-electrical 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.

## Degree Requirements

The master's program offers a thesis option (30 credit hours, including 6 credit hours of thesis) and a non-thesis option (36 credit hours) for all tracks. Students must have an adviser appointed and an official program of study submitted before completing 9 credit hours of course work.

### Thesis Option

This option requires a minimum of thirty credit hours of approved course work, of which 6 credit hours is thesis work. The course requirements are as follows:

- Required courses from one of the following tracks: Communications, Controls/Power, Digital Signal Processing, Electromagnetics, Electronics/Power Electronics, Electro-optics, or Solid State and Microelectronics
- One course from any other two areas listed above (6 credit hours total).
- No more than 6 credits of thesis will count toward the degree requirement.
- The remainder of the program courses is chosen in conjunction with an adviser in an approved program of study.
- At least 15 credit hours must be from 6000-level courses.
- Continuous enrollment in one hour of thesis is required once six hours of thesis credits have been completed and all course work has been satisfied, until the final thesis has been received by the Office of Graduate Studies.

## Non-Thesis Option

This option requires a minimum of 36 credit 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 credit hours of course work. Students are required to pass a final comprehensive examination or another appropriate culminating experience. Please see the graduate program coordinator for details.

## Transfer Credits

Graduate students (subject to approval from an adviser) with a bachelor's degree from Electrical Engineering at UCF may transfer up to 9 credit hours of 5000-level work toward an M.S. non-thesis option and up to 3 credit hours of 5000-level work toward an M.S. thesis option. Up to 9 credit hours may be transferred from graduate work conducted elsewhere or in nondegree status from a regionally accredited institution.

## Communications Track

### Required Courses—12 Credit Hours

- EEL 5542 Random Processes I (3 credit hours)
- EEL 6530 Communication Theory (3 credit hours)
- One course from two of the following tracks: Controls/Power, Digital Signal Processing, Electromagnetics, Electronics/Power Electronics, Electro-optics, Solid State and Microelectronics (6 credit hours)

### Electives

- EEL 6504 Communications Systems Design (3 credit hours)
- EEL 6543 Random Processes II (3 credit hours)
- EEL 6537 Detection and Estimation (3 credit hours)
- EEL 5555C RF and Microwave Communications (3 credit hours)
- EEL 5762 Performance Analysis of Computer and Communication Systems (3 credit hours)
- EEL 5547 Introduction to Radar Systems (3 credit hours)
- EEL 6785 Computer Network Design (3 credit hours)
- EEL 6590 Advanced Topics in Communications (3 credit hours)

### Thesis Option—18 Credit Hours

- EEL 6971 Thesis (6 credit hours)
- Electives (12 credit hours)

### Non-Thesis Option—24 Credit Hours

- Electives (24 credit hours)

Total Hours Required for M.S.E.E.—30 or 36 Credit Hours

## Controls/Power Track

### Required Courses—12 Credit Hours

- EEL 5630 Digital Control Systems (3 credit hours)
- EEL 5173 Linear Systems Theory (3 credit hours)
- One course from two of the following tracks: Communications, Digital Signal Processing, Electromagnetics, Electronics/Power Electronics, Electro-optics, Solid State and Microelectronics (6 credit hours)

## Electives in Controls

- EEL 6621 Nonlinear Control Systems (3 credit hours)
- EEL 6671 Modern and Optimal Control Systems (3 credit hours)
- EEL 6674 Optimal Estimation for Control (3 credit hours)
- EEL 6617 Fundamentals of Modern Multivariable Control (3 credit hours)
- EEL 6616 Adaptive Control (3 credit hours)
- EEL 6680 Advanced Topics in Modern Control Systems (3 credit hours)

## Electives in Power

- EEL 5245C Power Electronics - (3 credit hours)
- EEL 6208 Advanced Machines (3 credit hours)
- EEL 6255 Advanced Power Systems Analysis (3 credit hours)
- EEL 6269 Advanced Topics in Power Engineering (3 credit hours)
- EEL 6246 Power Electronics II (3 credit hours)

## Thesis Option—18 Credit Hours

- EEL 6971 Thesis (6 credit hours)
- Electives (12 credit hours)

## Non-Thesis Option—24 Credit Hours

- Electives (24 credit hours)

Total Hours Required for M.S.E.E.—30 or 36 Credit Hours

## Digital Signal Processing Track

### Required Courses—12 Credit Hours

- EEL 4750 Digital Signal Processing Fundamentals (3 credit hours)
- EEL 5513 Digital Signal Processing Applications (3 credit hours)
- One course from two of the following tracks: Communications, Controls/Power, Electromagnetics, Electronics/Power Electronics, Electro-optics, Solid State and Microelectronics (6 credit hours)

### Electives

- EEL 6502 Adaptive Digital Signal Processing (3 credit hours)
- EEL 6505 Multidimensional Digital Processing (3 credit hours)
- EEL 6558 Advanced Topics in Digital Signal Processing (3 credit hours)
- EEL 5820 Image Processing (3 credit hours)
- EEL 6823 Image Processing II (3 credit hours)
- EEL 5825 Pattern Recognition (3 credit hours)

## Thesis Option—18 Credit Hours

- EEL 6971 Thesis (6 credit hours)
- Electives (12 credit hours)

## Non-Thesis Option—24 Credit Hours

- Electives (24 credit hours)

Total Hours Required for M.S.E.E.—30 or 36 Credit Hours

## Electromagnetics Track

### Required Courses—12 Credit Hours

- EEL 6488 Electromagnetic Fields (3 credit hours)
- One course from two of the following tracks: Communications, Controls/Power, Digital Signal Processing, Electronics, Electro-optics, Solid State and Microelectronics (6 credit hours)

One of the following courses is required:

- EEL 4436C Microwave Engineering (3 credit hours)
- EEL 5462C Antenna Analysis and Design (3 credit hours)
- EEL 5434 Microwave Circuits and Devices (3 credit hours)

### Electives

- EEL 5432 Satellite Remote Sensing (3 credit hours)
- EEL 5555C RF and Microwave Communications (3 credit hours)
- EEL 6463 Antenna Analysis and Design II (3 credit hours)
- EEL 6492 Advanced Topics in Electromagnetics and Microwaves (3 credit hours)

### Thesis Option—18 Credit Hours

- EEL 6971 Thesis (6 credit hours)
- Electives (12 credit hours)

### Non-Thesis Option—24 Credit Hours

- Electives (24 credit hours)

Total Hours Required for M.S.E.E.—30 or 36 Credit Hours

## Electronics/Power Electronics Track

### Required Courses—12 Credit Hours

- EEL 6371 Advanced Electronics I (3 credit hours)
- One course from two of the following tracks: Communications, Controls/Power, Digital Signal Processing, Electromagnetics, Electro-optics, Solid State and Microelectronics (6 credit hours)

One of the following courses is required:

- EEL 5245C Power Electronics (3 credit hours)
- EEL 5357 CMOS Analog and Digital IC Design (3 credit hours)

### Electives

- EEL 5353 Semiconductor Device Modeling and Simulation (3 credit hours)

- EEL 5370 Operational Amplifiers (3 credit hours)
- EEL 6354 Advanced Semiconductor Device I (3 credit hours)
- EEL 6372 Advanced Topics in Electronics (3 credit hours)
- EEL 6246 Power Electronics II (3 credit hours)

## Thesis Option—18 Credit Hours

- EEL 6971 Thesis (6 credit hours)
- Electives (12 credit hours)

## Non-Thesis Option—24 Credit Hours

- Electives (24 credit hours)

Total Hours Required for M.S.E.E.—30 or 36 Credit Hours

## Electro-optics Track

### Required Courses—9 Credit Hours

- OSE 5041 Introduction to Wave Optics (3 credit hours)
- OSE 6560 Laser Engineering (3 credit hours)
- OSE 6211 Fourier Optics (3 credit hours)

### Electives

Courses from the following tracks can serve as electives: Communications, Controls/Power, Digital Signal Processing, Electromagnetics, Electronics, Solid State and Microelectronics. The elective courses depend on the sub-option chosen in the Electro-optics track. The sub-options are: Photonics, Optical Communications, Electro-optics Systems, Imaging Systems, Remote Sensing, and Laser Engineering. More details of these sub-options can be obtained from the graduate office in the School of Electrical Engineering and Computer Science.

## Thesis Option—18 Credit Hours

- EEL 6971 Thesis (6 credit hours)
- Electives (12 credit hours)

## Non-Thesis Option—24 Credit Hours

- Electives (24 credit hours)

Total Hours Required for M.S.E.E.—30 or 36 Credit Hours

## Solid State and Microelectronics Track

### Required Courses—12 Credit Hours

- EEL 5355C Fabrication of Solid-State Devices (4 credit hours)
- EEL 6354 Advanced Semiconductor Device I (3 credit hours)
- One course from two of the following tracks: Communications, Controls/Power, Digital Signal Processing, Electromagnetics, Electronics/Power Electronics, Electro-optics (6 credit hours)

## Electives

- EEL 5332C Thin Film Technology (3 credit hours)
- EEL 5353 Semiconductor Device Modeling and Simulation (3 credit hours)
- EEL 5357 CMOS Analog and Digital IC Design (3 credit hours)
- EEL 5517 Surface Acoustic Wave Devices and Systems (3 credit hours)
- EEL 5352 Semiconductor Material and Device Characterization (3 credit hours)
- EEL 6354 Advanced Semiconductor Device I (3 credit hours)
- EEL 6338 Advanced Topics in Microelectronics (3 credit hours)

## Thesis Option—18 Credit Hours

- EEL 6971 Thesis (6 credit hours)
- Electives (12 credit hours)

## Non-Thesis Option—24 Credit Hours

- Electives (24 credit hours)

Total Hours Required for M.S.E.E.—30 or 36 Credit Hours

# Doctor of Philosophy in Electrical Engineering

The Doctor of Philosophy (Ph.D.) degree is primarily intended for students with a master's degree in electrical engineering or a closely related discipline who wish to pursue a career in research or academia. Specializations include communications, digital signal processing/image processing, controls, electro-optics, electromagnetics, electronics/power electronics, and solid-state/microelectronics.

## Admission Requirements

Students must satisfy university requirements and have completed either a master's degree in electrical engineering or a closely related discipline with a minimum grade point average of 3.5 (on a 4.0 scale) and a minimum of 1100 on the combined verbal-quantitative sections of the Graduate Record Examination (GRE), or a bachelor's degree in electrical engineering or a closely related discipline with a minimum grade point average of 3.5 (on a 4.0 scale) in the last 60 attempted credit hours of the bachelor's degree, and a minimum of 1100 on the combined verbal-quantitative portion of the GRE. Students must submit an application for graduate admission, including a resume, goal statement, and three letters of recommendation.

[Application Deadlines](#)

## Degree Requirements

The Ph.D. degree requires a minimum of 72 credit hours beyond the bachelor's degree. Of these 72 hours, a minimum of 36 credit hours should be regular course work and a minimum of 15 credit hours should be dissertation hours. The remaining 21 credit hours could be course work (including courses such as Independent Study or Directed Research) or dissertation hours.

The Ph.D. degree requires a minimum of 36 credit hours beyond the master's degree (depending on the number of transfer credits from the master's degree). Of these 36 hours, a minimum of 12 credit hours should be regular course work and a minimum of 15 credit hours should be dissertation hours. The remaining 9 credit hours could be course work (including courses such as Independent Study or Directed Research) or dissertation hours.

At least 6 credit hours must be taken outside the student's program while at UCF. There is a residency requirement of two contiguous semesters in full-time graduate student status (minimum of 9 credit hours) after acceptance to the graduate program at UCF. The program of study must be developed in consultation with an adviser within the first 9 credit hours of course work and must meet with departmental approval, at which time transfer credit will be evaluated on a course-by-course basis. Students are required to pass a Qualifying Examination, after which the



student must form a dissertation committee. The degree must be completed within seven years from the entry date to the doctoral program.

Up to 6 credit hours of 4000 level course work are acceptable if transferred from a master's degree program. At least 6 credit hours must be taken outside the student's program while at UCF. The remaining 21 hours of credits could be Dissertation hours, or graduate course work, or Independent Study, or Doctoral Research, etc. There is a residency requirement of two contiguous semesters in full-time graduate student status (minimum of 9 credit 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 up to 36 credit hours may be transferred from a master's degree toward these requirements, including a maximum of 6 credit hours of 4000-level courses; no 3000-level courses; and no courses with grades less than "B" grades.

## Qualifying 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 Qualifying Examination consists of a written four-hour test, given on the first Friday of April and first Friday of November of each year. It is open books and open notes, but published solution manuals for texts are not allowed. It is the policy of the Electrical Engineering Program that any calculator used during the Qualifying Examination may not be used to store user-defined programs.

## Exam Format

The student declares a major area prior to taking the exam by notifying the Electrical Engineering Graduate Secretary, or during the exam time. During the exam the student has to solve three problems in the declared major area and six other problems that can be selected from any four other chosen areas. The areas from which the student can select problems from are the following:

- Communications
- Digital Signal Processing
- Controls/Power
- Digital Systems and Computer Architecture
- Electro-optics
- Electromagnetics
- Physical Electronics
- Electronics

## Candidacy Examination

The Candidacy Examination evaluates the student's preparation to undertake research in the student's dissertation topic area. 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 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 by the student to the dissertation committee.
- 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 Dean, through the Chairs, is responsible for committee formation, additions, and deletions. The doctoral committee must consist of a minimum of five members: three must be faculty members from within the student's department, and one must be at large from outside the School of Electrical Engineering and Computer Science. The committee Chair must be a member of the department graduate faculty approved to direct dissertations. Joint faculty members serve as department-faculty committee members. Adjunct faculty and off-campus experts may serve as the outside-the-college person in the committee. Program areas may further specify additional committee membership. The Office of Graduate Studies reserves the right to review appointments to advisory committees, place a representative on any advisory committee, or appoint a co-adviser.
- In unusual cases, with approval from the program Chair, two professors may chair the committee jointly. Joint faculty members may serve as committee chairs, but off-campus experts and adjunct faculty may not serve as committee chairs. Particular programs may have more stringent requirements.
- 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.

# Elementary Education

## Description

College of Education Department of Teaching and Learning Principles Interim Chair of Department: Dr. Robert Williams Graduate Program Coordinator: Dr. E. Ortiz, (407) 823-5222, [ortiz@mail.ucf.edu](mailto:ortiz@mail.ucf.edu) Web address: <http://reach.ucf.edu/~elem2>

The College of Education offers a master's program in Elementary Education leading to a Master of Education (M.Ed.) degree or Master of Arts (M.A.) degree.

The M.Ed. degree 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.

The M.A. degree can be completed in the minimum 36 credit 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.

## Degrees Offered

Master of Education in Elementary Education (M.Ed.) Master of Arts in Elementary Education (M.A.)

## Master of Education in Elementary Education

The Master of Education degree 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, and updates the student's skills and understanding as related to current research and instructional trends in basic subject matter areas, and elective choices in specific areas.

[Master's Programs in the College of Education](#)

[Application Deadlines](#)

## Degree Requirements

Minimum Hours Required for M.Ed.—30 Credit Hours

### Area A: Core—9 Credit Hours

- EDE 6933 Elementary Education Seminar I (2 credit hours)
- EDE 6935 Elementary Education Seminar II (1 credit hour)
- EDF 6233 Analysis of Classroom Teaching (3 credit hours)
- EME 5050 Fundamentals of Technology for Educators (3 credit hours) OR
- EME 6405 Application Software for Educational Settings (3 credit hours)

### Area B: Specialization: Minimum of 12 Credit Hours

The adviser may approve courses taken as part of a UCF Certificate Program for this area of the M.Ed. (up to 12 credit hours). The adviser must approve elective courses for this area.

Select from the following:

- LAE 5195 CFWP Teacher Consultant (3 credit hours)
- LAE 5295 Writing Workshop I (1-3 credit hours)
- LAE 5415 Children’s Literature Elementary Education (3 credit hours). (Use the course above only if no previous children’s literature course has been taken.)
- LAE 6296 Writing Workshop II (3 credit hours)
- LAE 6417 Investigations in Children’s Literature (3 credit hours)
- LAE 6616 Trends in Language Arts Education (3 credit hours)
- MAE 6517 Diagnosis/Remediation of Difficulties in Mathematics for the Classroom Teacher (3 credit hours)
- MAE 6641 Problem Solving and Critical Thinking Skills (3 credit hours)
- RED 6116 Trends in Reading Education (3 credit hours)
- SCE 5825 Space Science for Educators (3 credit hours)
- SCE 6616 Trends in Elementary School Science Education (3 credit hours)
- SCE 6146 Environmental Education for Educators (3 credit hours)
- SSE 6617 Trends in Elementary School Social Studies Education (3 credit hours)
- TSL 5345 Methods of ESOL Teaching (3 credit hours)
- TSL 6142 Critical Approaches to ESOL (3 credit hours)
- TSL 6440 Problems in Evaluation in ESOL (3 credit hours)
- EEC 5205 Programs and Trends in Early Childhood Education (3 credit hours)
- EEC 5206 Organization of Instruction in Early Childhood Education (3 credit hours)

## Area C: Minimum of 9 Credit Hours: Select Option 1, or 2 below.

Option 1: Thesis Option: No Comprehensive Exam Needed for this option—9 Credit Hours

- EDE 6971 Thesis (6 credit hours)
- LAE 6792 CFWP Teacher/Researcher (3 credit hours) OR
- EDF 6481 Fundamentals of Graduate Research in Education (3 credit hours)

Option 2: Non-Thesis Option: Comprehensive Exam is required for this option—9 Credit Hours

- EDF 6432 Measurement and Evaluation in Education (3 credit hours) OR
- EDF 6446 Assessment of Learning (3 credit hours)
- AND 6 credit hours selected with the permission of the adviser

## Primary Track

The purpose of this track is to prepare students to become master teachers of, or consultants for, programs in age three through grade three. Course work includes a “professional core” of research, human development, and measurement and evaluation courses, field experiences and courses focusing on programs, creative activities, organization of instruction, individualizing, perception, and an overview of the exceptional student. Students must have certification in Elementary Education. This degree does not meet the requirements for Early Childhood Education.

## Degree Requirements

Minimum Hours Required for M.Ed.—36-39 Credit Hours

Area A: Core—12 or 15 Credit Hours

- EDF 6155 Lifespan Human Development and Learning (3 credit hours)
- EDF 6481 Fundamentals of Graduate Research in Education (3 credit hours)

Select Option A or B

Option A—Research Project or Thesis—6 Credit Hours

- EDF 6401 Statistics for Educational Data (3 credit hours)
- EDE 6971 Thesis (2,1 credit hours) OR
- EDE 6909 Research Report (2,1 credit hours)

### Option B—Non-Thesis—9 Credit Hours

- Electives approved by adviser (6 credit hours)
- EDF 6886 Multicultural Education (3 credit hours)

### Area B: Specialization—24 Credit Hours

- EEC 5205 Programs and Trends in Early Childhood Education (3 credit hours)
- EEC 5206 Organization of Instruction in Early Childhood Education (3 credit hours)
- EEC 5208 Creative Activities in Early Childhood (3 credit hours)
- EEC 6268 Play Development, Intervention, and Assessment (3 credit hours)
- EEC 6406 Guiding and Facilitating Social Competence (3 credit hours)
- EEX 5750 Communication with Parents and Agencies (3 credit hours)
- EEX 6017 Typical and Atypical Applied Child Development (3 credit hours)
- EEX 6224 Observation and Assessment of Young Children (3 credit hours)

## Mathematics Education Track

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

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

This track is not approved for automatic certification by the state of Florida. The track may qualify students for certification in Middle School Mathematics if sufficient mathematics (8 credit hours) content courses and certain experience-methods requirements have been taken. To be certified as an elementary mathematics specialist, a person must have a minimum of 18 credit hours in mathematics.

## Degree Requirements

### Minimum Hours Required for M.Ed.—33 Credit Hours

#### Area A: Core—12 or 15 Credit Hours

- EDF 6481 Fundamentals of Graduate Research in Education (3 credit hours)
- EDF 6401 Statistics for Educational Data (3 credit hours) OR
- EDF 6432 Measurement and Evaluation in Education (3 credit hours)

Select one course from the following list.

- EDF 6155 Lifespan Human Development and Learning (3 credit hours)
- EDF 6517 Perspectives on Education (3 credit hours)
- EDF 6608 Social Factors in American Education (3 credit hours)
- MAE 6909 Research Report or 2 electives (2,1 or 6 credit hours)

#### Area B: Specialization—12 Credit Hours

- MAE 4634 Programs in Teaching of Mathematics (3 credit hours)
- MAE 6517 Diagnosis/Remediation of Difficulties in Mathematics for the Classroom Teacher (3 credit hours)
- MAE 6899 Seminar in Teaching Mathematics (3 credit hours)
- MAE 6946 Practicum (3 credit hours)

#### Area C: Electives—9 Credit Hours—Approved by adviser

- MAE 5318 Current Methods in Elementary School Mathematics (3 credit hours)
- MAE 6145 Mathematics Curriculum, K-12 (3 credit hours)

- MAE 6641 Problem Solving and Critical Thinking Skills (3 credit hours)

# Master of Arts in Elementary Education

The Master of Arts in Elementary Education can be completed in the minimum 36 credit 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.

[Master's Programs in the College of Education](#)

[Application Deadlines](#)

## Degree Requirements

Minimum Hours Required for M.A.—36 Credit Hours

### Area A: Seminars—3 Credit Hours

- EDE 6933 Elementary Education Seminar I (2 credit hours)
- EDE 6935 Elementary Education Seminar II (1 credit hour)

### Area B—15 Credit Hours

- EDF 6481 Fundamentals of Graduate Research in Education (3 credit hours)
- EDF 6432 Measurement and Evaluation in Education (3 credit hours)
- EDF 6155 Lifespan Human Development and Learning (3 credit hours)
- EDG 6236 Principles of Instruction (3 credit hours)
- One elective from EDF 6608, EDF 6517, or EDF 6886 (3 credit hours)

### Area C: PR or CR EDE 6933—21 Credit Hours

- LAE 5319 Methods of Elementary School Language Arts (3 credit hours)
- LAE 5415 Children's Literature in Elementary Education (3 credit hours)
- MAE 5318 Current Methods in Elementary School Mathematics (3 credit hours)
- SCE 5716 Methods in Elementary School Science (3 credit hours)
- RED 5147 Developmental Reading (3 credit hours)
- RED 5514 Classroom Diagnosis and Development of Reading Proficiencies (PR: RED 5147) (3 credit hours)
- SSE 5115 Methods of Elementary School Social Science (3 credit hours)

### Area D: Internship—6 Credit Hours

- EDE 6946 Graduate Internship (6 credit hours)

Satisfactory completion of Graduate Internship requires the student to demonstrate proficiency in all 12 Florida Educator Accomplished Practices at the pre-professional level in accordance with State Board of Education Rule 6A-5.065.

## Co-requisites

- ARE 4313 Art in Elementary Schools (3 credit hours)
- HLP 4722 Teaching Elementary School Health and Physical Education (3 credit hours)
- MUE 3210 Music in Elementary Schools (3 credit hours)

## Additional Program Requirements

- Complete a portfolio according to program guidelines. This portfolio requires demonstration of professional growth, reflection, and proficiency in the 12 Florida Educator Accomplished Practices.
- Pass the CLAST as well as the Professional Education and Subject Area subtests of the Florida Teacher Certification Examination.

# English

## Description

College of Arts and Sciences Department of English Chair of the Department: Patrick Murphy Graduate Programs Coordinator: James Campbell, CNH 405B, (407) 823-5254. E-mail: [englgrad@pegasus.cc.ucf.edu](mailto:englgrad@pegasus.cc.ucf.edu) Web address: <http://www.cas.ucf.edu/english/> Texts and Technology Ph.D. Coordinator: Craig Saper, CNH 405A, (407) 823-5329 Texts and Technology web address: <http://www.textsandtech.org>

The Department of English offers a Master of Arts degree with tracks in Creative Writing, Literature, and Technical Writing, as well as the Ph.D. in Texts and Technology. It also offers a Graduate Certificate in Professional Writing. Each part of the graduate program emphasizes the enhancement of critical thinking and writing skills useful for career development in academic and professional settings. The program is designed for students interested in intellectual and practical questions of aesthetics, critique, culture, text, and interpretation.

## Degrees Offered

Master of Arts in English (M.A.)

- Creative Writing Track
- Literature Track
- Technical Writing Track

Doctor of Philosophy in Texts and Technology (Ph.D.)

## Faculty

Professors: D. R. Jones, Ph.D.; P. Murphy, Ph.D.; S. E. Omans, Ph.D.; C.J. Saper, Ph.D.; J. F. Schell, Ph.D.; G. J. Schiffhorst, Ph.D.; K. L. Seidel, Ph.D., Dean of the College of Arts and Sciences; D. L. Stap, Ph.D.; D. Trouard, Ph.D.

Associate Professors: B. Barnes, Ph.D.; J. Bartkevicius, Ph.D.; K. L. Bell, Ph.D.; J. Campbell, Ph.D.; P. Dombrowski, Ph.D.; J. J. Donnelly, Ph.D.; M. Flammia, Ph.D.; J. Hemschemeyer, M.A.; S. Hubbard, M.F.A.; I. Lamazares, Ed.D.; A. Lillios, Ph.D.; L. Logan, Ph.D.; K. Meehan, Ph.D.; C. Rodríguez Milanés, D.A.; P. J. Rushin, M.A.; E. Smith, Ph.D.; M. E. Sommer, Ed.D.; A. D. Wallace, Ph.D.

Assistant Professors: J. D. Applen, Ph.D.; M. Bowdon, Ph.D.; L. Casmier-Paz, Ph.D.; A. Davidson, Ph.D.; A. Grajeda, Ph.D.; P. Hammons, Ph.D.; A. Jones, Ph.D.; M. Kamrath, Ph.D.; K. Kitalong, Ph.D.; J. Leiby, M.F.A.; M. Marinara, Ph.D.; B. Mauer, Ph.D.; T. Pugh, Ph.D.; B. Scott, Ph.D.; B. Young, Ph.D.

Visiting Instructors: L. Brodtkin, M.A.; D. Fox, Ph.D.

## Master of Arts in English

### Admission Requirements

Minimum requirements for admission are a baccalaureate degree, a grade point average (GPA) of 3.0 for the last 60 semester hours earned as an undergraduate, a score of 1000 or better on the combined verbal and quantitative sections of the Graduate Record Examination (GRE), two letters of recommendation, a writing sample with a statement of background and goals, resume, and approval by the Graduate Committee of the Department of English. Students must prove proficiency in a foreign language at the first-year level prior to completing the degree program. International students must score at least 233 (computer-based test; or equivalent score on the paper-based test) on the Test of English as a Foreign Language (TOEFL) and submit evaluated transcripts.

Creative writing students must submit (by January 15 for fall term) a portfolio of fiction, poetry, drama, or creative nonfiction and a statement of background and goals that are acceptable to the faculty. A student with a baccalaureate degree in a subject other than English will be required to take graduate survey courses in British and American literature.



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. A student with a baccalaureate degree in a subject other than English will be required to take graduate survey courses in British and American literature. Literature students must submit a writing sample (documented critical essay) and a statement of background and goals that are acceptable to the faculty.

Technical writing students are expected to have strong writing skills and must submit a piece of professional writing that is acceptable to the faculty and a statement of background and goals with their application. The faculty may require entering students to take ENC 3241 to improve their writing skills. Students must also have some minimum technical writing exposure, either from education or work; the faculty may require entering students to take ENC 4293 to prepare them for graduate work in technical writing.

[Application Deadlines](#)

## Degree Requirements

Students must select one of the tracks for their program of study: Creative Writing, Literature, or Technical Writing. The M.A. degree requires completion of 33 credit hours minimum.

## Creative Writing Track

Each student must complete at least 33 credit hours, including 6 credit hours of writing workshops. Near the end of the degree program, each candidate will write a creative thesis.

### Required Creative Writing Courses—6 Credit Hours

- CRW 5020 Graduate Writing Workshop (3 credit hours)
- CRW 6025 Advanced Graduate Writing Workshop (3 credit hours)

### Restricted Creative Writing Electives—6 Credit Hours

- CRW 5020 Graduate Writing Workshop (3 credit hours) May be repeated for credit
- CRW 5056 Form and Theory of Nonfiction (3 credit hours)
- CRW 5932 Teaching Creative Writing (3 credit hours)
- CRW 5937 Special Topics Seminar
- CRW 6025 Advanced Graduate Writing Workshop (3 credit hours) May be repeated for credit

### Required Literature Courses—6 Credit Hours

- LIT 5039 Studies in Contemporary Poetry (3 credit hours)
- LIT 5097 Studies in Contemporary Fiction (3 credit hours)
- LIT 5XXX Studies in Contemporary Memoirs (3 credit hours)

### Literature Electives—6 Credit Hours

- LIT 6009 Literary Genres (3 credit hours)
- LIT 6105 World Literature (3 credit hours)
- LIT 6246 Major Authors (3 credit hours)
- LIT 6365 Movements in Literature (3 credit hours)

### Electives—3 Credit Hours

### Thesis—6 Credit Hours

- CRW 6971 Thesis (6 credit hours)

The candidate will complete a book-length manuscript (fiction, poetry, or other genre) of publishable quality, written and revised in CRW 6971, Thesis, that will meet both departmental and university requirements for the thesis. There is no non-thesis option in creative writing.

## Literature Track

Each student must complete at least 33 credit hours, including one course in linguistics and six 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 or (b) complete 6 additional credit hours in 6000-level literature courses.

### Required Courses—21 Credit Hours

- ENG 5009 Methods of Bibliography and Research (3 credit hours)
- ENG 5018 Literary Criticism (3 credit hours)
- LIN 5137 Linguistics (or an equivalent) (3 credit hours)\*
- LIT 6009 Literary Genres (3 credit hours)
- LIT 6105 World Literature (3 credit hours)
- LIT 6246 Major Authors (3 credit hours)
- LIT 6365 Movements in Literature (3 credit hours)

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

### Electives—6 Credit Hours

Comprehensive Examination—A written exam, based on a 50-book list, consisting of short answers and essay questions. More information available in the English Department's "Graduate Student Handbook," available for download at <http://www.cas.ucf.edu/english/>.

### Specialization—Choose A or B—6 Credit Hours

A. Thesis Option—The candidate will complete a formal thesis on a topic selected in consultation with an advisory committee and will meet both departmental and university requirements for the thesis. The student will also enroll in LIT 6971 Thesis.

B. Course Option—The candidate will also complete 6 additional hours in 6000-level literature courses.

## Technical Writing Track

Each student must complete at least 33 credit 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 6918 (3 credit hours), completing a formal thesis or project approved by the faculty.

### Required Courses—15 Credit Hours

- ENC 5214 Production and Publication Methods (3 credit hours)
- ENC 5337 Modern Rhetorical Theory (3 credit hours)
- ENC 6217 Technical Writing (3 credit hours)
- ENC 6261 Technical Writing: Theory and Practice (3 credit hours)
- ENG 5009 Methods of Bibliography and Research (3 credit hours)

### Restricted Electives—9 Credit Hours

- ENC 5219 Graphics in Technical Writing (3 credit hours)
- ENC 5306 Persuasive Writing (3 credit hours)
- ENC 5344 Proposal Writing (3 credit hours)
- ENC 6244 Teaching Technical Writing (3 credit hours)
- ENC 6292 Project Management for Technical Writers (3 credit hours)
- ENC 6296 Computer Documentation (3 credit hours)

Advised Electives—6 Credit Hours

Two courses from outside the Department of English or other graduate-level English courses.

Comprehensive Examination—A written exam based on four of the core courses (excluding ENG 5009) and two concentration areas designed by the student. More information available in the English Department's "Graduate Student Handbook," available for download at <http://www.cas.ucf.edu/english/>.

## Specialization—Choose A or B—3 Credit Hours

A. Thesis Option—The candidate will complete a formal thesis selected in consultation with an advisory committee and will meet both departmental and university requirements for the thesis. The student will enroll in ENC 6971 Thesis for 3 credit hours of credit.

B. Special Project—The candidate will enroll in ENC 6918 Directed Research for 3 credit hours of credit 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.

# Doctor of Philosophy in Texts and Technology

The Texts and Technology Ph.D. program extrapolates traditional English textual studies in various media into the digital future. Texts include visual, audio, multimedia, hypertexts, and other digital material as well as printed and spoken words. The curriculum emphasizes theory and practice in new media, as well as historical grounding in pre-digital media studies. Both a teaching practicum and professional internship experience are required of all students to familiarize them with textual technologies from both academic and professional perspectives.

Graduates will be prepared for academic research, teaching, and leadership in program development, or for research in Web design, multimedia production, distributed education, entertainment, publishing or information architecture and visualization in the private sector.

[Go to Texts and Technology's degree webpage](#)

# English Language Arts Education

## Description

College of Education Department of Teaching and Learning Principles Chair of Department: Dr. Robert Williams Graduate Program Coordinator: Dr. Donna Camp, Daytona Beach Campus, (386) 254-7423, ext. 4072. E-mail: [camp@mail.ucf.edu](mailto:camp@mail.ucf.edu) Web address: <http://edcollege.ucf.edu/>

The College of Education offers a Master of Education program in English Language Arts designed to meet the advanced knowledge and skill needs of the English classroom teacher. The Master of Arts degree program is a secondary (6-12) program for non-education majors or previously certified teachers in another field.

## Degrees Offered

Master of Education in English Language Arts Education (M.Ed.) Master of Arts in English Language Arts Education (M.A.)

## Master of Education in English Language Arts Education

The Master of Education program is designed to meet the advanced knowledge and skill needs of English classroom teachers.

[Master's Programs in the College of Education](#)

[Application Deadlines](#)

## Degree Requirements

Minimum Hours Required for M.Ed.—36 Credit Hours

### Area A: Core—18 Credit Hours

- EDF 6432 Measurement and Evaluation in Education (3 credit hours)
- EDF 6481 Fundamentals of Graduate Research in Education (3 credit hours)
- EDF 6155 Lifespan Human Development and Learning (3 credit hours)

Select one course:

- EDF 6608 Social Factors in American Education (3 credit hours) OR
- EDF 6886 Multicultural Education (3 credit hours)

Option A: Research Report—6 credit hours

- LAE 6792 CFWP Teacher/Researcher (3 credit hours)
- ESE 6909 Research Report (2, 1 credit hours)

OR

Option B: Two electives approved by adviser (6 credit hours)

NOTE: Students selecting Option B must pass a written comprehensive examination.

## Area B: Specialization—18 Credit Hours

- LAE 6637 Research in Teaching English (3 credit hours)
- LAE 6936 Seminar in Language Arts Education (3 credit hours)

Select any four of the following:

- LAE 5295 Writing Workshop I (3 credit hours)
- LAE 5337 Literacy Strategies for Middle and Secondary Teaching (3 credit hours)
- LAE 5495 Assessing Writing (3 credit hours)
- LAE 6296 Writing Workshop II (3 credit hours)
- LAE 6366 Studies in Adolescent Literature (3 credit hours)
- LAE 6616 Trends in Language Arts Education (3 credit hours)

# Master of Arts in English Language Arts Education

The Master of Arts program is a secondary (6-12) program for non-education majors or previously certified teachers in another field.

[Master's Programs in the College of Education](#)

[Application Deadlines](#)

## Degree Requirements

Minimum Hours Required for M.A.—42-45 Credit Hours

### Area A: Core—18 or 21 Credit Hours

- EDF 6155 Lifespan Human Development and Learning (3 credit hours)
- EDG 6236 Principles of Instruction (3 credit hours)
- EDF 6481 Fundamentals of Graduate Research in Education (3 credit hours)
- EDF 6517 Perspectives on Education (3 credit hours)
- EDG 6253 Curriculum Inquiry (3 credit hours)
- ESE 6909 Research Report (2,1 credit hours) or 2 approved electives (6 credit hours)

### Area B: Specialization—15 Credit Hours

- LAE 5337 Literacy Strategies for Middle and Secondary Teaching (3 credit hours)
- LAE 5338 Teaching Writing in Middle and High School (3 credit hours)
- LAE 5346 Methods for Teaching English Language Arts (3 credit hours)
- LAE 5465 Literature for Adolescents (3 credit hours)
- LAE 6637 Research in Teaching English (3 credit hours)

### Area C: Internship—9 Credit Hours

- ESE 6946 Graduate Internship I (3 credit hours)
- ESE 6946 Graduate Internship II (6 credit hours)

Satisfactory completion of Graduate Internships requires the student to demonstrate proficiency in all 12 Florida Educator Accomplished Practices at the pre-professional level in accordance with State Board of Education Rule 6A-5.065.

## Co-requisites taken with ESE 6946 Graduate Internship I

- LAE 5346 Methods of Teaching English Language Arts (3 credit hours)
- LAE 5338 Teaching Writing in Middle and High School (3 credit hours)

## Additional Program Requirements

A comprehensive examination or another appropriate culminating activity is required of all Master's Degree students. Please contact adviser.

Complete a portfolio according to program guidelines. This portfolio requires demonstration of professional growth, reflection, and proficiency in the 12 Florida Educator Accomplished Practices.

Students are required to take 30 credit hours of English course work to meet certification requirements to teach English, grades 6-12. A track is available for this program in Extended Content and requires 18 credit hours of graduate-level content in the program. Only 6 credit hours of independent study courses may be used to satisfy degree requirements. It is important to see an adviser if courses are difficult to schedule in content areas.

Pass the CLAST as well as the Professional Education and Subject Area subtests of the Florida Teacher Certification Examination.

# Environmental Engineering

## Description

College of Engineering and Computer Science Department of Civil and Environmental Engineering Chair of the Department: Dr. A. E. Radwan Assistant Chair of the Department: Dr. M. B. Chopra Graduate Program Coordinator: Dr. R. L. Wayson, ENGR II 211, (407) 823-2841. E-mail: [go\\_ucf@mail.ucf.edu](mailto:go_ucf@mail.ucf.edu) Web address: [www-cee.engr.ucf.edu](http://www-cee.engr.ucf.edu)

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 can pursue a variety of research areas and levels of interest. Those completing the program find job opportunities in federal, state, and local governments, consulting, and industry.

The Civil and Environmental Engineering Department offers a Master of Science degree in Environmental Engineering (M.S.Env.E.). In addition, a more specialized Master of Science (M.S.) degree is offered in Environmental Engineering Sciences. The department also offers a Doctor of Philosophy (Ph.D.) degree in Environmental Engineering.

## Degrees Offered

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

o Environmental Engineering Sciences Track

Doctor of Philosophy in Environmental Engineering (Ph.D.)

## Faculty

Professors: C. D. Cooper, Ph.D., P.E.; S. S. Kuo, Ph.D., P.E.; A. E. Radwan Ph.D., P.E.; D. R. Reinhart, Ph.D., P.E., Associate Dean; J. S. Taylor, Ph.D., P.E.; M. P. Wanielista, Ph.D., P.E., Dean; R. L. Wayson, Ph.D., P.E.; G. Yeh, Ph.D.

Associate Professors: H. M. Al-Deek, Ph.D., P.E.; M. A. Aty, Ph.D., P.E.; M. B. Chopra, Ph.D., P.E.; J. D. Dietz, Ph.D., P.E.; S. M. El-Tawil, Ph.D., P.E.; C. M. Head, Ph.D., P.E.; S. K. Kunnath, Ph.D., P.E.; F. N. Nnadi, Ph.D., P.E.; A. Oloufa, Ph.D., P.E.; U. O. Onyemelukwe, Ph.D., P.E.; A. A. Randall, Ph.D., P.E.; Assistant Professors: S.C. Hagen, Ph.D.; S. K. Hong, Ph.D.

## Master of Science in Environmental Engineering

The department offers a Master of Science degree in Environmental Engineering (M.S.Env.E.) for students who have an undergraduate degree in Environmental Engineering or any other closely related degree in engineering. Students who enter the graduate program in Environmental Engineering are expected to be knowledgeable in the topics required in the undergraduate program at UCF, including chemistry, process design, water resources, air pollution, and solid waste. This requirement is satisfied ideally by completion of university course work at UCF or elsewhere.

Preliminary articulation requirements are noted below as general guidelines for prospective students, depending on undergraduate degree. Final articulation requirements will be determined by the department after students have been admitted and after discussions with their advisers.

The degree requires either (a) 30 credit hours of acceptable graduate work, which includes a thesis (6 credit hours), or (b) 36 credit hours of acceptable graduate work, which includes a comprehensive final examination. The student develops an individualized program of study with a faculty adviser.

## Admission Requirements

For admission to the advanced degree programs in Environmental Engineering, students must have completed a bachelor of science degree. Applicants who are applying to the programs without a directly related undergraduate degree should closely check the prerequisites.

Admittance to the programs requires a combined verbal and quantitative score of 1000 on the Graduate Record Examination (or 450 on the GMAT) or a grade point average of 3.0 or greater in the last 60 attempted semester hours of undergraduate studies.

International applicants must be in the top one-half of their graduating class. Alternatively, international applicants may have their transcript evaluated by the World Education Services (WES) to meet the minimum grade point average.

### [Application Deadlines](#)

## Degree Requirements

The degree requires either (a) 30 credit hours of acceptable graduate work, which includes a thesis (6 credit hours), or (b) 36 credit hours of acceptable graduate work, which includes a comprehensive final examination. The student develops an individualized program of study with a faculty adviser.

There are two options for the master's degree programs: the thesis option and the non-thesis option. The thesis option is available in all master's degree programs and requires a thesis that is equivalent to 6 credit hours out of a total of 30 credit hours. It is the required option for students supported on contracts and grants as well as any student receiving department financial support.

The non-thesis option is also available for all master's degree programs and requires 36 credit hours of course work and a comprehensive final oral and written examination as a requirement for graduation. This option is recommended only for part-time students on a limited access basis.

Prerequisites for all students:

- Calculus through Differential Equations

Prerequisites for students with engineering undergraduate degrees in civil, environmental, mechanical, chemical engineering:

- CWR 4101C Hydrology
- EES 4111C Biological Process Control
- EES 4202C Chemical Process Control
- ENV 4120 Air Pollution Control
- ENV 4561 Environmental Engineering—Process Design
- Or equivalent courses

Prerequisites for students with undergraduate degrees in other engineering disciplines:

- CWR 3201 Engineering Fluid Mechanics
- CWR 4101C Hydrology
- CWR 4203C Hydraulics
- EES 4111C Biological Process Control
- EES 4202C Chemical Process Control
- ENV 4120 Air Pollution Control
- ENV 4561 Environmental Engineering—Process Design
- Or equivalent courses

Prerequisites for students with appropriate science or math undergraduate degrees:

- CHM 2046 Chemistry Fundamentals II
- CWR 3201 Engineering Fluid Mechanics
- CWR 4101C Hydrology
- CWR 4203C Hydraulics
- EES 4111C Biological Process Control
- EES 4202C Chemical Process Control
- EGN 3613 Engineering Economic Analysis
- ENV 4120 Air Pollution Control
- ENV 4561 Environmental Engineering—Process Design
- Or equivalent courses



Prerequisites for students with nontechnical undergraduate degrees:

- Articulation is quite extensive and in such cases and it is recommended that a second undergraduate degree in Environmental Engineering be completed before applying to graduate school.

Minimum Hours Required for M.S.Env.E.—30 or 36 Credit Hours

Required Courses—15 Credit Hours

- CWR 5545 Water Resources Engineering (3 credit hours) or CWR 6125 Groundwater Hydrology (3 credit hours) or CWR 6235 Open Channel Hydraulics (3 credit hours)
- ENV 6015 Physical/Chemical Treatment Systems in Environmental Engineering (3 credit hours)
- ENV 6016 Biological Treatment Systems in Environmental Engineering (3 credit hours)
- ENV 6347 Hazardous Waste Incineration (3 credit hours) or ENV 6558 Industrial Waste Treatment (3 credit hours)
- ENV 6106 Theory and Practice of Atmospheric Dispersion Modeling (3 credit hours) or ENV 6126 Design of Air Pollution Controls (3 credit hours)

Elective Courses—9 or 21 Credit Hours

Courses that comprise the elective part of the program are selected in accordance with the general requirements of the College of Engineering and Computer Science and often include courses taken from the following two sub-discipline areas:

- Environmental Specialization—Any of the appropriate ENV graduate-level courses (5000 or 6000) with the consent of the student's adviser
- Water Resources Specialization—Any of the appropriate CWR graduate-level courses (5000 or 6000) with the consent of the student's adviser

Thesis—6 Credit Hours

# Master of Science

The Master of Science (M.S.) degree is offered with a track in Environmental Engineering Sciences.

## Admission Requirements

For admission to the advanced degree programs in Environmental Engineering, students must have completed a bachelor of science degree. Applicants who are applying to the programs without a directly related undergraduate degree should closely check the prerequisites.

Admittance to the programs requires a combined verbal and quantitative score of 1000 on the Graduate Record Examination (or 450 on the GMAT) or a grade point average of 3.0 or greater in the last 60 attempted semester hours of undergraduate studies.

International applicants must be in the top one-half of their graduating class. Alternatively, international applicants may have their transcript evaluated by the World Education Services (WES) to meet the minimum grade point average.

[Application Deadlines](#)

## Environmental Engineering Sciences Track

Students who enter the graduate program in Environmental Engineering are expected to be knowledgeable in the topics required in the undergraduate program at UCF, including chemistry, process design, water resources, air pollution, and solid waste. This requirement is satisfied ideally by completion of university course work at UCF or elsewhere.

Preliminary articulation requirements are noted below as general guidelines for prospective students, depending on undergraduate degree. Final articulation requirements will be determined by the department after students have been admitted and after discussions with their advisers.

# Degree Requirements

The degree requires (a) 30 semester hours of acceptable graduate work, which includes a thesis (6 semester hours), or (b) 36 semester hours of acceptable graduate work with a comprehensive final examination. The student develops an individualized program of study with a faculty adviser.

There are two options for the master's degree programs: the thesis option and the non-thesis option. The thesis option is available in all master's degree programs and requires a thesis that is equivalent to 6 credit hours out of a total of 30 credit hours. It is the required option for students supported on contracts and grants as well as any student receiving department financial support.

The non-thesis option is also available for all master's degree programs and requires 36 credit hours of course work and a comprehensive final oral and written examination as a requirement for graduation. This option is recommended only for part-time students on a limited access basis.

Prerequisites for all students:

- Calculus through Differential Equations

Prerequisites for students with engineering undergraduate degrees in civil, environmental, mechanical, chemical engineering:

- CWR 4101C Hydrology
- EES 4111C Biological Process Control
- EES 4202C Chemical Process Control
- ENV 4120 Air Pollution Control
- ENV 4561 Environmental Engineering—Process Design
- Or equivalent courses

Prerequisites for students with undergraduate degrees in other engineering disciplines:

- CWR 3201 Engineering Fluid Mechanics
- CWR 4101C Hydrology
- CWR 4203C Hydraulics
- EES 4111C Biological Process Control
- EES 4202C Chemical Process Control
- ENV 4120 Air Pollution Control
- ENV 4561 Environmental Engineering—Process Design
- Or equivalent courses

Prerequisites for students with appropriate science or math undergraduate degrees:

- CHM 2046 Chemistry Fundamentals II
- CWR 3201 Engineering Fluid Mechanics
- CWR 4101C Hydrology
- CWR 4203C Hydraulics
- EES 4111C Biological Process Control
- EES 4202C Chemical Process Control
- EGN 3613 Engineering Economic Analysis
- ENV 4120 Air Pollution Control
- ENV 4561 Environmental Engineering—Process Design
- Or equivalent courses

Prerequisites for students with nontechnical undergraduate degrees:

- Articulation is quite extensive and in such cases and it is recommended that a second undergraduate degree in Environmental Engineering be completed before applying to graduate school.

## Minimum Hours Required for M.S.—30 or 36 Credit Hours

Required Courses—12 Credit Hours

- CWR 5545 Water Resources Engineering (3 credit hours) or CWR 6125 Groundwater Hydrology (3 credit hours) or CWR 6235 Open Channel Hydraulics (3 credit hours)
- ENV 6015 Physical/Chemical Treatment Systems in Environmental Engineering (3 credit hours) or ENV 6016 Biological Treatment Systems in Environmental Engineering (3 credit hours) or ENV 6558 Industrial Waste Treatment (3 credit hours)
- ENV 6106 Theory and Practice of Atmospheric Dispersion Modeling (3 credit hours) or ENV 6126 Design of Air Pollution Controls (3 credit hours) or ENV 6347 Hazardous Waste Incineration (3 credit hours)
- ENV 5071 Environmental Analysis of Transportation Systems (3 credit hours) or ENV 6519 Aquatic Chemical Processes (3 credit hours) or ENV 6616 Receiving Water Impacts (3 credit hours)

Elective Courses—12 or 24 Credit Hours

- Any of the appropriate ENV or CWR or appropriate graduate-level courses (5000 or 6000) with the consent of the student's adviser (3 credit hours each)

Thesis—6 Credit Hours

# Doctor of Philosophy in Environmental Engineering

The Doctor of Philosophy (Ph.D.) degree requires a student to have completed a master's degree in Environmental Engineering or a closely related discipline. 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.

## Admission Requirements

In addition to satisfying regular university admissions criteria, the student must have a master's degree in Environmental Engineering or a closely related discipline from a recognized accredited institution and achieve a combined verbal and quantitative score of 1100 on the Graduate Record Examination (or equivalent GMAT score). Prospective applicants should forward a detailed resume and a letter with research interests and three letters of recommendation for department review with the application.

[Application Deadlines](#)

## Degree Requirements

The Ph.D. degree requires a minimum of 36 to 42 credit hours beyond the master's degree, 18 of which will be dissertation credits, and 6 credit hours of which must be from courses taken outside the student's program while at UCF. In addition, a minimum of 12 credit hours of formal classroom work is required at UCF. For those who completed a thesis as part of the master's degree with a minimum of course work, 12 credit hours of electives are required. 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.

- Hours that must be taken in formal courses at UCF—12 credit hours
- Hours taken at the discretion of the adviser—6 credit hours or 12 credit hours\*
- Dissertation—18 credit hours
- Minimum hours required for Ph.D.—36-42 credit hours beyond the master's degree

\* The student must take 12 credit hours if the student completes the thesis with no additional course work past the minimum. Hours taken at the discretion of the adviser include research hours, special topics, directed studies, as well as additional formal courses.

## Examinations

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. 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.

# Exceptional Education: Varying Exceptionalities

## Description

College of Education Department of Child, Family and Community Sciences Chair of Department: Dr. Bill Wienke Graduate Program Coordinator: Dr. Lee Cross (407) 823-5477. E-mail: [lcross@mail.ucf.edu](mailto:lcross@mail.ucf.edu) Web address: <http://edcollege.ucf.edu/>

The College of Education offers a master's program in Exceptional Education, Varying Exceptionalities, leading to a Master of Education degree or a Master of Arts degree.

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.

The Master of Arts program is for non-education majors or previously certified teachers in another field. In addition to the 36 hours, students must complete co-requisite and prerequisite courses. The varying exceptionalities option leads to certification in Varying Exceptionalities Learning (VE) and prepares graduates to teach in the areas of VE, Specific Learning Disabilities (SLD), Mental Handicaps (MH), and Emotional Handicapped (EH). Graduates must be eligible for certification by the completion of the degree program.

## Degrees Offered

Master of Education in Exceptional Education (M.Ed.)

- Varying Exceptionalities Track

Master of Arts in Exceptional Education (M.A.)

- Varying Exceptionalities Track

## Master of Education in Exceptional Education

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.

[Master's Programs in the College of Education](#)

[Application Deadlines](#)

## Varying Exceptionalities Track

### Minimum Hours Required for M.Ed.—33-36 Credit Hours

Area A: Core—9-12 Credit Hours

- EDF 6432 Measurement and Evaluation in Education (3 credit hours)
- EDF 6481 Fundamentals of Graduate Research in Education (3 credit hours)
- EEX 6971 Thesis OR two of the following three approved electives\*
- ELD 6248 Instructional Strategies for Students with Learning Disabilities (3 credit hours)
- EMR 6365 Teaching Students with Mental Disabilities (3 credit hours)
- EED 6226 Theory and Application for the Emotional Handicapped (3 credit hours)

Area B: Specialization—24 Credit Hours

- EEX 6061 Instructional Strategies PreK-6 (3 credit hours)
- EEX 6065 Instructional Strategies 6-12 (3 credit hours)
- EEX 6107 Teaching Spoken and Written Language (3 credit hours)

- EEX 6266 Assessment and Curriculum Prescriptions for the Exceptional Population (3 credit hours)
- EEX 6342 Seminar—Critical Issues in Special Education (3 credit hours)
- EEX 6524 Organization and Collaboration in Special Ed (3 credit hours)
- EEX 6612 Methods of Behavioral Management (3 credit hours)
- EEX 6863 Supervised Teaching Practicum with Exceptional Children or Elective (Approved by Adviser) (3 credit hours)

Culminating experience includes a comprehensive examination. Please see your adviser.

\* Approved electives include ELD 6248, EMR 6362, EED 6226, or other course approved by adviser.

# Master of Arts in Exceptional Education

The Master of Arts program is for non-education majors or previously certified teachers in another field. In addition to the 36 hours, students must complete co-requisite and prerequisite courses. The varying exceptionalities option leads to certification in Varying Exceptionalities Learning (VE) and prepares graduates to teach in the areas of VE, Specific Learning Disabilities (SLD), Mental Handicaps (MH), and Emotional Handicapped (EH). Graduates must be eligible for certification by the completion of the degree program.

[Master's Programs in the College of Education](#)

[Application Deadlines](#)

## Varying Exceptionalities Track

### Minimum Hours Required for M.A.—36-39 Credit Hours

#### Area A: Core—9-12 Credit Hours

- EDF 6432 Measurement and Evaluation in Education (3 credit hours)
- EDF 6481 Fundamentals of Graduate Research in Education (3 credit hours)
- EEX 6908 Research Report OR two of the following three approved electives
- ELD 6248 Instructional Strategies for Students with Learning Disabilities (3 credit hours)
- EMR 6365 Teaching Students with Mental Disabilities (3 credit hours)
- EED 6226 Theory and Application for the Emotional Handicapped (3 credit hours)

#### Area B: Specialization—27 Credit Hours

- EEX 6061 Instructional Strategies PreK-6 (3 credit hours)
- EEX 6065 Instructional Strategies 6-12 (3 credit hours)
- EEX 6107 Teaching Spoken and Written Language (3 credit hours)
- EEX 6266 Assessment and Curriculum Prescriptions for the Exceptional Population (3 credit hours)
- EEX 6342 Seminar: Critical Issues in Special Education (3 credit hours)
- EEX 6524 Organization & Collaboration in Special Ed (3 credit hours)
- EEX 6612 Methods of Behavioral Management (3 credit hours)
- EEX 6946 Graduate Internship (6 credit hours)

## Co-requisites

Prescribed by College of Education to meet State Certification requirements or as support for degree program. Waiver/substitutions for co-requisites must meet departmental standards and be approved by the Chair of the Department.

- EDF 6155 Lifespan Human Development and Learning (3 credit hours)
- EDF 6236 Principles in Instruction (3 credit hours)
- MAE 5318 Current Methods in Elementary School Mathematics (3 credit hours)
- RED 5147 Developmental Reading (3 credit hours)
- Students must also choose one of the following courses:

- EDF 6517 Perspectives on Education (3 credit hours)
- EDF 6608 Social Factors in American Education (3 credit hours)
- EDF 6886 Multicultural Education (3 credit hours)

## Prerequisite

- EEX 5051 Exceptional Children in the Schools (3 credit hours)

As a culminating activity, students must complete the College of Education portfolio and comprehensive examinations. Please see your adviser.

## Additional Program Requirements

Pass the CLAST as well as the Professional Education and Subject Area subtests of the Florida Teacher Certification Examination.

# Health Sciences: Health Services Administration

## Description

College of Health and Public Affairs Department of Health Professions Interim Chair of Department: Diane Jacobs, Ph.D. Executive Director of HSA Programs: Myron Fottler, Ph.D. Graduate Program Coordinator: Dawn M. Oetjen, Ph.D., HPA 2, Room 214, (407) 823-2359. E-mail: [doetjen@mail.ucf.edu](mailto:doetjen@mail.ucf.edu) Area Campus Coordinator: Eileen Hamby, D.B.A., P.T., (386) 931-0069. E-mail: <mailto:eamby@mail.ucf.edu> Orlando Office: HPA 2, Room 208 Daytona Office: Building 150, Suite 300 Brevard Office: Clark Maxwell Center for Lifelong Learning, Suite 318

The Department of Health Professions offers a Master of Science degree in Health Sciences: Health Services Administration. Health Services Administration involves managing one or more of the administrative aspects of a health services organization. It encompasses the business management side of health care that includes human resources, marketing, sales, accounting, information systems, planning, and facility management. As America's fastest-growing service industry, health care executives are in demand to administer the acute and long-term care needs of an aging population and to serve as consultants to businesses and industrial organizations.

## Degree Offered

Master of Science in Health Sciences: Health Services Administration (M.S.)

## Master of Science in Health Sciences: Health Services Administration

The Department of Health Professions offers a Master of Science in Health Sciences: Health Services Administration. The admission and degree requirements for this program are described below.

## Graduate Teaching Assistantships

The Health Services Administration Program may offer Graduate Teaching Assistantships to selected students. Those students who have distinguished themselves are encouraged to apply for a GTA position.

## Student Organizations

Students are encouraged to participate in the American College of Healthcare Executives (ACHE), UCF Student Chapter. Guest speakers from various healthcare organizations are featured at monthly meetings held during the Fall and Spring semesters. Students interested in participating should contact the Health Services Administration department at (407) 823-2359.

## Admission Requirements

Applications for admission to graduate status in the Master of Science in Health Sciences: Health Services Administration program should include 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). Additionally, an LSAT score of 150 or an MCAT score of 27 may be used to satisfy this requirement.
- International students and students whose native language is not English must score at least 220 (computer-based test; or equivalent score on the paper-based test) on the Test of English as a Foreign Language (TOEFL).



- Completion of undergraduate course work comprising a knowledge of the U.S. health care systems, finance, economics, and personal computers. These recommended courses may be taken after admission to the program.

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 adviser to plan a program of study.

### [Application Deadlines](#)

## Degree Requirements

Minimum Hours Required for M.S. in HS (HSA)—48 Credit Hours

Recommended Preparatory Courses—9 Credit Hours

- HSA 3170 Health Care Finance (3 credit hours)
- HSA 3430 Health Care Economics (3 credit hours)
- HSA 4700 Research Methods or equivalent (3 credit hours)

Required Courses—48 Credit Hours

- HSA 5198 Health Care Computer Applications (3 credit hours)
- HSA 6108 Health Care Organization and Management II (3 credit hours)
- HSA 6119 Health Care Organizational and Management (3 credit hours)
- HSA 6128 Health Care Services Management (3 credit hours)
- HSA 6185 Health Care Human Resources (3 credit hours)
- HSA 6385 Health Care Quality Management (3 credit hours)
- HSA 6505 Risk Management in Health Care (3 credit hours)
- HSA 6925 Capstone in HSA (3 credit hours)
- HSA 6XXX Health Care Ethics (3 credit hours)
- HSA 6XXX Health Economics and Policy (3 credit hours)
- HSC 6636 Issues and Trends in the Health Professions (3 credit hours)
- HSC 6911 Scientific Inquiry in the Health Profession (3 credit hours)
- PHC 6000 Epidemiology (3 credit hours)
- PHC 6146 Health Planning and Policy (3 credit hours)
- PHC 6160 Health Care Finance (3 credit hours)
- PHC 6420 Case Studies in Health Law (3 credit hours)

## Comprehensive Examination Experience—3 Credit Hours

A final written examination experience is required of all students in the program. This experience will be completed through successful completion of the capstone symposium course (HSA 6925). All students must successfully complete the comprehensive examination experience to graduate.

## Program Options

Students wishing to supplement their educational experience should contact their academic adviser to discuss options such as internships, thesis and research reports, and special topics courses (HSA 6938) that are occasionally offered.

## Minimum Grade Requirements for Graduation

A grade point average of at least 3.0 (“B”) is required for graduation. Additionally, a student may earn no more than two grades of “C” to graduate. A student who earns a third grade of “C” may be disqualified from further Health Services Administration studies. A final decision on disqualification will be made by majority vote of the HSA faculty. In any course repeated, a student must earn a grade of “B” or better. A student who earns a grade of “D” or below will be disqualified from further HSA graduate studies. The Health Services Administration Program does not use plus/minus grading.

# History

## Description

College of Arts and Sciences Department of History Chair of the Department: Dr. Edmund F. Kallina Graduate Program Coordinator: Dr. Rosalind J. Beiler, CNH 551, (407) 823-2224. E-mail: [beiler@pegasus.cc.ucf.edu](mailto:beiler@pegasus.cc.ucf.edu) Graduate Program E-mail: [hisgrad@pegasus.cc.ucf.edu](mailto:hisgrad@pegasus.cc.ucf.edu)  
Web address: <http://pegasus.cc.ucf.edu/~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 Classical history, Early Christianity, African history, American cultural and social history, local history, the South, the American Civil War, the American frontier, women and gender roles, Asian history, Middle-Eastern history, twentieth-century mass movements, Nazism and anti-Semitism in Central Europe, Latin American history, and European history, as well as other areas.

The Department of History also offers an accelerated undergraduate/graduate program in History for highly qualified undergraduate majors in History.

## Degrees Offered

Master of Arts in History (M.A.)

- Public History Track

Accelerated Undergraduate and Graduate Program in History (B.A. and M.A.)

## Faculty

Professors: R. C. Crepeau, Ph.D.; J. B. Fernandez, Ph.D.; E. F. Kallina, Jr., Ph.D.; S. A. Leckie, Ph.D.; B. F. Pauley, Ph.D.

Professors Emeritus: T. Colbourn, Ph.D.; J. H. Shofner, Ph.D.

Associate Professors: C. E. Adams, Ph.D.; R. J. Beiler, Ph.D.; J. L. Evans, Ph.D.; F. L. Gordon, Ph.D.; H. Zhang, Ph.D.

Assistant Professors: S.P. Adams, Ph.D.; R. Alvarez, Ph.D.; C. Friend, Ph.D.; T. D. Greenhaw, Ph.D.; J. S. Perry, Ph.D.; N. Stockdale, Ph.D.; E. Walker, Ph.D.

Visiting Assistant Professor: J. Spencer Downing, Ph.D.

Visiting Instructors: J. Clark, Ph.D.; P. Farless, M.A.; A. Goffin, Ph.D.; D. Schuster, M.A.; T. M. Woods, Ph.D.

## Master of Arts in History

### Admission Requirements

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, a 3.0 GPA in history courses, 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. International students and students whose native language is not English must score at least 233 (computer-based test; or equivalent score on the paper-based test) on the Test of English as a Foreign Language (TOEFL).

All applicants to the program must submit a written statement describing their personal goals and objectives in seeking a graduate degree in

history. In addition, they must submit three letters of recommendation from former professors who can address their ability to undertake graduate-level history courses.

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 a GPA of 3.0 in their history courses, or do not score 1000 or more on the combined verbal-quantitative sections of the GRE with a score of 500 in the verbal portion may take up to 9 hours of graduate courses as non-degree-seeking students. To be admitted into the graduate program, however, they must earn a GPA of 3.3 or better in the graduate-level history courses they take under this status.

Applicants who meet all of the above requirements but do not have an undergraduate degree in history must complete 12 hours of history course work at the 3000 and 4000 level, with a GPA in these courses of at least 3.25 before entering the graduate program. These courses will not count toward the graduate degree. The History Department Graduate Committee can waive this requirement, in whole or in part, when applicants present evidence that they are capable of successfully completing graduate history courses, either by submitting a portfolio documenting relevant past work or volunteer experience or by providing a sample of their own written work, which indicates that they have the research and writing skills needed to do graduate-level work in history.

If, in addition, applicants do not meet one of the other requirements for entry, such as a GPA of 3.0 for the last 60 semester hours of attempted undergraduate course work or a score of 1000 on the combined verbal-quantitative sections of the GRE and a score of 500 on the verbal portion of the GRE, they must complete 12 hours of course work at the 3000 and 4000 level with a GPA of 3.5 before they can be admitted to the graduate program.

[Application Deadlines](#)

## Degree Requirements

The Master of Arts in History requires 36 credit hours with no graduate credit given for any grade lower than “B-.”

Requirements for M.A.—36 Credit Hours Minimum

Required Courses—12 Credit Hours

- HIS 6159 Historiography (3 credit hours)
- HIS 6905 Capstone Course (3 credit hours)
- HIS 6971 Thesis (6 credit hours)

Courses in Area of Concentration—18 Credit Hours

- Eastern Hemisphere: African, Asian, European, or Middle Eastern; or
- Western Hemisphere: Caribbean, North American, or South American

Outside Area of Concentration in History—6 Credit Hours

## Public History Track

Required Courses—15 Credit Hours

- HIS 5067 Introduction to Public History (3 credit hours)
- HIS 6159 Historiography (3 credit hours)
- HIS 6905 History Capstone Course (3 credit hours)
- HIS 6971 Thesis/Research Project (6 credit hours)

Area of Concentration (Western Hemisphere)—15 Credit Hours including 9 credit hours of Public History courses or internships

Outside Area of Concentration (Eastern Hemisphere)—6 Credit Hours

## Foreign Language Competency

Students will also be expected to demonstrate a reading competency in one foreign language. The foreign language examination must be completed one semester prior to the thesis defense.

## Examination Requirements

Each candidate for the Master of Arts in History must pass written examinations in two fields upon conclusion of regular course work and before beginning a thesis. These examinations must be taken and passed as part of the requirements for the capstone course. Each student will also submit a thesis prospectus and preliminary bibliography, which the three members of the student's thesis committee judge acceptable as the preliminary step to beginning the thesis. An oral defense of the written exams and the thesis prospectus and bibliography is also a requirement of the capstone course.

## Thesis Defense

The final step in completing the thesis requirement is a one-hour oral defense before the thesis committee.

# Accelerated Undergraduate and Graduate Program in History

The accelerated undergraduate/graduate program in History allows highly qualified undergraduate majors in history to begin taking graduate-level courses that will count toward their master's degree while completing their baccalaureate degree program. Participation will enable completion of the bachelor of arts and master of arts degrees in five instead of six years for students enrolled in full-time course work.

## Admission Requirements

Students apply for admission to the combined undergraduate and graduate program at the end of their junior year or after 12 hours of upper-level history course work. The program requires a 3.5 grade point average or better in history courses and a 3.25 overall grade point average or better. The program also requires a Graduate Record Examination score of 1050 on the combined verbal and quantitative sections of the exam and a score of at least 550 on the verbal section. Students may apply for graduate admission online through the Office of Graduate Studies website at [www.graduate.ucf.edu](http://www.graduate.ucf.edu). To be considered for admission, applicants must provide a completed UCF graduate application, including an essay indicating reasons for wishing to complete the combined bachelor's/master's program and three letters of recommendation from History Department faculty. Students will be formally admitted to the master's program following receipt of the bachelor's degree.

[Application Deadlines](#)

## Degree Requirements

- Students who change degree programs and select this major must adopt the most current catalog.
- Students should consult with the department graduate coordinator.
- Students must earn at least a "B-" in each undergraduate and graduate history course for them to be counted toward the major.
- Departmental residency requirement consists of at least 18 semester hours of regularly scheduled 3000- or 4000-level courses taken from the UCF History Department. Students may substitute up to 9 hours of 5000- or 6000-level courses to meet this requirement.
- Students must compile a portfolio of their written work in History completed inside and outside the classroom.
- The bachelor of arts degree will be awarded after completion of 36 hours of history courses and all other university requirements.
- The master of arts degree will be awarded upon completion of the program.
- Courses designated in General Education Program and Common Program Prerequisites are usually completed in the first 60 hours (see History major requirements in the Undergraduate Catalog)

## Curriculum Changes

- Students admitted to the combined bachelor's/master's program may take one 5000-level course the first semester of their senior year.
- After successfully completing one 5000-level course, students will be eligible to take HIS 6159 Historiography and another 5000-level course or the 6000-level seminar following the 5000-level colloquium they have already completed.
- Students may substitute these 9 hours of graduate-level work for 9 hours of 3000- or 4000-level undergraduate courses.
- Students need to pay fees at the graduate rate for the graduate courses they take.

## Schedule for Students Enrolled Full-time

- Students complete 9 hours of graduate-level courses in their senior year.
- Students enroll in at least 3 credit hours of graduate-level courses the summer after they receive their bachelor's degree.
- Students enroll in 9 hours of graduate-level courses in both spring and fall semester during their master's program.
- Students complete the capstone course, pass their preliminary exams, and fulfill their foreign language requirement by the end of their first year in the master's program.
- Students complete and defend a master's thesis in 6 hours.

# Undergraduate Requirements

The undergraduate requirements listed in the Graduate Catalog are for informational purposes only. The official requirements are detailed in the Undergraduate Catalog and take precedence over what is described here.

## Requirements for B.A.—120 Credit Hours Minimum

### Core Requirements—15 Credit Hours

- AMH 2010 U.S. History: 1492-1877 (3 credit hours)
- AMH 2020 U.S. History: 1877-Present (3 credit hours)
- HIS 4150 History and Historians (3 credit hours)

Select one sequence:

- EUH 2000, 2001 Western Civilization I and II (6 credit hours)
- WOH 2012, 2022 World Civilization I and II (6 credit hours)

Upper Division Restricted Electives—21 Credit Hours Must be taken within the History Department.

Select six hours of approved history courses within three of the four geographic regions—18 Credit Hours

- Asian, African, and Middle Eastern
- British and European
- Latin American
- U.S. and Canadian

Select three hours of approved history courses—3 Credit Hours

Students may substitute 9 hours of 5000- or 6000-level course work for 3000- or 4000-level courses.

## Departmental Exit Requirements

- Maintain a minimum GPA of 3.5 in upper-division required courses attempted.
- Submit a portfolio during the semester of graduation. The portfolio will include representative samples of the student's written work including, but not limited to, book critiques, in-class essay exams, and term papers.
- Complete at least 18 of the required 36 history hours at UCF.
- Satisfy the computer competency requirement by completion of the major.

## Foreign Language Requirements—0-8 Credit Hours

Admission: Met by graduation requirement

Graduation: Two semesters or equivalent proficiency exam

Majors who are participating in the combined bachelor's/master's program should complete two years of a foreign language, preferably one functional in their area of historical interest. Students may take the department's foreign language proficiency exam for master's students immediately following the completion of their foreign language course work.

## Electives—Variable Hours

Select electives primarily from upper-level courses, with departmental adviser's approval. May be outside of the department.

## University Minimum Exit Requirements for B.A. Degree

- A 2.0 UCF GPA
- 60 semester hours earned after CLEP awarded
- 48 semester hours of upper-division credit completed
- 30 semester hours in regular courses completed at UCF
- A maximum of 45 hours of extension, correspondence, CLEP, Credit by Exam, and Armed Forces credits permitted
- Complete the General Education Program, the Gordon Rule, the CLAST, and nine hours of Summer credit (if applicable)

## Transfer Notes

- “D” grades from other institutions do not meet departmental requirements.
- Courses taken at community colleges do not substitute for upper-division courses.
- Courses transferred from private and out-of-state schools must be evaluated for equivalency credit. The student must provide all supporting information.
- Acceptable substitutes for common program prerequisites if taken prior to transferring to UCF—AMH 2010 and AMH 2020: may use any two introductory courses with an AFH, AMH, EUH, LAH, ASH, HIS, or WOH prefix. However, AMH 2010 and 2020 are prerequisites for all subsequent American History courses and will need to be taken for the major.

## Graduate Requirements

Requirements for M.A.—36 Credit Hours Minimum (9 credit hours of which also count toward the B.A. degree)

Required Courses—12 Credit Hours

- HIS 6159 Historiography (3 credit hours)
- HIS 6905 Capstone Course (3 credit hours)
- HIS 6971 Thesis (6 credit hours)

Courses in Area of Concentration—18 Credit Hours

- Eastern Hemisphere: African, Asian, European, or Middle Eastern; or
- Western Hemisphere: Caribbean, North American, or South American

Outside Area of Concentration in History—6 Credit Hours

## Foreign Language Requirement

Students will be expected to demonstrate a reading competency in one foreign language. The foreign language examination must be completed one semester prior to the thesis defense.

## Examination Requirements

Each candidate for the Master of Arts in History must pass written examinations in two fields upon conclusion of regular course work and before beginning a thesis. These examinations must be taken and passed as part of the requirements for the capstone course. Each student will also submit a thesis prospectus and preliminary bibliography, which the three members of the student's thesis committee judge acceptable as the preliminary step to beginning the thesis. An oral defense of the written exams and the thesis prospectus and bibliography are also requirements of the capstone course.

## Thesis Defense

The final step in completing the thesis requirement is a one-hour oral defense before the thesis committee.

# Hospitality and Tourism Management

## Description

Rosen School of Hospitality Management Dean of the School: Dr. Abraham Pizam Graduate Program Coordinator: Dr. Randall S. Upchurch, 302 E, Classroom Building #1, (407) 823 2188. E-mail: [hospitality@mail.ucf.edu](mailto:hospitality@mail.ucf.edu) Web address: <http://www.hospitality.ucf.edu/>

The Rosen School of Hospitality Management aims to provide students with an outstanding graduate hospitality management educational experience, and serve other stakeholders with continuing education, research, and service. The School is committed to UCF goals by providing intellectual leadership through quality hospitality education, international prominence by means of educational and research programs, promotion of a global perspective, nurturing inclusiveness and diversity, and partnerships with local, national, and international hospitality and tourism constituencies.

The master's program in Hospitality and Tourism Management is designed to provide training that will produce graduates who possess the following skills:

- They will be capable of recognizing, directing, coping effectively with and managing uncertainty and diversity in a changing society.
- They will be masters of the spoken and written word and they will operate from a continually growing and dynamic knowledge base, which enables them to make effective decisions.
- They will be technically capable of assuming professional leadership positions in addressing concerns and issues faced by the convention and conference, food service and restaurant operations, vacation ownership resort, theme park and attraction, tourism, and lodging management sectors of the industry.
- They will have a unique focus on the hospitality industry.
- They will have a level of "professional preparation" that will enable them to assume top managerial positions in hospitality enterprises.
- They will be prepared to benefit from advanced study at the doctoral level.

## Degree Offered

Master of Science in Hospitality and Tourism Management (M.S.)

## Faculty

Professors: William Fisher, Ph.D.; Ady Milman, Ph.D.; Abraham Pizam, Ph.D., Dean Associate Professors: Deborah Breiter, Ph.D.; Stephen LeBruto, Ed.D.; Christopher Muller, Ph.D.; Dana Tesone, Ph.D.; Randall S. Upchurch, Ph.D.

# Master of Science in Hospitality and Tourism Management

## Admission Requirements

Admission to graduate study in the Rosen School of Hospitality Management is open to individuals with a baccalaureate in any discipline from a regionally accredited college or university. Decisions will not be based on race, gender or ethnicity.

Admission is restricted each semester to individuals showing high promise of success in postgraduate studies. Admission criteria include academic achievement as an undergraduate (minimum of 3.0 on a 4.0 scale for the last 60 hours attempted as an undergraduate student) or satisfactory performance (475) on the GMAT or GRE (1000). The Test of English as a Foreign Language (TOEFL) is required (minimum score of 220 on the computer-based test) when an applicant is from a country where English is not the official language or when an applicant's bachelor's degree is not from an accredited U.S. institution. Other indicators of promise include the applicant's extracurricular activities, work experience, job responsibilities, and leadership experience, which will be considered in making admissions decisions.



Admission to the master's program can be in the fall, spring, or summer term. An applicant will not be considered for admission until an official score on the GMAT or GRE and TOEFL (if required) has been received in addition to transcripts showing proof of the attainment of the bachelor's degree and transcripts from all colleges attended. A committee of the faculty, selected by the Dean, will make admissions decisions.

[Application Deadlines](#)

## Degree Requirements

The program of study requires a total of 39 credit hours for the non-thesis option and 36 credit hours for the thesis option. Of these, 27 credit hours (nine courses) are in the core program and 9-12 credit hours are restricted electives. The restricted electives in the thesis option consist of 6 credit hours of thesis research, and 3 credit hours of courses from a specified list of courses. The restricted electives in the non-thesis option consist of 12 credit hours (four courses) from a list of courses. All courses, required and restricted electives, will be offered by the Rosen School of Hospitality Management. A maximum of 3 credit hours of restricted elective may be taken as an independent study.

The course work within the Rosen School of Hospitality Management for the master's degree in Hospitality and Tourism Management consists of core courses; restricted electives; and thesis research for those students choosing the thesis option.

## Core Courses

- HFT 6245 Managing Hospitality and Guest Services Organizations (3 credit hours)
- HFT 6251 The Management of Lodging Operations (3 credit hours)
- HFT 6710 International Tourism Management (3 credit hours)
- FSS 6365 Management of Food Service Operations (3 credit hours)
- HFT 6XXX Financial Analysis of Hospitality Enterprises (3 credit hours)
- HFT 6XXX Strategic Marketing in Hospitality and Tourism (3 credit hours)
- HFT 6XXX Critical Issues in Hospitality Human Resources (3 credit hours)
- HFT 6XXX Research Methods in Hospitality and Tourism (3 credit hours)
- HFT 6XXX Hospitality and Tourism Strategic Issues (3 credit hours)

## Restricted Electives

The restricted elective courses are listed below. Students in the thesis option will choose one restrictive elective (three credit hours) in addition to HFT 6971 Thesis that will be 6 credit hours. Students choosing the non-thesis option will select four restricted electives (12 credit hours).

- HFT 6XXX Hospitality/Tourism Information Technology (3 credit hours)
- HFT 6XXX Hospitality/Tourism Industry Brand Management (3 credit hours)
- HFT 6XXX Hospitality/Tourism Law and Ethics Seminar (3 credit hours)
- HFT 6XXX Feasibility Studies for the Hospitality/Tourism Enterprises (3 credit hours)
- HFT 6XXX Case Studies in Lodging Management (3 credit hours)
- HFT 6XXX Convention Center Management (3 credit hours)
- HFT 6XXX Hospitality/Tourism Risk Management (3 credit hours)
- HFT 6XXX Case Studies in Restaurant Management (3 credit hours)
- HFT 6XXX Advanced Vacation Ownership Resort Planning (3 credit hours)
- HFT 6XXX Vacation Ownership Resort Sales Management (3 credit hours)
- HFT 6XXX Convention and Conference Sales and Services (3 credit hours)
- HFT 6XXX Travel and Tourism Economics (3 credit hours)
- HFT 6XXX Event Administration (3 credit hours)
- HFT 6971 Thesis (research for thesis option only; 6 credit hours)
- HFT 6908 Independent Study
- HFT 6938 Special Topics
- HFT 6XXX Organizational Communication in Hospitality/Tourism Enterprises (3 credit hours)

## Examinations

An appropriate culminating academic experience is required of all master's degree students. For those students on the thesis option, a thesis defense is required. Thesis defenses will be approved by a majority vote of the Thesis Advisory Committee. Further approval is required by the Dean of the Rosen School of Hospitality Management and the Office of Graduate Studies before final acceptance of the thesis in fulfilling degree requirements.

For students in the non-thesis option, an appropriate culminating academic experience is the successful completion of HFT 6XXX Strategic Management in Hospitality and Tourism, a required course in the curriculum that is designated as a capstone course. This capstone course acquaints students with the principles of strategic decision-making in various sectors of the tourism and hospitality industry. Students are required to apply skills, knowledge, and understanding in order to identify areas of concern encountered by managers responsible for formulating and implementing operational strategies. This course is restricted to students in their last semester.

# Industrial and Organizational Psychology

## Description

College of Arts and Sciences Department of Psychology Department Chair: Dr. John M. McGuire Web address: <http://pegasus.cc.ucf.edu/~psych/>

The University of Central Florida offers master's and doctoral degrees in Industrial and Organizational Psychology. The master's program in industrial and 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. The doctoral program in Industrial and Organizational Psychology provides students with training that is consistent with the scientist-practitioner model. A key assumption of the program is that every graduate must be a highly competent scientist who can contribute to both the science and practice of Industrial and Organizational Psychology.

## Degrees Offered

Master of Science in Industrial and Organizational Psychology (M.S.)

Doctor of Philosophy in Psychology, Industrial and Organizational Psychology Track

## Master of Science in Industrial and Organizational Psychology

Graduate Program Coordinator: Dr. William Wooten, PH 302H, (407) 823-3478. E-mail: [wwooten@pegasus.cc.ucf.edu](mailto:wwooten@pegasus.cc.ucf.edu)

Industrial and Organizational Psychology 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.

## Admission Requirements

The Graduate Record Examination (GRE) is required of all graduate students. Applicants must satisfy the university minimum admission criterion of a quantitative-verbal score of 1000 on the GRE or a GPA of 3.0 for the last 60 semester hours of attempted work for the baccalaureate degree. International students and students whose native language is not English must score at least 220 (computer-based test; or equivalent score on the paper-based test) on the Test of English as a Foreign Language (TOEFL).

To be considered for admission, applicants must provide:

- 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.

All requested material must be submitted by the application deadline. Applicants are encouraged to apply online. Acceptance decisions are made only in the spring semester for admission in the fall of each year.

[Application Deadlines](#)

# 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 credit hours) in the core content areas of psychology, for a minimum of 18 upper division hours in psychology.

## Degree Requirements

The M.S. degree program in Industrial and Organizational Psychology is a four-semester program for full-time students. Both thesis and non-thesis options are offered. Both options consist 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.

Requirements for M.S.—40 Credit Hours Minimum

### Academic Course Work—29 Credit Hours

- INP 6058 Job and Task Analysis (3 credit hours)
- INP 6215 Assessment Centers and Leadership (3 credit hours)
- INP 6317 Organizational Psychology and Motivation (3 credit hours)
- INP 6605 Training and Performance Appraisal (3 credit hours)
- INP 6094 Current Topics in Industrial/Organizational Psychology (3 credit hours)
- INP 6088 Applied Problems in Industrial/Organizational Psychology (3 credit hours)
- PSY 6216 Advanced Research Methodology I (4 credit hours)
- PSY 6308 Psychological Testing I (4 credit hours)
- PSY 6318 Applied Testing and Selection (3 credit hours)

### Practicum—3 Credit Hours

- INP 6946 Industrial Psychology Practicum I (3 credit hours)

### Thesis Option

- PSY 6971 Thesis (8 credit hours)

### Non-Thesis Option

6 hours of electives from approved list or other approved courses (see below)

### Approved Electives:

- EXP 5256 Human Factors I (3 credit hours)
- EXP 6255 Human Performance (3 credit hours)
- EXP 6506 Human Cognition and Learning (3 credit hours)
- MAN 6116 Managing a Diverse Workforce (3 credit hours)
- MAN 6245 Organizational Behavior and Development (3 credit hours)
- MAN 6285 Change Management (3 credit hours)
- MAN 6305 Human Resources Management (3 credit hours)
- MAN 6395 Management Development and Coaching (3 credit hours)
- SOP 5059 Advanced Social Psychology (3 credit hours)

### Research

- PSY 6908 Independent Research (2 credit hours)

Students are expected to materially participate in the conduct or research under the supervision of a faculty adviser and the preparation of a research report of sufficient quality to allow submission for publication or presentation at a national professional association conference. The research report will be evaluated jointly by the faculty adviser and the program director.

## Practicum

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

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

Practicum placements are initiated with a behavioral agreement between the graduate student and the organization. Behavioral agreements and performance objectives are jointly decided by the supervising faculty member, the organization representative, and the student. Full-time students are typically assigned practicum projects for the fall or spring terms of their second year.

# Doctor of Philosophy in Psychology, Industrial and Organizational Psychology Track

Graduate Program Coordinator: Dr. Eugene F. Stone-Romero, PH 309F, (407) 823-2544. E-mail: [estone@pegasus.cc.ucf.edu](mailto:estone@pegasus.cc.ucf.edu)

The Industrial and Organizational (I&O) doctoral program is restricted to individuals who have a baccalaureate or master's degree in Psychology or in a closely related field. Admission to the program is based upon an overall assessment of the applicant's potential for completing it and for making significant contributions to the science and/or practice of I&O Psychology.

The doctoral program in I&O Psychology provides students with training that is consistent with the scientist-practitioner model. As a result of this training the student will be prepared to pursue a rewarding career in either academia (university-based teaching and research) or industry (e.g., consulting). A key assumption of the program is that irrespective of an individual's career path (academic, applied, etc.), he or she must be a highly competent scientist who can contribute to both the science and practice of I&O Psychology.

I&O students receive training in the 21 areas of competence that are detailed in the Guidelines for Education and Training at the Doctoral Level in Industrial/Organizational Psychology, an official publication of the Society for Industrial and Organizational Psychology, Division 14 of the American Psychological Association. These areas include

- work motivation theory
- organization theory
- organizational development theory
- attitude theory
- career development theory
- decision making
- human performance/human factors
- assessment of individual differences
- small group theory
- performance appraisal and feedback
- criterion theory and development
- personnel selection, placement, and classification
- research methods
- statistical methods
- job and task analysis
- individual assessment
- training theory, program design and evaluation.

Primary training in these areas is accomplished through doctoral level study. Note, however, that training in selected areas may also take place through such activities as independent study, supervised field experiences, basic and applied research experiences, on-the-job-training, and

observational learning (modeling). It may also take place through either course work or other educational experiences associated with Master's level training in I&O Psychology or a closely related field.

Students in the program are required to complete a common set of courses in I&O Psychology and related areas (e.g., social, personality, and cognitive), but may develop a high level of expertise in a specific area through other courses, independent study, and research activities. In addition, students are expected to be actively involved in research with I&O area faculty throughout their period of study.

Some students who are admitted to the I&O doctoral program may have taken graduate-level courses at UCF or another university. The plan of study for such students may be modified to take such course work into account.

A dissertation is required of all students in the program. The research associated with the dissertation must be empirical in nature. Moreover, it must make an important contribution to the field of I&O Psychology. A student may earn a Master's degree in I&O Psychology in route to the Ph.D. However, in order to earn the M.S. degree the student must apply for admission to the M.S. program, be accepted to it, and meet its requirements. Interested students should seek advice from the Director of the M.S. Program regarding relevant policies, procedures, and degree requirements.

## Faculty Resources

The Department of Psychology has five I&O Psychologists and over 25 psychologists in other areas (e.g., Experimental, Human Factors, Clinical, Cognitive, and Social). In addition, there are several I&O psychologists in the Department of Management who can contribute to the education and training of I&O doctoral students. Moreover, there are other faculty members in the Department of Management who have expertise in such areas as human resource management, organizational theory, and business policy and strategy.

## Faculty in Industrial and Organizational Psychology Area

W. A. Burroughs, Ph.D., Professor

B. A. Fritzsche, Ph.D., Assistant Professor

Eduardo Salas, Ph.D., Professor

E. Stone-Romero, Ph.D., Professor and Ph.D. Program Coordinator

W. Wooten, Ph.D., Associate Professor and Associate Chair

## Admission Requirements

Students who seek admission to the I&O Program are expected to meet the following general requirements:

- An undergraduate degree in psychology or a closely-related field. Applicants must have taken a set of undergraduate or graduate-level courses in Psychology that are sufficiently broad to prepare them for doctoral-level study in I&O Psychology. The set must include courses in research methods and statistics.
- Admission to the Ph.D. program is competitive. Successful applicants are expected to have an outstanding academic record.
- The Graduate Record Examination must be completed by all applicants. In general, applicants should have a combined verbal and quantitative score of at least 1000. Exceptions to this general rule may be made for applicants who have an outstanding undergraduate grade point average.
- Students who have other than English as their native language must complete the Test of English As a Foreign Language (TOEFL) and achieve a sufficiently high score to demonstrate that they have the ability to complete all I&O Program requirements at a normal pace and without remediation. The minimum university requirement is at least 220 (computer-based test; or equivalent score on the paper-based test).

In order to be considered for admission, applicants must provide:

- A completed UCF Graduate Degree Program Application Form.
- Evidence of completion (or near completion) of an undergraduate degree in Psychology or a closely related field. The program of study must be such as to prepare the applicant for doctoral-level study in the I&O program.
- An official Graduate Record Examination score report showing scores on the Verbal and Quantitative portions of the examination. The examination must have been taken within five years of the date of the submission of the Application Form.

- Official transcripts showing grades for all undergraduate and graduate level courses taken by the applicant at all colleges and/or universities.
- A resume detailing the applicant's prior activities in the areas of education, work, and research.
- A written statement detailing (a) their reasons for pursuing a Ph.D. degree in I&O Psychology, (b) their career aspirations and how doctoral training in I&O Psychology will contribute to their career-related goals and aspirations, and (c) their reason for wanting to do doctoral studies at the University of Central Florida.
- Three letters of recommendation must be submitted. At least two of these must be from college or university professors who are familiar with the applicant. One may be from a non-academic professional who knows the applicant and has a valid basis for commenting on his or her capacity to complete a doctoral program in I&O Psychology.

All of the above materials must be submitted by the published application deadline for the term in which the applicant seeks admission to the program. Admissions decisions are generally made by the second week in March and applicants are notified of their status shortly thereafter. Note that admission to the program is restricted to the Fall semester of each academic year.

### [Application Deadlines](#)

## Degree Requirements

The doctoral program in I&O Psychology requires approximately four years of full-time study beyond the baccalaureate and 2-3 years beyond the master's. The first few years are devoted to course work and the final year to the doctoral dissertation.

After completing all required course work students are required to pass a Candidacy Examination. This examination may be taken a maximum of two times. Failure to pass the examination on both occasions will result in the student being dropped from the program.

Having passed the Candidacy Examination, the student may begin dissertation-related research. After the completion of this research the student must then pass an oral examination, i.e., a dissertation defense.

## Program-related Courses

The I&O Program requires a minimum of 73 credit hours of graduate study for students who enter the program with a baccalaureate degree. The nature of this study is determined by the I&O Area Program Committee. For the typical student, the 73 hours of study will be distributed as follows.

### Required I&O Area Courses—41 Credit Hours

- INP 7075 Current Theory and Research in Industrial and Organizational Psychology (2 hours per semester for a total of 12 credit hours)
- INP 7071 Research Methods in Industrial and Organizational Psychology (3 credit hours)
- INP 7214 Industrial Psychology I (3 credit hours)
- INP 7251 Industrial Psychology II (3 credit hours)
- INP 7310 Organizational Psychology I (3 credit hours)
- INP 7311 Organizational Psychology II (3 credit hours)
- INP 7XXX Psychometric Theory and Practice (3 credit hours)
- PSY 6216 Advanced Research Methodology I (4 credit hours)
- PSY 6217 Advanced Research Methodology II (4 credit hours)
- PSY 6219C Advanced Research Methods III (4 credit hours)

### Required Psychology Field Courses—3 Credit Hours

- SOP 5059 Advanced Social Psychology (3 credit hours)

### Elective Psychology Field Courses—6 Credit Hours

Two courses from the following set. The courses in this set are selected by the student in conjunction with his or her advisor. Note, however, that all courses in the set must be approved by the I&O Program Committee. The courses may include:

- EXP 5208 Sensation and Perception (3 credit hours)
- EXP 5445 Psychology of Learning and Motivation (3 credit hours)
- EXP 6255 Human Performance (3 credit hours)

- EXP 6506 Human Cognition and Learning (3 credit hours)
- PPE 5055 Personality Theories (3 credit hours)
- PSB 5005 Physiological Psychology (3 credit hours)
- PSY 5605 History and Systems of Psychology (3 credit hours)

#### Other Elective Courses—7 Credit Hours

Two courses from the following set. The courses in this set are selected by the student in conjunction with his or her adviser. Note, however, that all courses in the set must be approved by the I&O Program Committee. The courses may include:

- EXP 5256 Human Factors I (3 credit hours)
- EXP 6257 Human Factors II (3 credit hours)
- INP 6058 Job and Task Analysis (3 credit hours)
- INP 6215 Assessment Centers and Leadership (3 credit hours)
- INP 6605 Training and Performance Appraisal (3 credit hours)
- MAN 6285 Change Management (3 credit hours)
- MAN 6305 Human Resources Management (3 credit hours)
- MAN 6311 Advanced Topics in Human Resources Management (3 credit hours)
- MAN 6395 Management Development and Coaching (3 credit hours)
- PSY 6318 Applied Testing and Selection (3 credit hours)
- PSY 6908 Directed Independent Studies (3-6 credit hours)

#### Dissertation—15 Credit Hours

- PSY 7980 Doctoral Dissertation (15 credit hours)



# Industrial Chemistry

## Description

College of Arts and Sciences Department of Chemistry Chair of the Department: Dr. Glenn N. Cunningham Web address: <http://www.cas.ucf.edu/chemistry/>

Industrial Chemistry Graduate Program Coordinator: Dr. Kevin D. Belfield, CH 222, (407) 823-1028. E-mail: [kbelfiel@mail.ucf.edu](mailto:kbelfiel@mail.ucf.edu) Web address: <http://www.cas.ucf.edu/chemistry/> Forensic Science Graduate Track Coordinator: Dr. Jack Ballantyne, CH 223, (407) 823-0163. E-mail: [jballant@pegasus.cc.ucf.edu](mailto:jballant@pegasus.cc.ucf.edu) Web address: <http://reach.ucf.edu/~forensic>

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.

A track in Forensic Science is provided to practicing professionals and full-time students who desire an advanced program of study in the forensic analysis of biological materials. The Forensic Science Track has a strong biochemistry-DNA focus to serve the needs of supervisory personnel in DNA sections of crime laboratories. The DNA Advisory Board has mandated that such personnel have advanced degrees. The university also offers a graduate certificate in Computer Forensics.

## Degrees Offered

Master of Science in Industrial Chemistry (M.S.)

- Forensic Science Track

## Faculty

Professors: C. A. Clausen, Ph.D.; G. N. Cunningham, Ph.D.; B. G. Fookes, Ph.D.; F. E. Juge, Ph.D., Associate Vice President; B. C. Madsen, Ph.D.; W. W. McGee, Ph.D.; D. H. Miles, Ph.D.; W. J. Tilstone, Ph.D.; R. Y. Ting, Ph.D.

Associate Professors: J. Ballantyne, Ph.D.; K. D. Belfield, Ph.D.; K. A. Cerqua-Richardson, Ph.D.; S. R. Elsheimer, Ph.D.; M. D. Hampton, Ph.D.; O. Phanstiel, IV, Ph.D.

Assistant Professors: C. L. Geiger, Ph.D.; O. Phanstiel IV, Ph.D.; A.F. Slaterbeck

## 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 Requirements

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 and 220 (computer-based test; or equivalent score on the paper-based test) on the Test of English as a Foreign Language (TOEFL), for those who are international or whose native language is not English. The departmental evaluation requires two letters of recommendation for both Industrial Chemistry and Forensic Science applicants. In addition, Forensic Science applicants must provide a resume with employment history. 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.

[Application Deadlines](#)

# 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

Requirements for M.S.—30 Credit Hours

Required Core Courses—12 Credit Hours

- CHM 6440 Kinetics and Catalysis (2 credit hours)
- CHM 6710 Applied Analytical Chemistry (2 credit hours)
- CHM 6938 Graduate Chemistry Seminar (2 credit hours)
- CHS 6240 Chemical Thermodynamics (2 credit hours)
- CHS 6251 Applied Organic Synthesis (2 credit hours)
- CHS 6260 Chemical Unit Operations and Separations (2 credit hours)

Electives for Industrial Chemistry—12 Credit Hours

At least 9 of the total 12 credit hours must be taken from the following list. (All elective courses must be approved by the student's advisory committee.)

- CHM 5225 Advanced Organic Chemistry (3 credit hours)
- CHM 5235 Applied Molecular Spectroscopy (3 credit hours)
- CHM 5305 Applied Biological Chemistry (3 credit hours)
- CHM 5450 Polymer Chemistry (3 credit hours)
- CHM 5451C Techniques in Polymer Chemistry Science (3 credit hours)
- CHM 5580 Advanced Physical Chemistry (3 credit hours)
- CHM 6711 Chemistry of Materials (3 credit hours)
- CHS 6261 Chemical Process and Product Development (2 credit hours)
- CHM/CHS Special topics courses

Thesis (CHM 6971)—6 Credit Hours

## Examination Requirements

Satisfactory completion of a final examination (oral defense of thesis) is required.

## Forensic Science Track

A track in Forensic Science is provided to practicing professionals and full-time students who desire an advanced program of study in the forensic analysis of biological materials. The Forensic Science Track has a strong biochemistry-DNA focus to serve the needs of supervisory personnel in DNA sections of crime laboratories. The DNA Advisory Board has mandated that such personnel have advanced degrees.

The forensic science core courses are unique and were designed by practicing professionals for presentation as distributed learning courses using the World Wide Web. For more information, visit the Forensic Science Track website at: <http://www.cas.ucf.edu/chemistry>.

## Degree Requirements for Forensic Science Track

Requirements for M.S.—30 Credit Hours

Required Core Courses—12 Credit Hours

These courses are web-based.

- CHS 6513 Quality Assurance and Bioinformation (3 credit hours)
- CHS 6535 Forensic Analysis of Biological Materials (2 credit hours)
- CHS 6535L Forensic Analysis of Biological Materials Lab (3 credit hours)
- CHS 6536 Forensic Analysis of DNA Data (2 credit hours)
- CHM 6938 Graduate Chemistry Seminar (2 credit hours)

#### Required Foundation Core Courses—12 Credit Hours Minimum

These courses are offered at UCF. Category 1 courses can be web-based. Working professionals taking the program part-time may, after checking with a program adviser, take courses from categories 2 through 4 at a nearby university. For all categories, students must satisfy prerequisite course requirements before taking foundation core courses. Consultation with an assigned faculty adviser should occur before registering for foundation core courses.

The minimum credit hours of foundation courses needed to satisfy the degree requirement is 12 credit hours. 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.

Category 1—Crime - Criminal Justice Courses (3 credit hours)

Category 2—Forensic Data Analysis - Statistics/Experimental Design (3 credit hours)

Category 3—Biological Chemistry - Biochemistry/Laboratory/Biochemistry I (3 credit hours)

Category 4—Chemistry - Molecular Spectroscopy/Applied Biological Chemistry/Polymer Chemistry/Biochemistry II (3 credit hours)

Thesis (CHS 6971)—6 Credit Hours

A research project will be selected in conjunction with the student's advisory committee.

# Industrial Engineering and Management Systems

## Description

College of Engineering and Computer Science Department of Industrial Engineering and Management Systems Chair of the Department: Dr. Lesia Crumpton-Young Graduate Program Coordinator: Dr. Linda C. Malone, EN2 312K, (407) 823-2204. E-mail: [lmalone@mail.ucf.edu](mailto:lmalone@mail.ucf.edu)  
Web address: [www.iems.ucf.edu](http://www.iems.ucf.edu)

The Department of Industrial Engineering and Management Systems offers a Master of Science in Engineering degree in Industrial Engineering (M.S.I.E.); a Master of Science (M.S.) degree with tracks in Engineering Management, Human Engineering/Ergonomics, Operations Research, Manufacturing Engineering, Quality Engineering, Interactive Simulation and Training Systems, and Simulation Modeling and Analysis; and a Doctor of Philosophy (Ph.D.) degree in Industrial Engineering.

## Degrees Offered

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

- Engineering Management Track
- Human Engineering/Ergonomics Track
- Operations Research Track
- Manufacturing Engineering Track
- Quality Engineering Track
- Interactive Simulation and Training Systems Track
- Simulation Modeling and Analysis Track

### Doctor of Philosophy in Industrial Engineering (Ph.D.)

## Faculty

Professors: John E. Biegel, Ph.D., P.E., Professor Emeritus; Lesia Crumpton-Young, Ph.D.; Yasser A. Hosni, Ph.D., P.E.; Linda C. Malone, Ph.D.; Charles H. Reilly, Ph.D.; George F. Schrader, Ph.D., P.E., Professor Emeritus; Gary E. Whitehouse, Ph.D., P.E., Provost and Academic Vice President

Associate Professors: Robert L. Armacost, D.Sc.; Ahmad K. Elshennawy, Ph.D., C.Q.E., C.R.E.; Robert L. Hoekstra, Ph.D.; Timothy G. Kotnour, Ph.D.; Dennis Kulonda, Ph.D.; Gene C.H. Lee, Ph.D., P.E.; Pamela R. McCauley-Bell, Ph.D.; Mansooreh Mollaghasemi, Ph.D.; Michael A. Mullens, Ph.D.; Julia J.A. Pet-Edwards, Ph.D.; Michael D. Proctor, Ph.D.; Luis Rabelo, Ph.D.; James M. Ragusa, D.B.A.; José A. Sepúlveda, Ph.D., P.E.; Kay M. Stanney, Ph.D.; Kent E. Williams, Ph.D.

Assistant Professors: William J. Thompson, Ph.D.

Instructor: Edward Hampton, M.S.

## Master's Program Admission Requirements

Students must satisfy the following criteria: Minimum score of 220 (computer-based test; or equivalent score on the paper-based test) on the Test of English as a Foreign Language (TOEFL) (only applicants whose native language is not English, except for those completing a Bachelor's degree where the course of study was presented in English); and a minimum GPA of 3.0 in the last 60 attempted semester hours of undergraduate studies or a minimum GRE score of 1000 combined verbal-quantitative portion along with a minimum GPA of 2.8 in the last 60 attempted semester hours of undergraduate studies. All students must complete the GRE regardless of GPA. Students who have previous GMAT scores may use them in place of the GRE. The minimum acceptable GMAT score is 550. Students who have submitted all admission materials but do not have a 3.0 GPA or 1000 GRE or 220 TOEFL (if applicable) may be admitted on a provisional basis and be required to demonstrate acceptable performance (minimum GPA of 3.25) in a 9-hour trial program of graduate courses. Students interested in scholarship

support MUST have submitted a complete application by the PRIORITY deadline.

[Application Deadlines](#)

## Master's Degree Requirements

The Master of Science in Industrial Engineering (M.S.I.E.) degree requires either an undergraduate degree in Industrial Engineering or another engineering discipline. It is offered as a 36-credit-hour program without a thesis; however, BSIE graduates may elect a 30-credit-hour program that includes a thesis. The Master of Science (M.S.) tracks require an undergraduate degree in engineering (or a closely related discipline) and are available with thesis (30 credit hours) or without thesis (36 credit hours).

A program of study must be developed with the graduate coordinator and meet with departmental approval. Required courses vary from 15 to 24 credit hours depending on the program and are supplemented by electives that may include courses offered by other departments. A student with an undergraduate degree outside of the selected departmental discipline may be required to satisfy an articulation program.

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.

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.

Most students working full time take six credit hours per semester, and students on assistantships are required to take nine credit hours per semester to satisfy the university's requirement for full-time status. At that rate, the program can be completed in six semesters or less. However, students with more time available and an early start on a thesis can finish the program in one year (three semesters).

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

Industrial Engineering focuses on a total systems approach to optimize operations in manufacturing and service industries. Industrial engineers use many different analytical approaches to improve productivity and quality of working life while reducing operating costs. UCF awards the Master of Science in Industrial Engineering degree. This degree requires a Bachelor of Science in Engineering as a prerequisite. The MSIE curriculum builds on the undergraduate engineering degree to develop a stronger systems focus and analytical capability.

### For students with a B.S.I.E.

The following two options are available for students with a B.S.I.E.

#### Option 1 - Generalist

- EIN 5117 Management Information Systems I (3 credit hours)
- EIN 5140 Project Engineering (3 credit hours)
- EIN 6357 Advanced Engineering Economic Analysis OR ESI 6358 Decision Analysis (3 credit hours)
- ESI 5219 Engineering Statistics (3 credit hours)
- ESI 5236 Reliability Engineering (3 credit hours)
- ESI 6247 Experimental Design and Taguchi Methods (3 credit hours)
- Three 6000-level electives and three other electives OR one 6000-level elective, thesis, and one additional elective

#### Option 2 – Any M.S. track

### For students with any other engineering B.S. degree

The following courses are required for students with any other engineering B.S. degree.

Prerequisites

- Any higher level computer language
- EIN 3314C Work Measurement and Design (3 credit hours)
- EIN 4333C Industrial Control Systems (3 credit hours)
- EIN 4391C Manufacturing Engineering (3 credit hours)

#### Program of Study

- EIN 4364C Industrial Facilities Planning and Design (3 credit hours)
- EIN 5117 Management Information Systems I (3 credit hours)
- EIN 5140 Project Engineering (3 credit hours)
- EIN 5248C Ergonomics (3 credit hours)
- EIN 6357 Advanced Engineering Economic Analysis (3 credit hours)
- ESI 5219 Engineering Statistics (3 credit hours)
- ESI 5316 Operations Research (3 credit hours)
- ESI 5531 Discrete Systems Simulation (3 credit hours)
- ESI 6225 Quality Design and Control (3 credit hours)
- ESI 6247 Experimental Design and Taguchi Methods (3 credit hours)
- Two 6000-level electives

## Master of Science

The Master of Science (M.S.) degree offers tracks in Engineering Management, Human Engineering/Ergonomics, Operations Research, Manufacturing Engineering, Quality Engineering, Interactive Simulation and Training Systems, and Simulation Modeling and Analysis.

### Engineering Management Track

Engineering Management focuses on effective decision-making in engineering and technological organizations. Addressing the needs of engineers and scientists moving into management positions, Engineering Management complements their technical backgrounds with the human aspects, organizational and financial issues, project considerations, resource allocation, and extended analytical tools required for effective decision making and program management. This program is designed for technically qualified individuals who plan to assume a management role in project or program-oriented environments in industry or government. It provides the analytical, organizational, and managerial skills to bridge the gap between a technical specialty and technical management.

#### Prerequisites

- Mathematics through Calculus III (MAC 2313)
- High-level computer language and microcomputer familiarity

#### Required Courses—24 Credit Hours

- EIN 5108 The Environment of Technical Organizations (3 credit hours)
- EIN 5117 Management Information Systems I (3 credit hours)
- EIN 5140 Project Engineering (3 credit hours)
- EIN 6322 Engineering Management (3 credit hours)
- EIN 6339 Operations Engineering (3 credit hours)
- EIN 6357 Advanced Engineering Economic Analysis (3 credit hours)
- ESI 5219 Engineering Statistics (3 credit hours)
- ESI 5316 Operations Research (3 credit hours)

#### Thesis Option—6 Credit Hours

- EIN 6971 Thesis (6 credit hours)

## Non-Thesis Option—12 Credit Hours

- Electives (12 credit hours), including two 6000-level courses

Minimum Hours Required for M.S.—30-36 Credit Hours

## Human Engineering/Ergonomics Track

As technology has become more sophisticated, the need for designing for the human user has become more difficult and even more important. Human Engineering and Ergonomics assists in ensuring that as technology advances, the abilities, limitations, and needs of humans are considered in the system design. This not only supports the needs of the user, it also optimizes the efficiency and usability of the system designed. Traditionally, ergonomics has been associated with biomechanical issues and work measurement and performance issues in physical system design, as well as occupational and industrial safety. The broader focus of human engineering encompasses those issues as well as incorporating the reaction and effectiveness of human interaction with systems, both physical systems and virtual systems such as computer based models. This option is designed for students who have an undergraduate degree in engineering or a closely related discipline. The program is designed to provide the student with the necessary knowledge in Human Engineering and Ergonomics to effectively design tasks, industrial systems and work environments, which maximize human performance, safety, and overall productivity.

### Prerequisites

- Mathematics through Calculus III (MAC 2313)
- Work Measurement and Design (EIN 3314C)
- Human Engineering (EIN 4243C or equivalent)\*

\* Undergraduate course may be included in program of study as an elective.

## Required Courses—21 Credit Hours

- EIN 5248C Ergonomics (3 credit hours)
- EIN 6215 System Safety Engineering and Management (3 credit hours)
- EIN 6249C Biomechanics (3 credit hours)
- EIN 6258 Human Computer Interaction (3 credit hours)
- EIN 6270C Work Physiology (3 credit hours)
- ESI 5219 Engineering Statistics (3 credit hours)
- ESI 6247 Experimental Design and Taguchi Methods (3 credit hours)

## Human Performance/Perception Restricted Elective—3 Credit Hours

Select one of the following courses.

- EXP 5208 Sensation and Perception (3 credit hours)
- EXP 5256 Human Factors I (3 credit hours)
- EXP 6255 Human Performance (3 credit hours)
- EXP 6506 Human Cognition and Learning (3 credit hours)

## Thesis Option—6 Credit Hours

- EIN 6971 Thesis (6 credit hours)

## Non-Thesis Option—12 Credit Hours

- Electives (12 credit hours)

## Interactive Simulation and Training Systems Track

The Interactive Simulation and Training Systems track focuses on providing a fundamental understanding of significant topics relative to systems, requirements, design, development and use of such systems for knowledge transfer in the technical environment. Additionally, the Interactive Simulation and Training Systems track addresses the evolving and multiple discipline application of interactive simulation by providing a wealth of electives to support development of individual student interests and talents. In conjunction with industrial organizations involved in simulation in the Central Florida region, military organizations, UCF's Institute for Simulation and Training and other governmental organizations, the program provides exposure to both military and commercial interactive simulation and training systems.

The track emphasis is on the application and development of interactive simulation and training systems to meet various requirements to include but are 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)

### Required Courses—18 Credit Hours

- EIN 5255 Interactive Simulation (3 credit hours)
- EIN 5317 Training System Design (3 credit hours)
- EIN 6645 Modeling and Simulation of Real-Time Processes (3 credit hours)
- EIN 6647 Intelligent Simulation (3 credit hours)
- EIN 6649C Intelligent Tutoring Training System Design (3 credit hours)
- ESI 5219 Engineering Statistics (3 credit hours)

### Restricted Elective—3 Credit Hours

Select one of the following courses.

- EIN 6524 Simulation Modeling Paradigms (3 credit hours)
- ESI 5531 Discrete Systems Simulation (3 credit hours)
- ESI 6532 Object-Oriented Simulation (3 credit hours)
- ESI 6546 Process Simulation (3 credit hours)

### Thesis Option—9 Credit Hours

- EIN 6971 Thesis (6 credit hours)
- Elective (3 credit hours)

### Non-Thesis Option—15 Credit Hours

- Electives (15 credit hours; at least 6 hours at 6000 level)

## Manufacturing Engineering Track



The design and operation of manufacturing systems requires a broad knowledge of manufacturing processes and systems, an understanding of the information base required for effective system operation, and the integration of information with those processes and systems to improve productivity. The Manufacturing Engineering 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 Engineering curriculum builds on an undergraduate degree in engineering, mathematics, computer science, or an allied field to develop a strong understanding of manufacturing engineering, manufacturing systems, and the tools required to design, improve, and manage those systems.

The Manufacturing Engineering track has four areas of specialization: manufacturing management, manufacturing processes and systems, computer-integrated manufacturing, and high performance internal combustion engine optimization. Required courses and elective sequences vary for each specialization. Up to nine hours of transfer credit may be used in the program of study.

## Prerequisites

- BS in engineering, computer science, mathematics, or allied field
- Mathematics through Differential Equations (MAP 2302)
- Manufacturing Engineering\*
- Engineering Economic Analysis\*\*

\* May be satisfied by graduate electives or by an undergraduate course taken as a graduate elective.

\*\* May be satisfied by graduate electives.

## Degree Requirements

All students seeking an MS degree with specialization area in manufacturing engineering must complete advanced course work in each of the following areas:

- Manufacturing processes: understanding behavior and properties of materials processing
- Process and product engineering: understanding design of products and processes and their associated variables or equipment and tooling necessary for products manufacture
- Understanding the management of manufacturing enterprises through topics such as project management, cost, quality, human resources, safety, environmental issues, and product life cycle
- Manufacturing integration methods and systems design: understanding the design, development, and operation of manufacturing systems through techniques including simulation, modeling, control, and information systems

To satisfy the above knowledge and to receive the degree of Master of Science with emphasis on Manufacturing Engineering, there are two options:

- Option I—Students must complete 36 credit hours beyond the bachelor's degree.
- Option II—Students must complete 30 credit hours and a research paper (3 credit hours). See “Research Paper Requirements” below under each specialization.

## Manufacturing Management Focus

Students selecting to pursue the M.S. in Manufacturing Engineering with a focus on Manufacturing Management must take the following course work.

## Required Courses

- EIN 5108 The Environment of Technical Organizations (3 credit hours)
- EIN 5140 Project Engineering (3 credit hours)
- EIN 5368C Integrated Factory Automation Systems (3 credit hours)
- EIN 6357 Advanced Engineering Economic Analysis (3 credit hours)
- EIN 6339 Operations Engineering (3 credit hours)
- ESI 5219 Engineering Statistics\* (3 credit hours)
- ESI 6224 Quality Management (3 credit hours)

- ESI 6247 Experimental Design and Taguchi Methods (3 credit hours)

\* May be substituted with an elective at the discretion of adviser or graduate program coordinator

The remainder of the course work will consist of the following provided that one choice is at the 6000 level.

- Any other courses (A, B, C, D) below
- Any courses from an approved course list
- Courses approved by the adviser or the graduate program coordinator

## Research Paper Requirements—Applies only to Option II above.

For the Research Paper option, the student will prepare and submit a scholarly report in the form of a journal paper. The paper must follow the format requirements of a manufacturing journal (as chosen by the student). The topic and content of the paper will be developed as part of the student's degree requirements. The student will register for EIN 6918 (3 credit hours) to meet this requirement. The student's adviser and an "outside reviewer" will review the paper. This outside reviewer can be an industry or academic person familiar with the research topic.

## Manufacturing Processes and Systems Focus

Students selecting to pursue the M.S. in Manufacturing Engineering with a focus in Manufacturing Processes and Systems must take the following course work.

### Required Courses

- EIN 5140 Project Engineering (3 credit hours)
- EIN 5368C Integrated Factory Automation Systems (3 credit hours)
- ESI 5219 Engineering Statistics (3 credit hours)\*
- ESI 6225 Quality Design and Control (3 credit hours)

\* May be substituted with an elective at the discretion of adviser or graduate program coordinator

At least one course from each of the following groups must be completed. At least 4 of the total number of electives must be at the 6000 level.

- A. Manufacturing Processes and Technologies
  - EIN 4391C Manufacturing Engineering (3 credit hours)
  - EIN 5415C Tool Engineering and Manufacturing Analysis (3 credit hours)
  - EIN 6418C Electronics Manufacturing (3 credit hours)
  - EIN 6398 Advanced and Nontraditional Manufacturing Processes (3 credit hours)
  - EGN 5858C Introduction to Rapid Prototyping (3 credit hours)
- B. Process and Product Engineering
  - EIN 4411C Computer-Aided Manufacturing (3 credit hours)
  - ESI 5236 Reliability Engineering (3 credit hours)
  - EIN 6930 Manufacturing Engineering Seminar (3 credit hours)
  - EIN 6399 Concurrent Engineering (3 credit hours)
  - ESI 5227 Total Quality Improvement (3 credit hours)
  - EIN 5392C Manufacturing Systems Engineering (3 credit hours)
- C. Manufacturing Productivity and Quality
  - EIN 6357 Advanced Engineering Economic Analysis (3 credit hours)
  - EGN 5855C Metrology (3 credit hours)
  - ESI 5316 Operations Research (3 credit hours)
  - ESI 6224 Quality Management (3 credit hours)
  - ESI 6247 Experimental Design and Taguchi Methods (3 credit hours)
- D. Manufacturing Integration Methods for Systems Design
  - EIN 6336 Production and Inventory Control (3 credit hours)
  - EIN 6425 Scheduling and Sequencing (3 credit hours)
  - ESI 5531 Discrete Systems Simulation (3 credit hours)
  - EIN 5607C Computer Control of Manufacturing Systems (3 credit hours)

- EIN 6215 System Safety Engineering and Management (3 credit hours)
- EIN 6330 Quality Control in Automation (3 credit hours)

## Research Paper Requirements—Applies only to Option II above

For the Research Paper option, the student will prepare and submit a scholarly report in the form of a journal paper. The paper must follow the format requirements of a manufacturing journal (as chosen by the student). The topic and content of the paper will be developed as part of the student's degree requirements. The student will register for EIN 6918 (3 credit hours) to meet this requirement. The student's adviser and an "outside reviewer" will review the paper. This outside reviewer can be an industry or academic person familiar with the research topic.

## Computer-Integrated Manufacturing Focus

Students selecting to pursue the M.S. in Manufacturing Engineering with a focus on Computer-Integrated Manufacturing must take the following course work.

### Required Courses

- EGN 5858C Introduction to Rapid Prototyping (3 credit hours)
- EIN 5140 Project Engineering (3 credit hours)
- EIN 5368C Integrated Factory Automation Systems (3 credit hours)
- EIN 5607C Computer Control of Manufacturing Systems (3 credit hours)
- EIN 6357 Advanced Engineering Economic Analysis (3 credit hours)
- ESI 5219 Engineering Statistics (3 credit hours)\*
- ESI 5531 Discrete Systems Simulation (3 credit hours)
- ESI 6225 Quality Design and Control (3 credit hours)

\* May be substituted with an elective at the discretion of adviser or graduate program coordinator

Four additional electives of course work, at least 3 of which are at the 6000 level, will consist of:

- Any other courses from A, B, C, or D above
- Any courses from an approved course list
- Courses approved by the adviser or the graduate program coordinator

## Research Paper Requirements—Applies only to Option II above

For the Research Paper option, the student will prepare and submit a scholarly report in the form of a journal paper. The paper must follow the format requirements of a manufacturing journal (as chosen by the student). The topic and content of the paper will be developed as part of the student's degree requirements. The student will register for EIN 6918 (3 credit hours) to meet this requirement. The student's adviser and an "outside reviewer" will review the paper. This outside reviewer can be an industry or academic person familiar with the research topic.

## High Performance Internal Combustion Engine Optimization Focus

Students selecting to pursue the M.S. in Manufacturing Engineering with a focus on High Performance Internal Combustion Engine Optimization must take the following course work.

### Required Courses

- EGN 5720 Internal Combustion Engine Analysis and Optimization (3 credit hours)
- EGN 6721C Experimental Methods for High Performance Engine Manufacturing (3 credit hours)
- EIN 5607C Computer Control of Manufacturing Systems (3 credit hours)
- EIN 6417 Precision Engineering (3 credit hours)

- EIN 6918 Directed Research Project (3 credit hours)
- EIN 6946 Internship/Practicum (3 credit hours)
- ESI 5219 Engineering Statistics (3 credit hours)\*
- ESI 6247 Experimental Design and Taguchi Methods (3 credit hours)

\* May be substituted with an elective at the discretion of adviser or graduate program coordinator.

Three additional electives of course work will consist of:

- Any other courses from A, B, C, or D above
- Any courses from an approved course list
- Courses approved by the adviser or the graduate program coordinator

## Operations Research Track

Operations Research uses mathematics and computer-based systems to model operational processes and decisions in order to develop and evaluate alternatives that will lead to gains in efficiency and effectiveness. Drawing on probability, statistics, simulation, optimization, and stochastic processes, Operations Research provides many of the analytic tools used by industrial engineers as well as by other analysts to improve processes, decision-making, and management by individuals and organizations. This track is designed for students who have an undergraduate degree in engineering, mathematics, or science. The Operations Research curriculum builds on an undergraduate engineering, mathematics, or science degree to develop a strong modeling and analytical capability to improve processes and decision-making.

### Prerequisites

- Mathematics through Differential Equations (MAP 2302)
- Operations Research (ESI 4312)
- Higher level computer programming and microcomputer familiarity

### Required Courses—21 Credit Hours

- ESI 5219 Engineering Statistics (3 credit hours)
- ESI 5531 Discrete Systems Simulation (3 credit hours)
- ESI 6427 Linear Programming and Extensions (3 credit hours)
- ESI 6437 Nonlinear Programming and Dynamic Programming (3 credit hours) or ESI 6448 Network Analysis and Integer Programming (3 credit hours)
- ESI 6358 Decision Analysis (3 credit hours)
- ESI 6247 Experimental Design and Taguchi Methods (3 credit hours) or STA 6236 Regression Analysis (3 credit hours)
- STA 5825 Stochastic Processes and Applied Probability Theory (3 credit hours) or ESI 6336 Queuing Systems (3 credit hours)

### Thesis Option—9 Credit Hours

- EIN 6971 Thesis (6 credit hours)
- Electives (3 credit hours)

### Non-Thesis Option—15 Credit Hours

- Electives (15 hours; at least 3 credit hours at the 6000 level)

Minimum Hours Required for M.S.—30-36 Credit Hours

## Quality Engineering Track

Quality Engineering focuses on improving product and process quality in manufacturing and service industries. Quality 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. The Quality Engineering curriculum builds on an undergraduate degree in engineering, science, mathematics, or a closely related discipline to provide the necessary knowledge to plan, control, and improve the product assurance function in government, military, service, or manufacturing organizations. Up to nine hours of transfer credit may be used in the program of study.

## Prerequisites

- BS in engineering, science, mathematics, or allied field
- Mathematics through Differential Equations (MAP 2302)

## Required Courses—18 Credit Hours

- EIN 6330 Quality Control in Automation (3 credit hours)
- ESI 5219 Engineering Statistics (3 credit hours)
- ESI 5236 Reliability Engineering (3 credit hours)
- ESI 6224 Quality Management (3 credit hours)
- ESI 6225 Quality Design and Control (3 credit hours)
- ESI 6247 Experimental Design and Taguchi Methods (3 credit hours)

## Thesis Option—12 Credit Hours

- EIN 6971 Thesis (6 credit hours)
- Two electives (6 credit hours) approved by the adviser

## Non-Thesis Option—18 Credit Hours (at least 3 credit hours at the 6000 level)

- Three restricted electives (9 credit hours) selected from the list below
- Three additional electives (9 credit hours)

## Restricted Electives

- EGN 5855C Metrology (3 credit hours)
- EIN 5117 Manufacturing Information Systems I (3 credit hours)
- EIN 5140 Project Engineering (3 credit hours)
- EIN 5368C Integrated Factory Automation Systems (3 credit hours)
- EIN 5392C Manufacturing Systems Engineering (3 credit hours)
- EIN 6930 Manufacturing Engineering Seminar (3 credit hours)
- ESI 5227 Total Quality Improvement (3 credit hours)

Minimum Hours Required for M.S.—30-36 Credit Hours

## Simulation Modeling and Analysis Track

Simulation Modeling and Analysis focuses on providing a fundamental understanding of the functional and technical design requirements for simulation in manufacturing and service industries. The track is based on a systems modeling paradigm and provides coding and development capability in the context of a broader systems framework. Significant exposure to design and analysis aspects is a core element of the track. The Simulation Modeling and Analysis curriculum prepares individuals with an undergraduate degree in engineering, science, mathematics, or a closely related discipline for careers in simulation, focusing particularly on using simulation as an analysis and design tool for the manufacturing and service industries.

## Prerequisites

- Computer programming capability in FORTRAN, C, or C++

- Mathematics through Differential Equations (MAP 2302)
- Operations Research (ESI 4312)\*

\* This requirement may be met by taking ESI 5316 as part of the program of study.

## Required Courses—18 Credit Hours

Simulation Language Foundation—6 credit hours

- ESI 5531 Discrete Systems Simulation (3 credit hours)
- ESI 6532 Object-Oriented Simulation (3 credit hours)

Simulation Modeling Foundation—3 credit hours

- EIN 6524 Simulation Modeling Paradigms (3 credit hours)

Evaluation Foundation—9 credit hours

- ESI 5219 Engineering Statistics (3 credit hours)
- ESI 6217 Statistical Aspects of Digital Simulation (3 credit hours)
- ESI 6247 Experimental Design and Taguchi Methods (3 credit hours)

## Thesis Option—12 Credit Hours

- EIN 6971 Thesis (6 credit hours)
- Electives (6 credit hours)

## Non-Thesis Option—18 Credit Hours

- Electives (18 credit hours) including three hours at the 6000-level

Minimum Hours Required for M.S.—30-36 Credit Hours

# Doctor of Philosophy in Industrial Engineering

The Ph.D. is primarily intended for a student with a Master's degree in Industrial Engineering or a closely related discipline. The program is intended to allow a student to study in depth, with emphasis on some aspect of industrial engineering, such as manufacturing, engineering management, operations research, simulation modeling, interactive simulation, quality, or human engineering/ergonomics.

## Admission Requirements

Students must satisfy regular university admissions criteria, have a Master's degree in Industrial Engineering or a closely related discipline from a recognized institution, and have demonstrated above average performance at the Master's level. Students must submit an application for graduate admission, including a resume, goals statement, and three letters of recommendation. Minimum admission requirements are a score of at least 1000 on the GRE and a TOEFL score of at least 220 for international students who have not completed a BS degree at an English speaking institution.

In addition, selected outstanding applicants who have a GPA of at least 3.4 in the last 60 attempted semester hours of their undergraduate degrees and have very high GRE scores will be considered for direct entrance as Pre-Doctoral students from their Bachelor's degrees. Students meeting these criteria and the approval of the Doctoral Committee will be admitted as Pre-Doctoral students. Scholarships are awarded based on the student's GPA and GRE scores and resume.

Students must complete any needed articulation course work and pass a Ph.D. Qualifying Examination in order to be admitted as a regular Doctoral Student. This examination is normally taken within the first year after all articulation work is completed. The Department makes

decisions about continuing support in the program based in part on Qualifying Examination results.

## Degree Requirements

The Ph.D. degree requires a minimum of 81 credit hours of graduate course work, 24 of which will be dissertation hours. For students entering with an MS degree, the minimum required additional hours (including dissertation) will be 45 (if the student's MS degree had 36 hours of study) or 51 hours (if the student's MS degree had 30 hours). Graduate course work includes 5000 or higher level courses, with a maximum of 12 credit hours of independent study or directed research. A total of 30 to 33 credit hours are specified in required Industrial Engineering subjects. Additional course work is usually taken in the student's research area. Up to 6 credit hours of 4000-level work are acceptable if transferred from a master's degree program. While at UCF, at least 6 credit hours must be taken outside of the student's area of specialization. There is a residency requirement of two continuous semesters in full-time graduate student status (minimum of 9 credit hours) after acceptance into the Doctoral Program at UCF.

As a Pre-Doctoral student at the beginning of the Ph.D. program, a preliminary program of study must be developed with the graduate program coordinator and meet with departmental approval. At this time transfer credit will be evaluated on a course-by-course basis. After completion of the Qualifying Examination and admission as a Doctoral Student, the official program of study is developed with an adviser and must meet with departmental approval. The student's Dissertation Committee approves the final program of study after passing the Candidacy Examination. The degree must be completed within seven years from the date of admission as a Pre-Doctoral student and within four years of passing the Candidacy Examination.

## Transfer Credits

A maximum of 36 semester credit hours, including up to 6 thesis credit hours, may be transferred from a master's degree and other graduate course work toward these requirements. Limitations: a maximum of 6 credit hours of 4000-level courses from a master's degree; no 3000-level courses; and no courses with grades less than "B".

## Examinations

In addition to the Qualifying Examination, the student must pass a Candidacy Examination, a Dissertation Proposal Examination, and a Dissertation Defense Examination. The Candidacy Examination is normally taken near the end of the course work and typically consists of a written and oral presentation of a research area to the Dissertation Committee followed by a written examination to determine if the student has the breadth and depth of knowledge required to conduct research in the proposed area. The Dissertation Proposal Examination consists of a written and oral presentation of a detailed dissertation proposal. The Dissertation Defense Examination is an oral examination taken in defense of the written dissertation.

## Prerequisites/Corequisites

Students must have background in the following areas.

- A high level structured programming language
- Calculus through Differential Equations
- Manufacturing Engineering (EIN 4391)
- Quality Engineering (ESI 4234)
- Work Measurement (EIN 3314)
- Industrial Facilities Planning (EIN 4364)
- Human Engineering (EIN 4243C)

## Required Courses—21 Credit Hours

- EIN 5140 Project Engineering (3 credit hours)
- EIN 6336 Production and Inventory Control (3 credit hours)
- EIN 6357 Advanced Engineering Economic Analysis (3 credit hours)
- ESI 5219 Engineering Statistics (3 credit hours)
- ESI 5316 Operations Research (3 credit hours)

- ESI 5531 Discrete Systems Simulation (3 credit hours)
- ESI 6247 Experimental Design and Taguchi Methods (3 credit hours)

## Required Specialization Core—9-12 Credit Hours

Select one of the following areas of specialization.

### Industrial Engineering

- EIN 5117 Management Information Systems I (3 credit hours)
- ESI 6225 Quality Design and Control (3 credit hours)
- ESI 6427 Linear Programming and Extensions (3 credit hours)

### Interactive Simulation

- EIN 5255 Interactive Simulation (3 credit hours)
- EIN 5317 Training System - Design (3 credit hours)
- EIN 6645 Modeling and Simulation of Real-Time Processes (3 credit hours)
- EIN 6649C Intelligent Tutoring Training System Design (3 credit hours)

### Simulation Modeling and Analysis

- ESI 6217 Statistical Aspects of Digital Simulation (3 credit hours)
- ESI 6532 Object-Oriented Simulation (3 credit hours)
- ESI 6247 Experimental Design and Taguchi Methods (3 credit hours)

### Operations Research

- ESI 6336 Queuing Systems (or STA 5825 Stochastic Processes and Applied Probability Theory) (3 credit hours)
- ESI 6427 Linear Programming and Extensions (3 credit hours)
- STA 6236 Regression Analysis (3 credit hours)

### Quality

- EIN 5392C Manufacturing Systems Engineering (3 credit hours)
- ESI 5227 Total Quality Improvement (3 credit hours)
- ESI 5236 Reliability Engineering (3 credit hours)
- ESI 6225 Quality Design and Control (3 credit hours)

### Human Engineering/Ergonomics

- EIN 5248C Ergonomics (3 credit hours)
- EIN 6249C Biomechanics (3 credit hours)
- EIN 6258 Human Computer Interaction (3 credit hours)

### Manufacturing

- EIN 5368C Integrated Factory Automation Systems (3 credit hours)
- EIN 5392C Manufacturing Systems Engineering (3 credit hours)
- EIN 6399 Concurrent Engineering (3 credit hours)

### Management Systems

- EIN 5108 The Environment of Technical Organizations (3 credit hours)
- EIN 5117 Management Information Systems I (3 credit hours)
- EIN 6322 Engineering Management (3 credit hours)
- EIN 6339 Operations Engineering (3 credit hours)

Two courses at UCF outside of student's area of specialization—6 Credit Hours



Electives—24-30 Credit Hours

Dissertation—24 Credit Hours

## Dissertation Committee

- The Dean, through the Chairs, is responsible for committee formation, additions, and deletions. The doctoral committee must consist of a minimum of five members: three must be faculty members from within the student's department, and one must be at large from outside the Industrial Engineering Management Systems Department. The committee Chair must be a member of the department graduate faculty approved to direct dissertations. 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 as well as serve as co-chairs of the committee, with the approval of the program coordinator. Program areas may further specify additional committee membership. The Office of Graduate Studies reserves the right to review appointments to advisory committees, place a representative on any advisory committee, or appoint a co-adviser.
- In unusual cases, with approval from the program Chair, two professors may chair the committee jointly. Joint faculty members may serve as committee chairs, but off-campus experts and adjunct faculty may not serve as committee chairs.
- 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.

## IEMS Graduate Courses by Areas of Study

### Engineering Management

- EIN 5108 The Environment of Technical Organizations (3 credit hours)
- EIN 5117 Management Information Systems I (3 credit hours)
- EIN 5140 Project Engineering (3 credit hours)
- EIN 5356 Cost Engineering (3 credit hours)
- EIN 5381 Engineering Logistics (3 credit hours)
- EIN 6322 Engineering Management (3 credit hours)
- EIN 6339 Operations Engineering (3 credit hours)
- EIN 6357 Advanced Engineering Economic Analysis (3 credit hours)
- EIN 6933 Systems Acquisition (3 credit hours)
- ESI 5451 Network Based Project Planning, Scheduling, and Control (3 credit hours)

### Ergonomics

- EIN 5248C Ergonomics (3 credit hours)
- EIN 5251 Human Computer Interaction: Usability Evaluation (3 credit hours)
- EIN 6215 System Safety Engineering and Management (3 credit hours)
- EIN 6249C Biomechanics (3 credit hours)
- EIN 6258 Human Computer Interaction (3 credit hours)
- EIN 6264C Industrial Hygiene (3 credit hours)
- EIN 6270C Work Physiology (3 credit hours)
- EIN 6935 Advanced Ergonomics Topics (3 credit hours)

### Expert Systems

- EIN 5602C Expert Systems in Industrial Engineering (3 credit hours)
- EIN 6603 Readings in Expert Systems/AI in Industrial Engineering (3 credit hours)

### Manufacturing/Operations Management

- EGN 5720 Internal Combustion Engine Analysis and Optimization (3 credit hours)

- EGN 5855C Metrology (3 credit hours)
- EGN 6721C Experimental Methods for High Performance Engine Manufacturing (3 credit hours)
- EIN 5368C Integrated Factory Automation Systems (3 credit hours)
- EIN 5388 Forecasting (3 credit hours)
- EIN 5392C Manufacturing Systems Engineering (3 credit hours)
- EIN 5415C Tool Engineering and Manufacturing Analysis (3 credit hours)
- EIN 5607C Computer Control of Manufacturing Systems (3 credit hours)
- EIN 6336 Production and Inventory Control (3 credit hours)
- EIN 6398 Advanced and Nontraditional Manufacturing Processes (3 credit hours)
- EIN 6399 Concurrent Engineering (3 credit hours)
- EIN 6417 Precision Engineering (3 credit hours)
- EIN 6418C Electronics Manufacturing (3 credit hours)
- EIN 6425 Scheduling and Sequencing (3 credit hours)
- EIN 6930 Manufacturing Engineering Seminar (3 credit hours)
- EIN 6936 Seminar in Advanced Industrial Engineering (3 credit hours)

## Operations Research

- ESI 5315 Research Foundations for IE and OR Modeling (3 credit hours)
- ESI 5316 Operations Research (3 credit hours)
- ESI 5359 Risk Assessment and Management (3 credit hours)
- ESI 5419C Engineering Applications of Linear and Nonlinear Optimization (3 credit hours)
- ESI 6336 Queuing Systems (3 credit hours)
- ESI 6358 Decision Analysis (3 credit hours)
- ESI 6427 Linear Programming and Extensions (3 credit hours)
- ESI 6437 Nonlinear Mathematical Programming and Dynamic Programming (3 credit hours)
- ESI 6448 Network Analysis and Integer Programming (3 credit hours)
- ESI 6551C Systems Engineering (3 credit hours)
- ESI 6921 Seminar in Advanced Operations Research (3 credit hours)
- ESI 6941 Operations Research Practicum (6 credit hours)

## Simulation

- EIN 5255 Interactive Simulation (3 credit hours)
- EIN 5317 Training System Design (3 credit hours)
- EIN 6524 Simulation Modeling Paradigms (3 credit hours)
- EIN 6529 Simulation Design and Analysis (3 credit hours)
- EIN 6645 Modeling and Simulation of Real-Time Processes (3 credit hours)
- EIN 6647 Intelligent Simulation (3 credit hours)
- EIN 6649C Intelligent Tutoring Training System Design (3 credit hours)
- ESI 5531 Discrete Systems Simulation (3 credit hours)
- ESI 6217 Statistical Aspects of Digital Simulation (3 credit hours)
- ESI 6529 Advanced Systems Simulation (3 credit hours)
- ESI 6532 Object-Oriented Simulation (3 credit hours)
- ESI 6546 Process Simulation (3 credit hours)

## Statistics and Quality Control

- EIN 6330 Quality Control in Automation (3 credit hours)
- ESI 5227 Total Quality Improvement (3 credit hours)
- ESI 5236 Reliability Engineering (3 credit hours)
- ESI 6224 Quality Management (3 credit hours)
- ESI 6225 Quality Design and Control (3 credit hours)
- ESI 6247 Experimental Design and Taguchi Methods (3 credit hours)
- ESI 5219 Engineering Statistics (3 credit hours)

## Other

- EIN 5936 Seminar in Industrial Engineering: Doctoral Research (1 credit hour)

# Instructional Technology

## Description

College of Education Web Address: <http://edcollege.ucf.edu>

The College of Education offers master's programs in Instructional Technology, leading to a Master of Education degree or a Master of Arts degree. Three tracks are available and are designed to meet the needs of specific areas of instructional technology.

## Degrees Offered

### Master of Education in Instructional Technology (M.Ed.)

- o Educational Media Track (Online)

### Master of Arts in Instructional Technology (M.A.)

- o Educational Technology Track
- o Instructional Systems Track

NOTE: The tracks listed above are accredited by both NCATE (The National Council for the Accreditation of Teacher Education) and AECT (The Association for Educational Communications and Technology). The online Educational Media Track is also approved by the Florida Department of Education.

## Master of Education in Instructional Technology

Department of Teaching, Learning, and Principles Interim Chair of Department: Dr. Robert D. Williams Graduate Program Coordinator: Dr. J. R. Lee, (407) UCF-6139. E-mail: [jlee@pegasus.ucf.edu](mailto:jlee@pegasus.ucf.edu) Web address: <http://pegasus.cc.ucf.edu/~edmedia>

This Web-based, online (the Internet and e-mail) program leads to a Master of Education degree and certification as a school media specialist. The Educational Media Track is designed to offer skills in administration, production, instructional design, organization, selection, evaluation and research that relate to school library media programs. It stresses knowledge and applications of both present and future innovations and technologies for education.

The online 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.

[Master's Programs in the College of Education](#)

## Admission Requirements

To be considered for admission to the Educational Media Track, you must submit the university online application (available at <http://www.graduate.ucf.edu>) by the designated deadline. The online application will include several essay statements and three references (names/phone numbers) required for admission into the Educational Media Track. The essay statements to be included in the online graduate application can be found at the Educational Media website ((available at <http://pegasus.cc.ucf.edu/~edmedia> within Admissions Procedures: Online Educational Media Masters Program. An interview with the Educational Media Program Coordinator may be required. All required materials as well as acceptance by the UCF Office of Graduate Studies and the College of Education are required before a student can be accepted into the online Educational Media Track.

[Application Deadlines](#)

## Educational Media Track

Minimum Hours Required for M.Ed.—39-42 Credit Hours

#### Area A: Core—12 or 15 Credit Hours

- EDF 6155 Lifespan Human Development and Learning (3 credit hours)
- EDF 6481 Fundamentals of Graduate Research in Education (3 credit hours)
- EDF 6401 Statistics for Educational Data (3 credit hours) (currently not offered online) OR
- EDF 6432 Measurement and Evaluation in Education (3 credit hours)

#### Option A—Research Report

- EME 6909 Research Report (2,1 credit hours)

#### Option B—Non-Thesis Option

- EME 6062 Research in Instructional Technology (3 credit hours)
- EME Elective (approval of Ed Media faculty) (3 credit hours)

#### Area B: Specialization—24 Credit Hours

- EME 5051 Technologies of Instruction and Information Management (3 credit hours)
- EME 5208 Production Techniques for Instructional Settings (3 credit hours)
- EME 5225 Media for Children and Young Adults (3 credit hours)
- EME 6105 Collection Development Policies and Procedures (3 credit hours)
- EME 6605 Role of the Media Specialist in Curriculum and Instruction (3 credit hours)
- EME 6706 Administrative Principles in Media Centers (3 credit hours)
- EME 6805 Organization of Media and Information (3 credit hours)
- EME 6807 Information Sources and Services (3 credit hours)

#### Area C: Elective—3 Credit Hours

- EME 6209 Multimedia Instructional Systems II (3 credit hours)
- EME 6058 Current Trends in Educational Media (3 credit hours)
- EME 5408 Computer Applications in Instructional Technology (3 credit hours)
- LAE 4464 Survey of Adolescent Literature (3 credit hours)
- LAE 5415 Children's Literature in Elementary Education (3 credit hours)
- EME/other Elective with approval of Ed Media faculty

#### Area D: Internship

- EME 6946 Graduate Internship (Only required if the student has no media center experience) (3 credit hours)

# Master of Arts in Instructional Technology

Department of Educational Research, Technology and Leadership Chair of Department: Dr. Jeff Cornett

The Master of Arts in Instructional Technology Program offers two tracks: Educational Technology and Instructional Systems. Each track has its own graduate program coordinator and specific admission and degree requirements. For more information about these track, see below.

[Master's Programs in the College of Education](#)

## Educational Technology Track

Graduate Program Coordinator: G. Gunter, (407) UCF-3502. E-mail: [ggunter@pegasus.cc.ucf.edu](mailto:ggunter@pegasus.cc.ucf.edu)

Web address: <http://pegasus.cc.ucf.edu/~edtech>

This program leads to a Master of Arts degree and is designed for classroom teachers looking for ways to increase their technological skills and become highly skilled at successfully integrating technology into the curriculum. The skills and knowledge gained through this program allow teachers to seek new career paths in the field of education. Teachers who graduate from this program have the skills to become K-12

technology coordinators, technology instructors at the community college and university level, online instructors, computer teachers, instructional designers, and more. The Educational Technology program is exciting and applicable to your current K-12 situation. The program provides an opportunity for study, research, and professional training. It requires a great deal of independent thinking and emphasis is placed on the cultivation of scholarly attitudes and methods.

## Admission Requirements

To be considered for admission to the Educational Technology Track, you must submit a completed graduate application, including three letters of recommendation. In addition, you will need to submit a student information form, which can be obtained from the track website (<http://pegasus.cc.ucf.edu/~edtech>). An interview may be necessary. Acceptance by UCF Graduate Studies and the College of Education, in addition to the abovementioned materials, are required for acceptance into the Educational Technology Track.

### [Application Deadlines](#)

## Degree Requirements

Minimum Hours Required for M.A.—36-39 Credit Hours

Area A: Core—9-12 Credit Hours

- EDF 6432 Measurement and Evaluation in Education (3 credit hours)
- EDF 6481 Fundamentals of Graduate Research in Education (3 credit hours)

Option A—Research Report

- EME 6909 Research Report (2,1 credit hours)

Option B—Non-thesis Option

- EME 6062 Research in Instructional Technology (3 credit hours)
- Elective (3 credit hours)

Area B: Specialization—18 Credit Hours

- EME 5050 Fundamentals of Technology for Educators (3 credit hours)
- EME 5052 Electronic Resources for Education (3 credit hours)
- EME 6405 Application Software for Educational Settings (3 credit hours)
- EME 6507 Multimedia in the Classroom (3 credit hours)
- EME 6602 Integrating Technology into the Curriculum (3 credit hours)
- EME 6707 Technology Coordinator in the Schools (3 credit hours)

Area C: Extension—6 Credit Hours

Electives in current certification area, technology, or other as approved by adviser. Courses not listed below require adviser approval.

- EME 5208 Production Techniques for Instructional Settings (3 credit hours)
- EME 6053 Current Trends in Instructional Technology (3 credit hours)
- EME 6207 Multimedia Instructional Systems I (3 credit hours)
- EME 6209 Multimedia Instructional Systems II (3 credit hours)
- EME 6457 Distance Education: Technology Process Product (3 credit hours)
- EME 6607 Planned Change in Instructional Technology (3 credit hours)
- EME 6613 Instructional System Design (3 credit hours)

Area D: Practicum—3 Credit Hours

- EME 6940 Theory into Practice in Educational Technology (3 credit hours)

# Instructional Systems Track

Graduate Program Coordinator: Gary Orwig, (407)823-5179. E-mail: [orwig@mail.ucf.edu](mailto:orwig@mail.ucf.edu) Web address: <http://pegasus.cc.ucf.edu/~instsys/>

The Instructional Systems Track 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.

[Master's Programs in the College of Education](#)

## Admission Requirements

To be considered for admission to the Instructional Systems Track, you must submit the university online graduate application (available at <http://www.graduate.ucf.edu>) by the designated deadline. Additionally, the Instructional Systems program requires three letters of recommendation from those familiar with your professional competencies and/or academic record, a goal statement, resume, and where deemed necessary, a personal interview. For further information, see <http://pegasus.cc.ucf.edu/~instsys>. All required materials as well as acceptance by the UCF Office of Graduate Studies and College of Education are required before a student can be accepted into the Instructional Systems Track. International students should pay particular attention to information for them found in the "Admission and Registration" section of the Graduate Catalog.

[Application Deadlines](#)

## Degree Requirements

Minimum Hours Required for M.A.—39-42 Credit Hours

Area A: Core—6 or 9 Credit Hours

- EDF 6481 Fundamentals of Graduate Research in Education (3 credit hours)

Select Option A, B, or C:

Option A

- EME 6909 Research Report (2,1 credit hours)

Option B

- EME 6971 Thesis (3 credit hours)

Option C

- EME 6062 Research in Instructional Technology (3 credit hours)
- Elective approved by adviser (3 credit hours)

Area B: Specialization—24 Credit Hours

- EME 5054 Instructional Systems Technology: A Survey of Applications (3 credit hours)
- EME 5056 Communication for Instructional Systems — Process (3 credit hours)
- EME 5057 Communication for Instructional Systems — Application (3 credit hours)
- EME 5408 Computer Applications in Instructional Systems (3 credit hours)
- EME 6313 Media Systems Design (3 credit hours)
- EME 6613 Instructional System Design (3 credit hours)
- EME 6705 Administration of Instructional Systems (3 credit hours)
- EME 6946 Graduate Internship in Instructional Systems (3 credit hours) OR COE 6946 Cooperative Education (3 credit hours)

Area C: Elective—9 Credit Hours

NOTE: Courses not listed below require adviser approval.

- EIN 5255 Interactive Simulation (3 credit hours)
- EME 6053 Current Trends in Instructional Technology (3 credit hours)
- EME 6207 Multimedia Instructional Systems I (3 credit hours)
- EME 6209 Multimedia Instructional Systems II (3 credit hours)
- EME 6457 Distance Education: Technology Process Product (3 credit hours)
- EME 6607 Planned Change in Instructional Technology (3 credit hours)
- INP 6317 Organizational Psychology and Motivation (3 credit hours)



# Liberal Studies

## Description

College of Arts and Sciences Liberal Studies Graduate Program Graduate Program Director: Dr. Elliot Vittes, CNH 201, (407) 823-2745. E-mail: [mls@mail.ucf.edu](mailto:mls@mail.ucf.edu) Web address: <http://www.cas.ucf.edu/mls/>

Liberal Studies offers an interdisciplinary master's degree with more than forty concentrations and certificate affiliations available in constructing a program of study. Liberal Studies undergraduate students may be eligible for the accelerated undergraduate and graduate program in Liberal Studies. Liberal Studies also offers a specialized Maya Studies Track in combination with the Maya Studies Certificate.

## Degrees Offered

- Master of Arts in Liberal Studies (M.A.) with a concentration or certificate affiliation from one of more than forty areas
- Master of Arts in Liberal Studies (M.A.) with the Maya Studies Track

## Master of Arts in Liberal Studies

The Master of Arts in Liberal Studies Program awards an interdisciplinary degree that incorporates three core courses as a common basis of study. The core courses bring together knowledge from various fields, traditions, and cultures, enhancing and extending the educational experience. The program is intended to develop research abilities, substantive knowledge, critical thinking, and advanced skills, through the diverse concentrations of study. Individualized advising, carefully selected classes and program construction, and a commitment to the student are central to this program.

## Admission Requirements

The Graduate Record Examination (GRE) is required for all graduate students. Minimum requirements for admission consideration are the standard university criteria of a 3.0 grade point average (GPA) on a 4.0 scale for the last 60 attempted semester credit hours earned toward the baccalaureate or a GRE score of at least 1000 on the combined verbal-quantitative sections of the General (Aptitude) Test. International students and students whose native language is not English must score at least 220 (computer-based test or an equivalent score on the paper-based test) on the Test of English as a Foreign Language (TOEFL). In addition, applicants must submit three letters of recommendation (at least one from an academic reference) and have an interview with the graduate program coordinator.

[Application Deadlines](#)

## Degree Requirements

Degree-seeking students in the Liberal Studies Program may elect to follow either a thesis or a non-thesis course of study. The degree of Master of Arts is conferred when the student has fulfilled the requirements of either the thesis or non-thesis option. Students pursuing the Maya Studies Track must take the thesis option.

Requirements for M.A.—33 Credit Hours Minimum

Required Courses—9 Credit Hours

- IDS 6308 Ways of Knowing (3 credit hours)
- IDS 6669 Interdisciplinary Approaches to Research (3 credit hours)
- IDS 6351 Critical Thinking and Writing (3 credit hours)

Concentration/Graduate Certificate Program—18 Credit Hours

A minimum of 18 semester hours of course work must be completed. Course selection is done in consultation and with approval of the

program coordinator.

#### Thesis Option—6 Credit Hours

Completion of an approved elective or directed research, and a minimum of 3 semester hours of thesis credit, and a successful completion of a thesis are required.

#### Non-Thesis Option—6 Credit Hours

Six semester hours of approved graduate electives and passing a comprehensive written examination are required.

## Concentrations

These concentrations include formally identified courses of study, certificate programs, and individualized courses of study.

- American History
- American Studies
- Art and Culture in Society
- Business and Government Writing
- Communication
- Comparative Cultural Studies: The Hispanic World
- English
- English for Speakers of Other Languages
- European, Asian, and African History
- The Human Condition
- Humanities
- International Studies
- Issues of Social Concern
- Leadership Studies
- Political Science
- Psychology
- Public Policy Analysis
- Race, Ethnicity, and Class
- Sociology
- Spanish

## Graduate Certificate Programs

- Aging Studies (Gerontology)
- Arts Management
- Computer Forensics
- Conservation Biology
- Crime Analysis
- Domestic Violence
- Education (4 areas)
- English for Speakers of Other Languages
- Gender Studies
- Health Care Information Systems
- Maya Studies
- Nonprofit Management
- Professional Writing
- Public Administration
- SAS Data Mining

NOTE: The M.A. in Liberal Studies degree program stipulates that a majority of the 33 required credit hours be earned in traditional liberal arts courses.

## Maya Studies Track

Each student must complete 33 credit hours as outlined below.

Requirements for M.A. in Liberal Studies, Maya Studies Track—33 Credit Hours Minimum

Core Courses—9 Credit Hours

- IDS 6308 Ways of Knowing (3 credit hours)
- IDS 6669 Interdisciplinary Approaches to Research (3 credit hours)
- IDS 6351 Critical Thinking and Writing (3 credit hours)

Concentration—18 Credit Hours\*

Required—6 Credit Hours

- ANG 6168 The Ancient Maya (3 credit hours)
- ANG 6324 Contemporary Maya (3 credit hours)

Elective Courses—12 Credit Hours

- ANG 5166 Problems in Maya Studies (3 credit hours)
- ANG 5167 Maya Hieroglyphics (3 credit hours)
- ANG 5228 Maya Iconography (3 credit hours)
- ANT 5165 Field Research in Maya Studies (3 credit hours)
- LAH 5XXX Latin America's Colonial Legacy: The Maya (3 credit hours)
- CPO 5334 Contemporary Politics in the Maya Region (3 credit hours)

Thesis—6 Credit Hours

Students must complete an approved elective or directed research, a minimum of 3 credit hours of thesis, and a thesis.

\* To receive the Graduate Certificate in Maya Studies, an application to the Maya Studies certificate program is required.

# Accelerated Undergraduate and Graduate Program in Liberal Studies

Graduate Program Director: Dr. Elliot Vittes, CNH 201, (407) 823-2745. E-mail: [mls@mail.ucf.edu](mailto:mls@mail.ucf.edu) Web address: [www.cas.ucf.edu/liberal\\_studies/accelerated](http://www.cas.ucf.edu/liberal_studies/accelerated)

The accelerated undergraduate and graduate program in Liberal Studies allows a student to earn a bachelor of arts or bachelor of science degree and a master of arts degree in as few as five years including summer sessions. Students can earn nine hours of graduate credit toward the master's degree while still an undergraduate, and then an additional twenty-four credits after earning the bachelor's degree.

Students majoring in Liberal Studies who have compiled a superior record can apply for the program. This unique course of study requires close advising with program advisers and approval by the Master of Arts in Liberal Studies Program.

## Admission Requirements

Acceptance to the university does not constitute admission to the combined bachelor's/master's program. An additional application to the program must be submitted and the student accepted. Contact the Liberal Studies Program or visit the website for application information. All applicants must meet the following criteria:

- A student must have a grade point average of 3.25 or higher at UCF in their last 30 semester hours before applying in the second semester of their junior year.
- The student must have earned at least 75 semester hours by the time of application.
- A Graduate Record Examination score of 1050 or above (usually taken in the second semester of the junior year).

# Degree Requirements

The combined bachelor's/master's program involves a minimum of 144 credit hours for completion of both the B.A./B.S. and M.A. degrees.

## Liberal Studies Undergraduate Degree

The Liberal Studies undergraduate program offers five options: Liberal Studies, Liberal Arts, Environmental Studies, Computer Information Technology, and Women's Studies. (Please see the Undergraduate Catalog for more details about these tracks.) The undergraduate requirements listed in the Graduate Catalog are for informational purposes only. The official requirements are detailed in the Undergraduate Catalog and take precedence over what is described here.

### Liberal Studies Track

- Minor (18+ credit hours)
- Two liberal studies areas (18 credit hours each)

### Liberal Arts Track

- Ethics course
- Critical thinking course
- Minor (18+ semester hours)
- Individual minor (24+ credit hours)
- Directed reading/honors seminar
- Thesis

### Environmental Studies Track

- Core for Environmental Studies (23 credit hours)
- Subject Area: Environmental Studies Fundamentals (20 credit hours)
- One subject areas: restricted electives (18 credit hours)

### Computer Information Technology Track

- Computer information technology minor (36 semester hours)
- One liberal studies area (18 semester hours)

### Women's Studies Track

- Either the Womanist/Women of Color subject area or the Women's Studies Cognate subject area (18 credit hours)
- One subject area from among the fifteen liberal studies areas (18 credit hours)
- Women's Studies minor (18 credit hours)

## Liberal Studies Graduate Degree

### Core Courses—9 Credit Hours

- IDS 6308 Ways of Knowing (3 credit hours)
- IDS 6351 Critical Thinking and Writing (3 credit hours)
- IDS 6669 Interdisciplinary Approaches to Research (3 credit hours)

### Concentration—18 Credit Hours

More than forty concentrations and certificate affiliation programs are part of the Master of Arts in Liberal Studies Program.

### Elective—3 Credit Hours

### Thesis Option—6 Credit Hours

Successful completion of an approved elective or directed research, a minimum of 3 credit hours of thesis credit, and successful completion of a thesis are required.

#### Non-Thesis Option—6 Credit Hours

Six credit hours of approved graduate electives and passing a comprehensive written examination are required.

# Management

## Description

College of Business Administration Department of Management Interim Department Chair: Dr. Foard Jones Graduate Program Coordinator: Dr. Foard Jones, BA 335B, (407) 823-3725. E-mail: [foard.jones@bus.ucf.edu](mailto:foard.jones@bus.ucf.edu)

Web Address: <http://www.bus.ucf.edu/management/cgi-bin/site/sitew.cgi?page=/programs/mshr/index.htm>

The College of Business Administration offers a Master of Science in Management degree that provides an alternative to the MBA degree for students who desire specialized study and the development of a high level of professional proficiency in a functional area of business. The primary track in the Management program is human resources and change management. Students completing the master's program in human resources and change management will be prepared to work in organizations in such areas as human resources, strategic planning, organizational effectiveness, staffing, compensation, and employee relations.

In addition, the College offers a doctoral (Ph.D.) program in Business Administration that includes a Management Track.

## Degrees Offered

### Master of Science in Management (M.S.M.)

- o Human Resources and Change Management Track

## Master of Science in Management

The MSM program offers an alternative to students who want to pursue graduate study in business, but who also desire a focus on management. The program is designed to appeal to those currently in management positions who want to develop additional expertise, as well as those who seek to move into the management track as a vehicle for career advancement.

The program is based on the belief that successful change involves aligning a firm's people and process with an ever-changing environment. As a result, the goals of our program are to provide you with the knowledge required to successfully anticipate, plan, and carry out changes. One main component of the program will be a focus on developing practices and methods that align human resources activities with organizational strategies. The second component will help you develop skills in recognizing the need for change, the factors that improve a firm's ability to absorb change, along with effective and appropriate responses to those changes.

Students with a wide variety of backgrounds, including those with degrees in economics, education, hospitality, nursing, psychology, and business, are encouraged to apply to this program. Students without an undergraduate degree in business must take a series of background courses by completing the MBA foundation core. Those who have these background courses may begin immediately in the core courses and elective courses listed below.

[Academic Standards in the College of Business Administration](#)

## Admission Requirements

[Admission to Master's Programs in the College of Business Administration](#)

- GPA of 3.0 and GMAT of 500
- TOEFL of 233 (computer test)
- 3 letters of recommendation
- essay; for details, see the [college website](#)
- resume

Both GPA and Test Scores must be officially reported to the Office of Graduate Studies.

## [Application Deadlines](#)

For consideration for college financial assistance, apply at least one month before the application deadline.

# Human Resources and Change Management Track

Minimum Hours Required for the MSM—30 Credit Hours

## Required Courses—18 Credit Hours

- MAN 6285 Change Management (3 credit hours)
- MAN 6305 Human Resources Management (3 credit hours)
- MAN 6311 Advanced Topics in Human Resources Management (3 credit hours)
- MAN 6325 Applied Research Tools (3 credit hours)
- MAN 6395 Management Development and Coaching (3 credit hours)
- MAN 6385 Strategic Human Resources Management (3 credit hours)

## Elective Courses—12 Credit Hours

- MAN 6116 Managing a Diverse Workforce (3 credit hours)
- MAN 6286 Advanced Change Management (3 credit hours)
- MAN 6323 Human Resources Information Systems (3 credit hours)
- MAN 6448 Conflict Resolution and Negotiation (3 credit hours)
- MAN 6915 Applied Field Project (3 credit hours)
- MBA Core Class
- Other 6000-level Approved Electives (e.g., Industrial and Organizational Psychology)

# Management Information Systems

## Description

College of Business Administration Department of Management Information Systems Graduate Program Coordinator: Dr. Paul Cheney, BA 409B, (407) UCF-3106. E-mail: [paul.cheney@bus.ucf.edu](mailto:paul.cheney@bus.ucf.edu)

The College of Business Administration offers a Master of Science in Management Information Systems degree, as well as a doctoral (Ph.D.) program in Business Administration that includes a Management Information Systems Track.

The MIS master's program provides another alternative to the MBA degree for students who desire specialized study and the development of a high level of professional proficiency in information technology. These areas include: programming, systems analysis and design, systems implementation, database administration, telecommunications, and e-commerce. Students completing the MS/MIS degree program will be prepared to work in organizations in such areas as software developers, systems analysts, database administrators, and network managers.

The Master of Science in Management Information Systems program prepares students in the technical and managerial topics essential for a successful career in the information technology (IT) field. This field is characterized by rapid advances in technology (hardware, software, telecommunications), intense international competition, faster product life cycles, and complex and specialized markets.

In such turbulent environments, the information requirements of organizations are becoming increasingly more challenging. Forward-looking companies must invest wisely in IT and the human expertise necessary to make them competitive and successful in the future. Individuals are needed who can design and manage large and complex information systems, and who can communicate effectively with customers and management.

Our goal is to develop specialists who are attuned to the latest principles, methods, and techniques of both technology and management. The MS/MIS program at the University of Central Florida is designed to meet the challenge of producing individuals who are capable of leading such companies successfully into the future.

## Degree Offered

Master of Science in Management Information Systems (M.S.)

# Master of Science in Management Information Systems

## Admission Requirements

[Admission to Master's Programs in the College of Business Administration](#)

- GPA of 3.0 and GMAT of 500 or GRE of 1000 (Quantitative and Verbal Sections)
- TOEFL of 233 (computer test)
- 3 letters of recommendation
- essay for details, see the [college website](#)
- resume

Both GPA and Test Scores must be officially reported to the Office of Graduate Studies.

[Application Deadlines](#)

For consideration for college financial assistance, apply at least one month before the application deadline.



# Degree Requirements

Minimum Hours Required for MS/MIS—30 Credit Hours

[Academic Standards in the College of Business Administration](#)

## Business Foundation—10.5 Credit Hours

An undergraduate degree in business, or satisfactory completion of the following 1.5-hour courses fulfills this requirement.

- ACG 5005 Accounting Foundations (1.5 credit hours)
- ECO 5006 Economic Foundations (1.5 credit hours)
- ECO 5414 Statistical Foundations (1.5 credit hours)
- FIN 5407 Financial Foundations (1.5 credit hours)
- ISM 5020 MIS Foundations (1.5 credit hours)
- MAN 5021 Management Foundations (1.5 credit hours)
- MAR 5055 Marketing Foundations (1.5 credit hours)

## Prerequisites

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

- ISM 5XXX Concepts of Business Programming (3 credit hours)
- ISM 5123 Concepts of Systems Analysis and Design (3 credit hours)
- ISM 5XXX Concepts of Database Design and Administration (3 credit hours)

## MIS Degree Requirements

The major consists of 30 hours from three core areas: the business core, the MIS core and the MIS electives. All courses can be completed by a full-time student in one calendar year and by a part-time student in two calendar years. ISM 6305, typically taken in the last semester, serves as a capstone course and culminating experience in the program.

Business Core—12 Credit Hours

- MAN 6245 Organizational Behavior and Development (3 credit hours)
- MAN 6305 Human Resources Management (3 credit hours)
- 2 additional 6000-level business courses (6 credit hours)

Management Information Systems Core—12 Credit Hours

- ISM 6121 Advanced Information Systems Analysis and Design (3 credit hours)
- ISM 6217 Advanced Database Administration (3 credit hours)
- ISM 6305 Information Resources Management (3 credit hours)
- ISM 6227 Management of Telecommunications (3 credit hours)

Electives—6 Credit Hours

- ISM 6485 Electronic Commerce (3 credit hours)
- ISM 6930 Seminar in Management Information Systems (3 credit hours)
- ISM 6946 MIS Practicum (3 credit hours)

# Materials Science and Engineering

## Description

College of Engineering and Computer Science Department of Mechanical, Materials and Aerospace Engineering Interim Chair of the Department: Dr. D. W. Nicholson Associate Chair of the Department: Dr. H. Hagedoorn Graduate Program Coordinator: Dr. Alain J. Kassab, ENGR 381, (407) 823-5778. E-mail: [kassab@mail.ucf.edu](mailto:kassab@mail.ucf.edu) Web address: <http://www-mmae.engr.ucf.edu/>

The University of Central Florida offers master's and doctoral programs in Materials Science and Engineering. Fields of emphasis and research for materials science and engineering include crystal growth, glass processing, phase transformation, high temperature materials, environmental degradation, materials characterization, electron microscopy, and microelectronic materials.

The Master of Science degree in Materials Science and Engineering (M.S.M.S.E.) is intended primarily for a student with a bachelor's degree in mechanical, materials, or aerospace engineering or a closely related discipline obtained from a recognized accredited institution.

The Doctor of Philosophy (Ph.D.) degree is intended for a student with a master's degree in mechanical or aerospace engineering, electrical engineering, materials science and engineering, or closely related disciplines such as chemistry, optics, physics, and biology. The program provides an applied research-based education suitable for seeking employment in industry or academia. Industries with strong materials emphases include construction and design firms, microchip development companies, space-related technology firms, medical products manufacturers, and automotive and sports-related companies.

## Degrees Offered

Master of Science in Materials Science and Engineering (M.S.M.S.E.) Doctor of Philosophy in Materials Science and Engineering (Ph.D.)

## Faculty

Emeritus Professors: E. R. Hosler, Ph.D., P.E.; J. D. McBrayer, Sc.D., P.E.; W. F. Smith, Sc. D., P.E.

Professors: P. J. Bishop, Ph.D., P.E., Vice Provost and Dean of Graduate Studies; L. C. Chow, Ph.D.; V. H. Desai, Ph.D., P.E.; B. E. Eno, Ph.D., P.E.; A. J. Kassab, Ph.D.; F. A. Moslehy, Ph.D., P.E.; D. W. Nicholson, Ph.D.

Associate Professors: R. H. Chen, Ph.D.; L. Chew, Ph.D.; T. Conway, Ph.D.; S. T. Durrance, Ph.D.; L. A. Giannuzzi, Ph.D.; A. H. Hagedoorn, Ph.D., P.E.; R. W. Johnson, Ph.D., P.E.; J. Kapat, Sc.D.; K. C. Lin, Ph.D., P.E.; A. Minardi, Ph.D.; J. Nayfeh, Ph.D.; C. E. Nuckolls, Ph.D., P.E.; C. Suryanarayana, Ph.D.; G. G. Ventre, Ph.D., P.E.

Assistant Professors: Linan An, Ph.D.; Quanfang Chen, Ph.D.; S. Seal, Ph.D.; Yong-ho Sohn, Ph.D.; Raj Vaidyanathan, Ph.D.; D. Zhou, Ph.D.

Assistant Professors: C. Ham, Ph.D.; E. Divo, Ph.D.

Joint Appointees: K.D. Belfield, Ph.D., Department of Chemistry; K. A. Cerqua-Richardson, Ph.D., School of Optics; M. B. Chopra, Ph.D., Department of Civil and Environmental Engineering; N. S. Dhere, Ph.D., Florida Solar Energy Center; A. Kar, Ph.D., School of Optics; W. Luo, Physics, D.C. Malocha, Ph.D., School of Electrical Engineering and Computer Science; N. Misconi, Engineering Technology; K.V. Sundaram, School of Electrical Engineering and Computer Science; R. Y. Ting, Ph.D., AMPAC; K. Vajravelu, Ph.D., Department of Mathematics

Research Faculty: J. Bindell, Ph.D., Cirent Semiconductor; R. Irwin, Ph.D., Cirent Semiconductor; F. Stevie, M.S., Cirent Semiconductor; R. Zarda, Ph.D., Lockheed-Martin Missiles and Fire Control

## Master of Science in Materials Science and Engineering

# Admission Requirements

The Master of Science degree in Materials Science and Engineering (M.S.M.S.E.) is intended primarily for a student with a bachelor's degree in mechanical, materials, or aerospace engineering or a closely related discipline obtained from a recognized institution. Minimum requirements for admission to regular status are a 3.0 grade point average (4.0=A) in the last 60 attempted hours of undergraduate study at an accredited institution, 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 220 (computer-based test; or equivalent score on the paper-based test) on the Test of English as a Foreign Language (TOEFL).

In certain circumstances a trial program may be extended to students who have a grade point average 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 more information.

[Application Deadlines](#)

## Degree Requirements

All students are expected to identify an adviser and file an official degree program of study prior to the completion of 9 credit hours of study. Students should consult with the MMAE graduate program coordinator for assistance in filling out a program of study. A program of study, satisfying track requirements, must be developed prior to the completion of 9 credit hours and meet with departmental approval. The M.S.M.E. degree is offered as a thesis or a non-thesis option.

The thesis option requires 30 credit hours, at least half of which must be at the 6000 level and will include 6 credit hours of thesis credit. A student pursuing the thesis option 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.

The non-thesis option is primarily designed to meet the needs of part-time students and requires 36 credit hours of course work, at least 15 of which must be at the 6000 level. In addition, students pursuing the non-thesis option are required to pass a final comprehensive exam and to take EML 6085 Research Methods in MMAE as part of their 36-credit-hour course requirement.

A student with an undergraduate degree outside of the selected departmental discipline may be required to satisfy an articulation program. Substitutions to the program of study must meet with the approval of the adviser and the department. Further information is available in the Master's Degree General Procedures manual available from the MMAE Department.

## 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)

Minimum Hours Required for M.S.M.S.E.—30 or 36 Credit Hours

## Required Courses—6 Credit Hours

All students must take the following two required courses.

- EMA 6126 Physical Metallurgy (3 credit hours)
- EMA 6626 Mechanical Metallurgy (3 credit hours)

Students must take at least four courses from the option list below. Additional courses to satisfy total semester hour requirements (30 credit hours thesis option, 36 credit hours non-thesis option) may be taken from the list of representative electives below or from the remaining MMAE course offering. Students should consult with their faculty adviser (or graduate coordinator if they do not have a faculty adviser) prior to registering for classes. Note that thesis option students must take 6 credit hours of thesis and non-thesis option students must take Research Methods in MMAE. Thesis students must continue to enroll in one hour of thesis course work (XXX 6971) until the thesis requirement is

satisfied, beyond the minimum of 6 credit hours of thesis.

## Option List—12 Credit Hours Minimum

- EMA 5106 Metallurgical Thermodynamics (3 credit hours)
- EMA 5108 Surface Science (3 credit hours)
- EMA 5326 Corrosion Science and Engineering (3 credit hours)
- EMA 6136 Diffusion in Solids (3 credit hours)
- EMA 6516 X-Ray Diffraction and Crystallography (3 credit hours)
- EMA 6605 Materials Processing Techniques (3 credit hours)
- EMA 6628 Materials Failure Analysis (3 credit hours)

## Representative Electives—12-18 Credit Hours

- EMA 5104 Intermediate Structure and Properties of Materials (3 credit hours)
- EMA 5140 Introduction to Ceramic Materials (3 credit hours)
- EMA 5504 Modern Characterization of Materials (3 credit hours)
- EMA 5584 Biomaterials (3 credit hours)
- EMA 5705 High Temperature Materials (3 credit hours)
- EMA 5610 Laser Materials Processing (3 credit hours)
- EMA 6130 Phase Transformations in Metals and Alloys (3 credit hours)
- EMA 6129 Solidification and Microstructure Evolution (3 credit hours)
- EMA 6149 Imperfections in Crystals (3 credit hours)
- EMA 6518 Transmission Electron Microscopy (3 credit hours)
- EML 5025C Engineering Design Practice (3 credit hours)
- EML 5060 Mathematical Methods in Mechanical, Materials and Aerospace Engineering (3 credit hours)
- EML 5237 Intermediate Mechanics of Materials (3 credit hours)
- EML 5245 Tribology (3 credit hours)
- EML 5532C Computer-Aided Design for Manufacture (3 credit hours)
- EML 5546 Engineering Design with Composite Materials (3 credit hours)
- EML 6062 Boundary Element Methods in Engineering (3 credit hours)
- EML 5211 Continuum Mechanics (3 credit hours)
- EML 6305C Experimental Mechanics (3 credit hours)
- EML 6547 Engineering Fracture Mechanics in Design (3 credit hours)
- EEL 5332C Thin Film Technology (3 credit hours)
- EEL 6561 Fourier Optics (3 credit hours)
- CHM 5711 The Chemistry of Materials (3 credit hours)
- EMA 6971 Thesis(6 credit hours)
- EML 6085 Research Methods in MMAE (required for non-thesis option) (3 credit hours)

# Doctor of Philosophy in Materials Science and Engineering

The Doctor of Philosophy (Ph.D.) degree is intended for a student with a master's degree in mechanical or aerospace engineering, electrical engineering, materials science and engineering, or closely related disciplines such as chemistry, optics, physics and biology. The program provides an applied research-based education suitable for seeking employment in industry or academia. Industries with strong materials emphases include construction and design firms, microchip development companies, space-related technology firms, medical products manufacturers, and automotive and sports-related companies.

The program is based upon a solid core emphasizing the foundation of materials science and engineering with advanced knowledge in state-of-the-art applications. Doctoral students will be expected to apply their knowledge and research skills to removing barriers to critical technology advancement. The current interdisciplinary research collaboration between this program and Optics, Chemistry, Physics, and Electrical Engineering will provide many opportunities for gaining an interdisciplinary knowledge base needed to be competitive in industry. Students in this program will be encouraged to spend a summer internship with a relevant central Florida high technology industry.

# Admission Requirements

A master's degree is normally expected, but not required from applicants. A bachelor's degree with a grade point average of 3.0 (A = 4.0) on the last 60 attempted hours of undergraduate course work from an accredited institution and a combined score of at least 1000 on the verbal and quantitative portions of the GRE are required for admission. International students whose native language is not English will have to present a TOEFL (Test of English as a Foreign Language) score of 220 to be considered. Students must submit an application for graduate admission, including a resume, goals statement, and three letters of recommendation.

[Application Deadlines](#)

## Degree Requirements

### Graduate Student Entering the Ph.D. Program with a B.S.

For a graduate student with a B.S. degree, the following are the minimum Materials Science and Engineering Ph.D. program requirements: 72 credit hours of graduate course work, of which 57 credit hours are the minimum hours of course work (may include up to 12 credit hours of directed research with approved Program of Study) and 15 credit hours are the minimum hours of dissertation. The rest of the hours in the Ph.D. program can be chosen by the student in consultation with the adviser and the dissertation committee and with the approval of the graduate program coordinator. These may include doctoral directed research hours or doctoral dissertation hours.

Minimum Course Work (may include up to 12 credit hours of directed research)—57 Credit Hours

Doctoral Dissertation—15 Credit Hours

Minimum Hours Required for Ph.D.—72 Credit Hours

### Graduate Student Entering the Ph.D. Program with an M.S.

For a graduate student with an M.S. degree the following are the minimum Materials Science and Engineering Ph.D. program requirements: 36 credit hours of graduate course work beyond the master's degree, of which 21 credit hours are the minimum number of hours of course work and 15 credit hours are the minimum hours of doctoral dissertation hours. The rest of the hours in the Ph.D. program can be chosen by the student in consultation with the adviser and the dissertation committee and with the approval of the graduate program coordinator. These credit hours may include doctoral directed research hours or doctoral dissertation hours. Non-thesis M.S. degree students may take up to 9 credit hours of directed research, while M.S. thesis option students may take up to 12 credit hours of directed research toward fulfillment of additional minimum course work beyond the M.S.

Minimum Course Work (may include up to 12 credit hours of directed research)—21 (27) Credit Hours\*

Doctoral Dissertation—15 Credit Hours

Minimum Hours Required for Ph.D.—36 (42) Credit Hours\*

\* For students who have completed a thesis option at the master's level with no additional course work, the minimum requirement for course work will be 27 hours.

#### NOTES:

- UCF requires that a full-time Ph.D. student be registered for 9 hours Fall and Spring semesters and 6 credit hours Summer semester.
- The University of Central Florida requires that a Ph.D. student be registered for 3 hours of doctoral dissertation hours upon completion of the candidacy exam and every semester thereafter until graduation.
- The MMAE department requires that a Ph.D. student submits his/her candidacy exam the academic semester immediately following his/her successfully passing the Ph.D. Qualifying Exam.
- No more than 12 credit hours of directed doctoral research may be taken toward fulfilling degree program of study course work requirements.
- Unless a completed (signed) program of study (POS) itemizing the study plan is approved prior to the end of the first semester of studies, the graduate program coordinator of the MMAE department may choose not to accept any part of the course work (including independent studies and/or directed research) taken by the student on a program of study subsequently submitted by the student.

# Examinations

Both a Qualifying Exam and Candidacy Exam are required. Further information on these examinations are contained in the Ph.D. Degree General Procedures manual available from the MMAE Department (<http://www-mmae.engr.ucf.edu>).

## Dissertation Committee

- The Dean, through the Chairs, is responsible for committee formation, additions, and deletions. The doctoral committee must consist of a minimum of five members: three must be faculty members from within the student's department, and one must be at large from outside the Mechanical, Materials, and Aerospace Engineering Department. The committee Chair must be a member of the department graduate faculty approved to direct dissertations. Joint faculty members serve as department-faculty committee members as well as chairs of dissertation committees. Adjunct faculty and off-campus experts may serve as the outside-the-college person in the committee. Program areas may further specify additional committee membership. The Office of Graduate Studies reserves the right to review appointments to advisory committees, place a representative on any advisory committee, or appoint a co-adviser.
- In unusual cases, with approval from the program Chair, two professors may chair the committee jointly. Joint faculty members may serve as committee chairs, but off-campus experts and adjunct faculty may not serve as committee chairs.
- 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.

# Mathematics Education

## Description

College of Education Department of Teaching and Learning Principles Interim Chair of Department: Dr. Robert Williams Graduate Program Coordinator: Dr. D. K. Brumbaugh, (407) UCF-2045. E-mail: [brumbad@mail.ucf.edu](mailto:brumbad@mail.ucf.edu) Web address: <http://edcollege.ucf.edu/>

The Master of Education in Math Education is designed to meet the advanced knowledge and skill needs of the classroom teacher of mathematics. The Master of Arts program is designed for non-education majors or previously certified teachers in another field.

## Degrees Offered

Master of Education in Mathematics Education (M.Ed.) Master of Arts in Mathematics Education (M.A.)

## Master of Education in Mathematics Education

The Master of Education program is designed to meet the advanced knowledge and skill needs of the classroom teacher of mathematics.

[Master's Programs in the College of Education](#)

[Application Deadlines](#)

## Degree Requirements

### Minimum Hours Required for M.Ed.—33 Credit Hours

Area A: Core—12 or 15 Credit Hours

- EDF 6481 Fundamentals of Graduate Research in Education (3 credit hours)
- Select one of the following courses:
- EDF 6401 Statistics for Educational Data (3 credit hours) OR
- EDF 6432 Measurement and Evaluation in Education (3 credit hours)

Select one of the following courses:

- EDF 6155 Lifespan Human Development and Learning (3 credit hours) OR
- EDF 6517 Perspectives on Education (3 credit hours) OR
- EDF 6608 Social Factors in American Education (3 credit hours)
- MAE 6909 Research Report or 2 approved electives (2,1 or 6 credit hours)

Area B: Specialization—6 Credit Hours—Approved by adviser

Area C: Curriculum Core—15 Credit Hours—Approved by adviser

## Master of Arts in Mathematics Education

The Master of Arts program is for non-education majors or previously certified teachers in another field.

# Degree Requirements

## Minimum Hours Required for M.A.—39 Credit Hours

### Area A: Core—18 or 21 Credit Hours

- EDF 6155 Lifespan Human Development and Learning (3 credit hours)
- EDG 6236 Principles of Instruction and Learning (3 credit hours)
- EDF 6432 Measurement and Evaluation in Education (3 credit hours)
- EDF 6481 Fundamentals of Graduate Research in Education (3 credit hours)
- EDF 6517 Perspectives on Education (3 credit hours)
- ESE 6909 Research Report or 2 approved electives (2, 1 or 6 credit hours)

### Area B: Specialization—12 Credit Hours

- Electives approved by adviser

### Area C: Internship—9 Credit Hours

- MAE 6946 Graduate Internship (3 credit hours)
- MAE 6946 Graduate Internship (6 credit hours)

Satisfactory completion of Graduate Internships requires the student to demonstrate proficiency in all 12 Florida Educator Accomplished Practices at the pre-professional level in accordance with State Board of Education Rule 6A-5.065.

## Co-requisites

- MAE 4360 Math Instructional Analysis (4 credit hours)

### Mathematics Course Requirements

Students are required to take 30 credit hours of mathematics course work to meet certification requirements to teach mathematics in grades 6-12. A track is available for this program in Extended Content and requires 18 hours of graduate-level content in this program. Only six hours of independent study courses may be used to satisfy degree requirements. It is important to see an adviser if courses are difficult to schedule in content areas.

## Additional Program Requirements

- Complete a portfolio according to program guidelines. This portfolio requires demonstration of professional growth, reflection, and proficiency in the 12 Florida Educator Accomplished Practices.
- Pass the CLAST as well as the Professional Education and Subject Area sub-tests of the Florida Teacher Certification Examination.



# Mathematics

## Description

College of Arts and Sciences Department of Mathematics Interim Chair of the Department: Dr. Piotr Mikusinski Graduate Program  
Coordinator: Dr. Ram Mohapatra, MAP 212, (407) 823-5080. E-mail: [ramm@pegasus.cc.ucf.edu](mailto:ramm@pegasus.cc.ucf.edu) Web address: <http://www.math.ucf.edu/>

The University of Central Florida 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, nonlinear waves, probability and mathematical statistics, functional analysis, numerical analysis, approximation theory, nonlinear dynamics, fluid mechanics, wave propagation, algebra, number theory, combinatorics and graph theory, and medical imaging.

## Degrees Offered

Master of Science in Mathematical Science (M.S.)

- Industrial Mathematics Track

Doctor of Philosophy in Mathematics (Ph.D.)

## Faculty

Professors: L. C. Andrews, Ph.D.; L. H. Armstrong, Ph.D.; R. C. Brigham, Ph.D.; J. R. Cannon, Ph.D.; P. Hilton, Ph.D., Distinguished Professor; D. Kaup, Ph.D., Provost's Distinguished Research Professor; X. Li, Ph.D.; P. Mikusinski, Ph.D.; R. N. Mohapatra, Ph.D.; G. D. Richardson, Ph.D.; B. K. Shivamoggi, Ph.D.; M. D. Taylor, Ph.D.; K. Vajravelu, Ph.D.

Associate Professors: J. M. Anthony, Ph.D.; R. M. Caron, Ph.D.; S. R. Choudhury, Ph.D.; M. N. Heinzer, Ph.D.; H. M. Martin, Ph.D.; M. Y. Pensky, Ph.D.; C. P. Rautenstrauch, Ph.D.; J. Ren, Ph.D.; R. S. Rodriguez, Ph.D.; D. K. Rollins, Ph.D.; A. Tovbis, Ph.D.

Assistant Professors: D. Han, Ph.D.; C. Young, Ph.D.; R. C. Jones, Ph.D.; A. Katesvich, Ph.D.; F. L. Salzmann, Ph.D.; Y. Zhao, Ph.D.

Visiting Instructors: A. Danielyan, Ph.D.; L. Dunlop, M.S.; P. Higgins, M.S.; M. Langfield, M.S.; K. Muterspaugh, M.S.

Joint Appointees: T. Clarke, Ph.D., Associate Faculty; R. Dutton, Ph.D., Professor of Computer Science; L. Hoffman, Ph.D., Associate Professor of Statistics; 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

## Master of Science in Mathematical Science

The Master of Science degree in Mathematical Science is 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.

A track in Industrial Mathematics is offered to prepare graduate students to pursue careers in industry by providing them with a high quality of professional training in branches of mathematics that are valuable to high-technology industry. Graduates of the program will be able to pursue a wide variety of jobs at the local and national levels.

## Admission Requirements

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. The department requires international students and students whose native language is not English to have a minimum score of 220 (computer-based test; or equivalent score on the paper-based test) on the Test of English as a Foreign Language (TOEFL).

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 nondegree-seeking status, although only nine hours in this status can be transferred into a graduate program.

[Application Deadlines](#)

## Degree Requirements

There are two options for the master's degree, thesis and non-thesis. In either option, a student should find an adviser who participates in designing a program of study. A program of study is presented to either the Graduate Curriculum Committee or the graduate program coordinator for approval.

### Electives

Electives should be chosen in consultation with the graduate program coordinator or the student's thesis adviser and may be chosen from the suggested options: discrete mathematics, general applied mathematics, image processing and computer graphics, mathematical optics, mathematical physics, pure mathematics, rational mechanics, signal analysis, and statistics. A list of courses for these elective options can be obtained from the graduate program coordinator. Approved graduate courses outside the department may also be used. The student can take up to six credit hours of approved 4000-level mathematics courses. If a student takes MAP 4363 (Applied Boundary Value Problems I), then MAP 5435 (Advanced Mathematics for Engineers) cannot be applied toward the graduate program of study.

### 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. An oral defense of the thesis will be required. It is strongly recommended that the student select a thesis adviser by the completion of 18 semester hours of course work.

## Requirements for M.S. with Thesis Option—30 Credit Hours Minimum

A typical plan of study:

- MAA 5210 Topics in Advanced Calculus (4 credit hours)
- MAA 5405 Complex Variables (3 credit hours)
- MAP 5336 Ordinary Differential Equations and Applications (3 credit hours)
- MAP 5385 Applied Numerical Mathematics (3 credit hours)
- MAP 5407 Applied Mathematics I (3 credit hours)
- MAS 5145 Advanced Linear Algebra and Matrix Theory (3 credit hours)

Electives (9 credit hours)

- MAP 6971 Thesis (3 credit hours)

### Non-Thesis Option

In this option the student takes 36 credit hours of course work with at least 21 in the Department of Mathematics. The student must pass a comprehensive written examination given in the final semester of the student's program, based on the program of study. The examination will be on four of the six courses in the plan of study. The examination will be supervised by a committee composed of the adviser and at least two

other faculty members from the Department of Mathematics. A “P” or “NP” (or “S” or “U”) grade is given on the examination. The examination may be repeated twice if necessary.

## Requirements for M.S. with Non-Thesis Option—36 Credit Hours

A typical plan of study:

- MAA 5210 Topics in Advanced Calculus (4 credit hours)
- MAA 5405 Complex Variables (3 credit hours)
- MAP 5336 Ordinary Differential Equations and Applications (3 credit hours)
- MAP 5385 Applied Numerical Mathematics (3 credit hours)
- MAP 5407 Applied Mathematics I (3 credit hours)
- MAS 5145 Advanced Linear Algebra and Matrix Theory (3 credit hours)

Electives (18 credit hours)

## Industrial Mathematics Track

A track in Industrial Mathematics is offered to prepare graduate students to pursue careers in industry by providing them with high quality professional training in branches of mathematics that are valuable to high-technology industry. Graduates of the program will be able to pursue a wide variety of jobs at the local and national levels.

This track offers a thesis or non-thesis option. In either option, a student will work with an adviser to design a program of study. A program of study is presented to either the Graduate Curriculum Committee or the program coordinator for approval. If a student has an industry sponsor, the student’s program of study will be developed in consultation with a representative from his sponsoring company. Students are expected to obtain hands-on experience by working at sponsoring companies during summer semesters.

There are several courses required as pre-requisites to this track. Those courses are as follows: Calculus with Analytic Geometry I, II, and III; Differential Equations; Elementary Linear and Matrix Algebra (or a course equivalent); Numerical Calculus (or a course equivalent); and Statistics.

## Required Courses

- MAP 5407 Applied Mathematics I (3 credit hours)
- MAP 5117 Mathematical Modeling (3 credit hours)
- MAP 5385 Applied Numerical Mathematics (3 credit hours)
- MAP 6111 Mathematical Statistics (3 credit hours)
- MAT 5711 Scientific Computing (3 credit hours)

## Electives

Electives should be chosen in consultation with the graduate program coordinator or the student’s adviser. A list of elective courses can be obtained from the graduate program coordinator. Approved graduate courses outside the department may also be used. The student can take up to six credit hours of approved 4000-level mathematics courses.

## Thesis Option

The thesis option requires 27 credit hours of courses, including the required courses and 3 credit hours of thesis. The student must take at least 15 credit hours from the Mathematics Department and at least 6 credit hours from outside the department (with the approval of the adviser or the graduate program coordinator). It is recommended that the thesis topics have potential for industrial applications. An oral defense of the thesis will be required.

Requirements for M.S. with Thesis Option—30 Credit Hours Minimum

## Non-Thesis Option

The non-thesis option requires 36 credit hours of courses, including the required courses and a written comprehensive examination. The student must take at least 21 credit hours from the Mathematics Department and at least 9 credit hours from outside the department (with the approval of the adviser or the graduate program coordinator). The comprehensive examination will be given in the final semester of the student's program of study, based on the program of study. The examination will be on the required courses with the exclusion of Scientific Computing. The examination will be supervised by a committee composed of the adviser and at least two other faculty members from the Department of Mathematics. A pass/fail grade is given on the examination; and it may be repeated twice if necessary.

Requirements for M.S. with Non-Thesis Option—36 Credit Hours

## Doctor of Philosophy in Mathematics

In 1992, the Department of Mathematics began its Ph.D. program with emphasis on Applied Mathematics. Students in this program specialize in many different aspects of mathematics, including propagation through random media, nonlinear waves, graph theory, operator algebra and frame theory, tomography, approximation theory, differential equations, nonlinear dynamics and mathematical physics, as well as abstract algebra, real and complex analysis, and probability theory. In response to this wide variety of interests, the program offers more flexibility in the composition of the core as well as the qualifying examination. The program is comprehensive with opportunities for prospective students to pursue research in a variety of discipline areas.

The goal of the program is to produce students with a broad base who will attain distinction in their fields of research. In order to achieve this, the program has a required core as well as a set of electives providing cross-disciplinary subjects. All Ph.D. students are required to take electives outside the department.

## Admission Requirements

Admission to the Ph.D. Program in Mathematics is formalized by the university upon the recommendation of the Department of Mathematics. Applicants must complete an application for graduate admission (available at [www.graduate.ucf.edu](http://www.graduate.ucf.edu)), including a resume, goal statement, and three letters of recommendation.

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. The department requires international students and students whose native language is not English to have a minimum score of 220 (computer-based test; or equivalent score on the paper-based test) on the Test of English as a Foreign Language (TOEFL).

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 non-degree-seeking status, although only nine hours in this status can be transferred into a graduate program.

[Application Deadlines](#)

## Degree Requirements

The Doctor of Philosophy (Ph.D.) program consists of at least 75 semester hours of course work, of which a minimum of 15 hours are required for the dissertation. In addition to the dissertation hours, the program requirements include 18 hours of core courses, 6-12 hours of course work at the graduate level outside the department, and the remainder made up of electives and independent study courses. No more than 12 semester hours of independent study may be credited toward the degree.

Electives should be chosen in consultation with the student's advisory committee and may be chosen from the suggested options: Discrete Mathematics, General Applied Mathematics, Image Processing and Computer Graphics, Mathematical Optics, Mathematical Physics, Pure Mathematics, Rational Mechanics, Signal Analysis, and Statistics. A list of courses for these elective options can be obtained from the graduate program coordinator. If a student takes MAP 4363 (Applied Boundary Value Problems I), then MAP 5435 (Advanced Mathematics for Engineers) cannot be applied toward the graduate program of study.

Courses taken outside the department are to be in a single area of application of mathematics that is related to the student's doctoral work. These courses are to be selected in consultation with the student's advisory committee. Students are encouraged to include in their plan of study a maximum of 12 semester hours of course work outside the department. Students can take up to 6 semester hours of approved 4000-level mathematics courses. In addition to the 75 semester hours of the program, a minimum of 3 credit hours of an approved computer language are required. The language and computer courses may have been taken at any point in the student's post-secondary career.

#### Core Courses—18 Semester Hours

Students must take six of the following courses. The choices must be approved by the graduate coordinator.

- MAA 5405 Complex Variables (3 credit hours)
- MAA 5416 Foundations of Analysis (3 credit hours)
- MAA 6404 Complex Analysis (3 credit hours)
- MAP 5336 Ordinary Differential Equations and Applications (3 credit hours)
- MAP 5407 Applied Mathematics I (3 credit hours)
- MAP 6110 Measure and Probability (3 credit hours)
- MAP 6356 Partial Differential Equations (3 credit hours)
- MAP 6408 Applied Mathematics II (3 credit hours)
- MAP 6506 Functional Analysis (3 credit hours)
- MAS 5311 Abstract Algebra with Applications (3 credit hours)

#### Electives—42 Semester Hours

#### Dissertation—15 Semester Hours

#### Minimum Hours Required for Ph.D.—75 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 a written examination that will be administered twice a year. Students must obtain permission from the Graduate Program Coordinator to take the examination. 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. 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.

Depending on the choice of core courses, students may choose to complete qualifying exams in either of the following two groups of courses:

- MAA 5416 Foundations of Analysis
- MAA 6404 Complex Analysis
- MAP 6506 Functional Analysis
- MAS 5311 Abstract Algebra with Applications

Or

- MAA 5405 Complex Variables
- MAP 5336 Ordinary Differential Equations and Applications
- MAP 5407 Applied Mathematics I
- MAP 6356 Partial Differential Equations

After passing the qualifying exam, the student must select a dissertation adviser. Finding a dissertation adviser is the responsibility of the student and should be done as soon as possible. In consultation with the dissertation adviser, the student should form an advisory committee. The dissertation adviser 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.

# Mechanical Engineering

## Description

College of Engineering and Computer Science Department of Mechanical, Materials and Aerospace Engineering Interim Chair of the Department: Dr. D. W. Nicholson Associate Chair of the Department: Dr. H. Hagedoorn Graduate Program Coordinator: Dr. Alain J. Kassab, ENGR 381, (407) 823-5778. E-mail: [kassab@mail.ucf.edu](mailto:kassab@mail.ucf.edu) Web address: <http://www-mmae.engr.ucf.edu>

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 obtained from a recognized accredited institution. The master's program offers the following tracks: Computer-Aided Mechanical Engineering, Mechanical Systems, Miniature Engineering Systems, Professional, and Thermofluids.

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 doctoral 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 Thermofluids.

## Degrees Offered

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

- Computer-Aided Mechanical Engineering Track
- Mechanical Systems Track
- Miniature Engineering Systems Track
- Professional Track
- Thermofluids Track

Doctor of Philosophy in Mechanical Engineering (Ph.D.)

## Faculty

Professors: P. J. Bishop, Ph.D., P.E., Vice Provost and Dean of Graduate Studies; L. C. Chow, Ph.D.; V. H. Desai, Ph.D., P.E.; B. E. Eno, Ph.D., P.E.; A. J. Kassab, Ph.D.; F. A. Moslehy, Ph.D., P.E.; D. W. Nicholson, Ph.D.

Associate Professors: R. H. Chen, Ph.D.; L. Chew, Ph.D.; T. Conway, Ph.D.; S. T. Durrance, Ph.D.; L. A. Giannuzzi, Ph.D.; A. H. Hagedoorn, Ph.D., P.E.; R. W. Johnson, Ph.D., P.E.; J. Kapat, Sc.D.; K. C. Lin, Ph.D., P.E.; A. Minardi, Ph.D.; J. Nayfeh, Ph.D.; C. E. Nuckolls, Ph.D., P.E.; C. Suryanarayana, Ph.D.; G. G. Ventre, Ph.D., P.E.

Assistant Professors: Linan An, Ph.D.; Quanfang Chen, Ph.D.; Yong-ho Sohn, Ph.D.; Raj Vaidyanathan, Ph.D.; D. Zhou, Ph.D.

Emeritus Professors: E. R. Hosler, Ph.D., P.E.; J. D. McBrayer, Sc.D., P.E.; W. F. Smith, Sc.D., P.E.

Visiting Assistant Professors: C. Ham, Ph.D.; E. Divo, Ph.D.

Joint Appointees: K.D. Belfield, Ph.D., Department of Chemistry; K. A. Cerqua-Richardson, Ph.D., School of Optics; M. B. Chopra, Ph.D., Department of Civil and Environmental Engineering; N. S. Dhere, Ph.D., Florida Solar Energy Center; A. Kar, Ph.D., School of Optics; W. Luo, Physics, D.C. Malocha, Ph.D., School of Electrical Engineering and Computer Science; N. Misconi, Engineering Technology; K.V. Sundaram, School of Electrical Engineering and Computer Science; R. Y. Ting, Ph.D., AMPAC; K. Vajravelu, Ph.D., Department of Mathematics

Research Faculty: J. Bindell, Ph.D., Cilent Semiconductor; R. Irwin, Ph.D., Cilent Semiconductor; F. Stevie, M.S., Cilent Semiconductor; R. Zarda, Ph.D., Lockheed-Martin Missiles and Fire Control

## Master of Science in Mechanical Engineering

# (M.S.M.E.)

## Admission Requirements

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 obtained from a recognized institution. Minimum requirements for admission to regular status are a 3.0 grade point average (A=4.0) in the last 60 attempted hours of undergraduate study from an accredited institution, 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 U.S. college or university), a score of 220 (computer-based test; or equivalent score on the paper-based test) on the Test of English as a Foreign Language (TOEFL).

In certain circumstances a trial program may be extended to students who have a grade point average 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.

[Application Deadlines](#)

## Degree Requirements

All students are expected to identify an adviser and Filename an official degree program of study prior to the completion of 9 credit hours of study. Students should consult with the MMAE graduate program coordinator for assistance in filling out a program of study. The M.S.M.E. degree is offered as a thesis or a non-thesis program in each of the five departmental tracks: Computer-Aided Mechanical Engineering, Mechanical Systems, Miniature Engineering Systems, Professional, and Thermofluids. A program of study, satisfying track requirements, must be developed prior to the completion of 9 credit hours and meet with departmental approval.

The thesis option requires 30 credit hours, at least half of which must be at the 6000 level and will include 6 credit hours of thesis credit. 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.

The non-thesis option is primarily designed to meet the needs of part-time students and requires 36 credit hours of course work, at least 15 of which must be at the 6000 level. In addition, students pursuing the non-thesis option are required to pass a final comprehensive exam and to take EML 6085 Research Methods in MMAE as part of their 36-credit-hour course requirement.

A student with an undergraduate degree outside of the selected departmental discipline may be required to satisfy an articulation program. Substitutions to the program of study must meet with the approval of the adviser and the department. Further information is available in the Master's Degree General Procedures manual available from the MMAE Department (<http://www-mmae.engr.ucf.edu>).

## Computer-Aided Mechanical Engineering Track

### Prerequisites (or equivalent)

- Mathematics through Differential Equations (MAP 2302)
- Modeling Methods in Mechanical and Aerospace Engineering (EML 3034)
- Thermodynamics of Mechanical Systems (EML 3101)
- Structure and Properties of Materials (EGN 3365)
- Machine Design and Analysis (EML 3500)

### Required Courses—6 Credit Hours

All students must take the following two required courses.

- EML 5060 Mathematical Methods in Mechanical, Materials and Aerospace Engineering (3 credit hours)
- EML 5211 Continuum Mechanics (3 credit hours)



Students must take at least four courses from the track specialty courses below. Additional courses to satisfy total credit hour requirements (30 credit hours thesis option, 36 credit hours non-thesis option) may be taken from the list of representative electives below or from the remaining MMAE course offerings. Students should consult with their faculty adviser (or graduate program coordinator if they do not have a faculty adviser) prior to registering for classes. Note that thesis option students must take 6 credit hours of thesis and non-thesis option students must take Research Methods in MMAE. Thesis students must continue to enroll in one credit hour of thesis course work (XXX 6971) until the thesis requirement is satisfied, beyond the minimum of 6 credit hours of thesis.

## Track Specialty Courses—12 Credit Hours Minimum

- EGN 5858C Introduction to Rapid Prototyping (3 credit hours)
- EML 5025C Engineering Design Practice (3 credit hours)
- EML 5532C Computer-Aided Design for Manufacture (3 credit hours)
- EML 6062 Boundary Elements Methods in Engineering (3 credit hours)
- EML 6067 Finite Elements in Mechanical, Materials and Aerospace Engineering I (3 credit hours)
- EML 6068 Finite Elements in Mechanical, Materials, and Aerospace Engineering II (3 credit hours)
- EML 6725 Computational Fluid Dynamics and Heat Transfer I (3 credit hours)
- EML 6726 Computational Fluid Dynamics and Heat Transfer II (3 credit hours)

## Representative Electives—12-18 Credit Hours

- EAS 6138 Advanced Gas Dynamics (3 credit hours)
- EAS 6185 Turbulent Flow (3 credit hours)
- EML 5105 Gas Kinetics and Statistical Thermodynamics (3 credit hours)
- EML 5402 Turbomachinery (3 credit hours)
- EML 6155 Convection Heat Transfer (3 credit hours)
- EML 6712 Mechanics of Viscous Flow (3 credit hours)
- EML 5066 Computational Methods in Mechanical, Materials and Aerospace Engineering (3 credit hours)
- EML 5131 Combustion Phenomena (3 credit hours)
- EML 5152 Intermediate Heat Transfer (3 credit hours)
- EML 5713 Intermediate Fluid Mechanics (3 credit hours)
- EML 5532C Computer-Aided Design for Manufacture (3 credit hours)
- EML 6154 Conduction Heat Transfer (3 credit hours)
- EML 5237 Intermediate Mechanics of Materials (3 credit hours)
- EML 5546 Engineering Design with Composite Materials (3 credit hours)
- EMA 5106 Metallurgical Thermodynamics (3 credit hours)
- EMA 5108 Surface Science (3 credit hours)
- EMA 5326 Corrosion Science and Engineering (3 credit hours)
- EMA 6628 Materials Failure Analysis (3 credit hours)
- EML 6971 Thesis (6 credit hours)
- EML 6085 Research Methods in MMAE (required for non-thesis option) (3 credit hours)

Comprehensive Examination

Minimum Hours Required for M.S.M.E.—30 or 36 Credit Hours

## Mechanical Systems Track

### Prerequisites (or equivalent)

- Mathematics through Differential Equations (MAP 2302)
- Modeling Methods in Mechanical and Aerospace Engineering (EML 3034)
- Machine Design and Analysis (EML 3500)
- Vibration Analysis (EML 4220)
- Experimental Techniques in Mechanics and Materials (EMA 3012C)
- Feedback Control (EML 3312C)

## Required Courses—6 Credit Hours

All students must take the following two required courses.

- EML 5060 Mathematical Methods in Mechanical, Materials, and Aerospace Engineering (3 credit hours)
- EML 5211 Continuum Mechanics (3 credit hours)

Students must take at least four courses from the track specialty courses below. Additional courses to satisfy total semester hour requirements (30 credit hours thesis option, 36 credit hours non-thesis option) may be taken from the list of representative electives below or from the remaining MMAE course offering. Students should consult with their faculty adviser (or graduate program coordinator if they do not have a faculty adviser) prior to registering for classes. Note that thesis option students must take 6 credit hours of thesis and non-thesis option students must take Research Methods in MMAE. Thesis students must continue to enroll in one credit hour of thesis course work (EML 6971) until the thesis requirement is satisfied, beyond the minimum of 6 credit hours of thesis.

### Track Specialty Courses—12 Credit Hours (Minimum)

- EML 5311 System Control (3 credit hours)
- EML 5271 Intermediate Dynamics (3 credit hours)
- EML 5546 Engineering Design with Composite Materials (3 credit hours)
- EML 6067 Finite Elements in Mechanical, Materials and Aerospace Engineering I (3 credit hours)
- EML 6068 Finite Elements in Mechanical, Materials and Aerospace Engineering II (3 credit hours)
- EML 6062 Boundary Element Methods in Engineering (3 credit hours)
- EML 6227 Nonlinear Vibration (3 credit hours)
- EML 6305C Experimental Mechanics (3 credit hours)
- EML 6547 Engineering Fracture Mechanics in Design (3 credit hours)

## Representative Electives—12-18 Credit Hours

- EMA 5104 Intermediate Structure and Properties of Materials (3 credit hours)
- EMA 5504 Modern Characterization of Materials (3 credit hours)
- EMA 6628 Materials Failure Analysis (3 credit hours)
- EML 5025C Engineering Design Practice (3 credit hours)
- EML 5066 Computational Methods in Mechanical, Materials and Aerospace Engineering (3 credit hours)
- EML 5224 Acoustics (3 credit hours)
- EML 5228C Modal Analysis (3 credit hours)
- EML 5245 Tribology (3 credit hours)
- EML 5237 Intermediate Mechanics of Materials (3 credit hours)
- EML 5532C Computer-Aided Design for Manufacture (3 credit hours)
- EML 5572 Probabilistic Methods in Design (3 credit hours)
- EML 6808 Analysis and Control of Robot Manipulators (3 credit hours)
- EML 6223 Advanced Vibrational Systems (3 credit hours)
- EML 6226 Analytical Dynamics (3 credit hours)
- EML 6653 Theory of Elasticity (3 credit hours)
- EML 6971 Thesis (6 credit hours)
- EML 6085 Research Methods in MMAE (required for non-thesis option) (3 credit hours)

### Comprehensive Examination

Minimum Hours Required for M.S.M.E.—30 or 36 Credit Hours

## Miniature Engineering Systems Track

### Required Courses

- EML 5060 Math Methods in MMAE (3 credit hours)
- EML 5XXX Introduction of MEMS and Micromachining (3 credit hours)

## Track Specialty Courses (3 courses from the following list)

- EML 6XXX MEMS Mechanism and Design (3 credit hours)
- EML 5XXX Fundamental Phenomena and Scaling Laws in Miniature Engineering Systems (3 credit hours)
- EEL 6XXX MEMS Fabrication Laboratory (3 credit hours)
- EML 5211 Continuum Mechanics (3 credit hours)
- EML 6XXX Advanced Topics on Miniaturization (3 credit hours)
- EML 6XXX MEMS Characterization (3 credit hours)
- EMA 5104 Intermediate Structure and Properties of Materials (3 credit hours)
- EML 6XXX Sensors and Actuators for Micro Mechanical Systems (3 credit hours)
- EML 5XXX MEMS Materials (3 credit hours)

## Elective Courses (3 courses from the following list or from Specialty List)

- EML 5025C Engineering Design Practice (3 credit hours)
- EGN 5858C Rapid Prototyping (3 credit hours)
- EML 5271 Intermediate Dynamics (3 credit hours)
- EML 5152 Intermediate Heat Transfer (3 credit hours)
- EML 6712 Mechanics of Viscous Flow (3 credit hours)
- EML 6155 Convection Heat Transfer (3 credit hours)
- EML 5713 Intermediate Fluid Mechanics (3 credit hours)
- EML 6725 Computational Fluid Dynamics and Heat Transfer I (3 credit hours)
- EML 6104 Classical Thermodynamics (3 credit hours)
- EML 5402 Turbomachinery (3 credit hours)
- EML 6157 Radiation Heat Transfer (3 credit hours)
- EML 5245 Tribology (3 credit hours)
- EMA 5108 Surface Science (3 credit hours)
- EMA 5504 Modern Characterization of Materials (3 credit hours)
- EMA 5584 Biomaterials (3 credit hours)
- EML 5311 System Control (3 credit hours)
- EML 5105 Gas Kinetics and Statistical Thermodynamics (3 credit hours)
- EEL 5XXX Applied Control Systems (3 credit hours)
- EML 5546 Engineering Design with Composite Materials (3 credit hours)

Students on the thesis option will take at least 6 credit hours of thesis. Students with non-thesis option need to (1) take three more courses from the Track Specialty or Elective lists, (2) take EML 6085 (Research Methods), and (3) pass the MS Comprehensive Examination.

Comprehensive Examination

Minimum Hours Required for M.S.M.E.—30 or 36 Credit Hours

## Professional Track

### Prerequisites (or equivalent)

- Mathematics through Differential Equations (MAP 2302)
- Modeling Methods in Mechanical and Aerospace Engineering (EML 3034)
- Thermodynamics of Mechanical Systems (EML 3101)
- Structure and Properties of Materials (EGN 3365)
- Mechanics of Materials (EGN 3331)

### Required Courses—6 Credit Hours

All students must take the following two required courses.

- EML 5060 Mathematical Methods in Mechanical, Materials, and Aerospace Engineering (3 credit hours)

- EML 5211 Continuum Mechanics (3 credit hours)

Students must take at least four courses from the track specialty courses below. Additional courses to satisfy total semester hour requirements (30 credit hours thesis option, 36 credit hours non-thesis option) may be taken from the list of representative electives below or from the remaining MMAE course offering. Students should consult with their faculty adviser (or graduate program coordinator if they do not have a faculty adviser) prior to registering for classes. This track is intended mainly for part-time students and may be taken under non-thesis or thesis options. Thesis option students must take 6 credit hours of thesis and non-thesis option students must take Research Methods in MMAE. Thesis students must continue to enroll in one credit hour of thesis course work (EML 6971) until the thesis requirement is satisfied, beyond the minimum of 6 credit hours of thesis.

## Track Specialty Courses—12 Credit Hours Minimum

- EMA 6628 Materials Failure Analysis (3 credit hours)
- EML 5131 Combustion Phenomena (3 credit hours)
- EML 5402 Turbomachinery (3 credit hours)
- EML 5532C Computer-Aided Design for Manufacture (3 credit hours)
- EML 6062 Boundary Elements Methods in Engineering (3 credit hours)
- EML 6155 Convection Heat Transfer (3 credit hours)
- EML 6226 Analytical Dynamics (3 credit hours)
- EML 6067 Finite Elements in Mechanical, Materials and Aerospace Engineering I (3 credit hours)
- EML 6305C Experimental Mechanics (3 credit hours)
- EML 6547 Engineering Fracture Mechanics in Design (3 credit hours)
- EML 6712 Mechanics of Viscous Flow (3 credit hours)
- EML 6725 Computational Fluid Dynamics and Heat Transfer I (3 credit hours)

## Representative Electives—12-18 Credit Hours

- EML 5025C Engineering Design Practice (3 credit hours)
- EML 5105 Gas Kinetics and Statistical Thermodynamics (3 credit hours)
- EAS 6138 Advanced Gas Dynamics (3 credit hours)
- EAS 6185 Turbulent Flow (3 credit hours)
- EML 5066 Computational Methods in Mechanical, Materials and Aerospace Engineering (3 credit hours)
- EML 5131 Combustion Phenomena (3 credit hours)
- EML 5152 Intermediate Heat Transfer (3 credit hours)
- EML 5713 Intermediate Fluid Mechanics (3 credit hours)
- EML 6068 Finite Elements in Mechanical, Materials, and Aerospace Engineering II (3 credit hours)
- EML 6726 Computational Fluid Dynamics and Heat Transfer II (3 credit hours)
- EML 5237 Intermediate Mechanics of Materials (3 credit hours)
- EML 5546 Engineering Design with Composite Materials (3 credit hours)
- EMA 5106 Metallurgical Thermodynamics (3 credit hours)
- EMA 5108 Surface Science (3 credit hours)
- EMA 5326 Corrosion Science and Engineering (3 credit hours)
- EML 6971 Thesis (6 credit hours)
- EML 6085 Research Methods in MMAE (required for non-thesis option) (3 credit hours)

Comprehensive Examination

Minimum Hours Required for M.S.M.E.—30 or 36 Credit Hours

## Thermofluids Track

### Prerequisites (or equivalent)

- Mathematics through Differential Equations (MAP 2302)
- Modeling Methods in Mechanical and Aerospace Engineering (EML 3034)
- Thermodynamics of Mechanical Systems (EML 3101)
- Measurements in Thermal Systems (EML 4304C)

- Fluid Mechanics II (EML 4703)
- Heat Transfer (EML 4142)

## Required Courses—6 Credit Hours

All students must take the following two required courses.

- EML 5060 Mathematical Methods in Mechanical, Materials and Aerospace Engineering (3 credit hours)
- EML 5211 Continuum Mechanics (3 credit hours)

Students must take at least four courses from the track specialty courses below. Additional courses to satisfy total semester hour requirements (30 credit hours thesis option, 36 credit hours non-thesis option) may be taken from the list of representative electives below or from the remaining MMAE course offering. Students should consult with their faculty adviser (or graduate program coordinator if they do not have a faculty adviser) prior to registering for classes. Note that thesis option students must take 6 credit hours of thesis and non-thesis option students must take Research Methods in MMAE. Thesis students must continue to enroll in one credit hour of thesis course work (EML 6971) until the thesis requirement is satisfied, beyond the minimum of 6 credit hours of thesis.

## Track Specialty Courses—12 Credit Hours Minimum

- EML 5105 Gas Kinetics and Statistical Thermodynamics (3 credit hours)
- EML 5402 Turbomachinery (3 credit hours)
- EML 6062 Boundary Element Methods in Engineering (3 credit hours)
- EML 6155 Convection Heat Transfer (3 credit hours)
- EML 6157 Radiation Heat Transfer (3 credit hours)
- EML 6712 Mechanics of Viscous Flow (3 credit hours)
- EML 6725 Computational Fluid Dynamics and Heat Transfer I (3 credit hours)
- EML 6726 Computational Fluid Dynamics and Heat Transfer II (3 credit hours)

## Representative Electives—12-18 Credit Hours

- EAS 5302 Direct Energy Conversion (3 credit hours)
- EAS 5315 Rocket Propulsion (3 credit hours)
- EAS 6138 Advanced Gas Dynamics (3 credit hours)
- EAS 6185 Turbulent Flow (3 credit hours)
- EML 5025C Engineering Design Practice (3 credit hours)
- EML 5066 Computational Methods in Mechanical, Materials and Aerospace Engineering (3 credit hours)
- EML 5131 Combustion Phenomena (3 credit hours)
- EML 5152 Intermediate Heat Transfer (3 credit hours)
- EML 5713 Intermediate Fluid Mechanics (3 credit hours)
- EML 5532C Computer-Aided Design for Manufacture (3 credit hours)
- EML 6104 Classical Thermodynamics (3 credit hours)
- EML 6124 Two-Phase Flow (3 credit hours)
- EML 6154 Conduction Heat Transfer (3 credit hours)
- EML 6158 Gaseous Radiation Heat Transfer (3 credit hours)
- EML 6726 Computational Fluid Dynamics and Heat Transfer II (3 credit hours)
- EML 6971 Thesis (6 credit hours)
- EML 6085 Research Methods in MMAE (required for non-thesis option) (3 credit hours)

Comprehensive Examination

Minimum Hours Required for M.S.M.E.—30 or 36 Credit Hours

# Doctor of Philosophy (Ph.D.) in Mechanical Engineering

The Doctor of Philosophy (Ph.D.) degree is intended for students with a master's degree in mechanical or aerospace engineering or a closely related discipline. The program is designed to allow students to study in depth, with emphasis on research in Aerospace Systems, Materials Science and Engineering, Mechanical Systems, or Thermofluids.

## Admission Requirements

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 an accredited institution. Students must submit an application for graduate admission, including a resume, goals statement, and three letters of recommendation.

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 Thermofluids; (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.

[Application Deadlines](#)

## Degree Requirements

### Graduate Student Entering the Ph.D. Program with a B.S.

For a graduate student with a B.S. degree, the following are the minimum Mechanical Engineering Ph.D. program requirements: 72 credit hours of graduate course work, of which 57 credit hours are the minimum hours of course work (may include up to 12 credit hours of directed research with approved Program of Study) and 15 credit hours are the minimum hours of dissertation. The rest of the hours in the Ph.D. program can be chosen by the student in consultation with the adviser and the dissertation committee and with the approval of the graduate program coordinator. These may include doctoral directed research hours or doctoral dissertation hours.

Minimum Course Work (may include up to 12 credit hours of directed research)—57 Credit Hours

Doctoral Dissertation—15 Credit Hours

Minimum Hours Required for Ph.D.—72 Credit Hours

### Graduate Student Entering the Ph.D. Program with an M.S.:

For a graduate student with an M.S. degree the following are the minimum Mechanical Engineering Ph.D. program requirements: 36 credit hours of graduate course work beyond the master's degree, of which 21 credit hours are the minimum number of hours of course work and 15 credit hours are the minimum hours of doctoral dissertation hours. The rest of the hours in the Ph.D. program can be chosen by the student in consultation with the adviser and the dissertation committee and with the approval of the graduate program coordinator. These credit hours may include doctoral directed research hours or doctoral dissertation hours. Non-thesis M.S. degree students may take up to 9 credit hours of directed research, while M.S. thesis option students may take up to 12 credit hours of directed research toward fulfillment of additional minimum course work beyond the M.S.

Minimum Course Work (may include up to 12 credit hours of directed research)—21 (27) Credit Hours\*

Doctoral Dissertation—15 Credit Hours

Minimum Hours Required for Ph.D.—36 (42) Credit Hours\*

\* For students who have completed a thesis option at the master's level with no additional course work, the minimum requirement for course work will be 27 hours.

#### NOTES:

- UCF requires that a full-time Ph.D. student be registered for 9 hours Fall and Spring semesters and 6 credit hours Summer semester.
- The University of Central Florida requires that a Ph.D. student be registered for 3 hours of doctoral dissertation hours upon completion of the candidacy exam and every semester thereafter until graduation.
- The MMAE department requires that a Ph.D. student submits his/her candidacy exam the academic semester immediately following

his/her successfully passing the Ph.D. Qualifying Exam.

- No more than 12 credit hours of directed doctoral research may be taken toward fulfilling degree program of study course work requirements.
- Unless a completed (signed) program of study (POS) itemizing the study plan is approved prior to the end of the first semester of studies, the graduate program coordinator of the MMAE department may choose not to accept any part of the course work (including independent studies and/or directed research) taken by the student on a program of study subsequently submitted by the student.

## 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 (<http://www-mmae.engr.ucf.edu>).

## Dissertation Committee

- The Dean, through the Chairs, is responsible for committee formation, additions, and deletions. The doctoral committee must consist of a minimum of five members: three must be faculty members from within the student's department, and one must be at large from outside the Mechanical, Materials, and Aerospace Engineering Department. The committee Chair must be a member of the department graduate faculty approved to direct dissertations. Joint faculty members serve as department-faculty committee members as well as chairs of dissertation committees. Adjunct faculty and off-campus experts may serve as the outside-the-college person in the committee. Program areas may further specify additional committee membership. The Office of Graduate Studies reserves the right to review appointments to advisory committees, place a representative on any advisory committee, or appoint a co-adviser.
- In unusual cases, with approval from the program Chair, two professors may chair the committee jointly. Joint faculty members may serve as committee chairs, but off-campus experts and adjunct faculty may not serve as committee chairs.
- 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.

# Modeling and Simulation

## Description

Lead Graduate Program Coordinator: Dr. J. Peter Kincaid, College of Arts and Sciences. E-mail: [pkincaid@ist.ucf.edu](mailto:pkincaid@ist.ucf.edu) Associate Graduate Program Coordinator: Dr. Charles Reilly, College of Engineering and Computer Science. E-mail: [creilly@mail.ucf.edu](mailto:creilly@mail.ucf.edu)

The University of Central Florida offers interdisciplinary master's and doctoral degrees in Modeling and Simulation (M&S). The Master of Science (M.S.) in Modeling and Simulation prepares scientists who can work with interdisciplinary teams to use simulation and modeling in solving important problems in both the public and private sectors. The Doctor of Philosophy (Ph.D.) in Modeling and Simulation is primarily intended for students with an academic or work background in mathematics, engineering, or computer science who wish to pursue a career in academia, defense, entertainment, or manufacturing.

Simulation is the quintessential utility tool. In one way or another, just about every engineering or scientific field uses simulation as an exploration, modeling, or analysis technique. Simulation is not limited to engineering or science. Simulation is used in training, management, and concept exploration. Simulation entails constructing human-centered, equipment-centered, and/or stand-alone computer-based models or systems of existing as well as conceptual systems or processes. The purpose of simulation is to evaluate the behavior of the human(s), organization, equipment, and/or systems under study through the evaluation of output from the corresponding simulation construct. Due to the scale and complexity of modeling and simulation, practitioners have developed both generalized and specialized skills. Input from industry and government M&S users and developers has been instrumental in identifying the key competencies for M&S professionals and has been critical to the development of this curriculum.

## Degrees Offered

- Master of Science in Modeling and Simulation (M.S.)
- Doctor of Philosophy in Modeling and Simulation (Ph.D.)

## Master of Science in Modeling and Simulation

Graduates of the Modeling and Simulation M.S. program will be able to establish depth in one of seven focus areas and have the diverse training necessary to enable them to work in varied capacities in government agencies, or in the defense, entertainment, and manufacturing industries. They will have an interdisciplinary core body of knowledge on modeling approaches, human factors, computing infrastructure, and visual representation and will be capable of critically reviewing the literature in the field. They will have developed the capacity to solve complex problems by building simulation models, designing and carrying out experiments, collecting data, analyzing results, and managing M&S programs. They will be able to clearly communicate their findings to their peers.

The program offers seven focus areas for students to choose from for their program of study:

- Quantitative Aspects of Simulation
- Simulation Infrastructure
- Simulation Management
- Computer Visualization in M&S
- Simulation Modeling and Analysis
- Interactive Simulation/Intelligent Systems
- Human Systems in M&S

These M&S focus areas have been identified and discussed with M&S leaders from industry and government. Each of these focus areas represents an area in which UCF has considerable faculty expertise, expertise that has developed and grown as UCF has grown with the M&S field in our community. Government and industry leaders in M&S endorse these focus areas because of their importance to the continued growth of the M&S field. For all of the focus areas, opportunities are available for students to work with researchers and M&S faculty on research and development projects. Descriptions of these focus areas are provided under "Degree Requirements" below.

## Admission Requirements



Students who enter this program are in general expected to have an academic and/or work background that has prepared them in mathematics (introductory calculus and probability and statistics) and computer “literacy,” including proficiency with word processing, spreadsheet, and database programs, and, preferably, familiarity with at least one higher order programming language (e.g., C++). Students with undergraduate degrees in engineering, computer science, or mathematics will generally have this background. For students with less technical academic preparation, a core course, SIM 5XXX Introduction to Quantitative Aspects of Modeling and Simulation, will prepare them to pursue several, but not all, of the focus areas. For example, these students could pursue the Simulation Management or Human Systems focus areas, but would need a number of prerequisite courses in mathematics, statistics, and computer science to pursue more technical focus areas such as Simulation Infrastructure. SIM 5XXX Introduction to Quantitative Aspects of Modeling and Simulation has a math prerequisite of a one semester introduction to calculus course (e.g., MAC 2233 Concepts of Calculus or MAC 2241 Calculus for Life Sciences).

Admission requirements include:

- GPA of 3.0
- GRE of 1000
- TOEFL of 220 (computer test)
- Resume and goal statement
- Introductory calculus and statistics

Both GPA and Test Scores must be officially reported to the Office of Graduate Studies.

[Application Deadlines](#)

## Degree Requirements

In addition to UCF university-wide requirements for master's degrees, the Modeling and Simulation M.S. has special requirements because of its interdisciplinary nature. Courses will introduce students to the interdisciplinary aspects of the field and require students from different disciplines to work together in teams. Students may select from seven M&S focus areas in planning their program of study. Courses for the focus areas including the cornerstone courses are listed below. Cornerstone courses are required to be taken before the restricted electives can be taken. The culminating experience for graduates of the master's program will be the project, paper, and presentation done as part of required core course, IDS 6XXX Research Methods and Practicum. This project will serve as a capstone experience and will be reviewed by outside experts.

## Non-Thesis Option

The non-thesis option requires 36 credit hours, including:

- Required core courses (9 credit hours)
- Cornerstone courses for two focus areas (6 credit hours)
- Electives for focus area (21 credit hours)

## Thesis Option

The thesis option requires 30 credit hours, including:

- Required core courses (9 credit hours)
- Cornerstone courses for focus areas (6 credit hours)
- Electives from focus area (9 credit hours)
- Thesis (6 credit hours)

## Required Interdisciplinary Core

Three core courses will provide an interdisciplinary framework for all students. Teams of program faculty will teach these core courses. A brief description of the proposed core courses follows.

- IDS 5937 Introduction to Modeling and Simulation. Introduction to the theory and practice of modeling and simulation with an emphasis on multidisciplinary scientific underpinnings. Led by one instructor augmented by a team.

- MAP 5937 Introduction to Quantitative Aspects of Modeling and Simulation. An introduction to matrix algebra, probability and statistics, and high level programming languages for the M&S student who does not have a strong background in these areas. Students who have this background may select an elective instead.
- IDS 6XXX Research Methods and Practicum. Pre-requisite or concurrent: ESI 5219 Engineering Statistics, PSY 6216 Advanced Research Methodology I, or equivalent. Project course in which interdisciplinary teams conduct and manage research projects on fundamental and applied issues in modeling and simulation and training. This course will be taught by a team of M&S faculty.

## Quantitative Aspects of Simulation Focus Area

The Quantitative Aspects of Simulation focus area caters to those who seek to develop skill in the application of advanced quantitative methods to modeling and simulation. Building on backgrounds in mathematics or statistics they will gain experience in modeling and simulation. Graduates will be able to apply mathematics and statistics to build multidisciplinary models and simulations. Typical courses include: Mathematical Modeling, Statistical Aspects of Digital Simulation, Advanced Systems Simulation, and Splines and Data Fitting.

### Cornerstone Course

- AP 5117 Mathematical Modeling (3 credit hours)

### Restricted Electives

- EML 6062 Boundary Element Methods in Engineering (3 credit hours)
- EML 6067 Finite Elements in Mechanical, Materials, and Aerospace Engineering I (3 credit hours)
- ESI 6217 Statistical Aspects of Digital Simulation (3 credit hours)
- ESI 6358 Decision Analysis (3 credit hours)
- ESI 6529 Advanced Systems Simulation (3 credit hours)
- ESI 6546 Process Simulation (3 credit hours)
- MAP 5385 Applied Numerical Mathematics (3 credit hours)
- MAP 5407 Applied Mathematics I (3 credit hours)
- MAP 6118 Introduction to Nonlinear Dynamics (3 credit hours)
- MAP 6207 Optimization Theory (3 credit hours)
- MAP 6408 Applied Mathematics II (3 credit hours)
- MAP 6445 Approximation Techniques (3 credit hours)
- MAP 6465 Wavelets and Their Applications (3 credit hours)
- STA 6246 Linear Models (3 credit hours)

## Simulation Infrastructure Focus Area

The Simulation Infrastructure focus area caters to those who wish to gain an in-depth understanding of the basic components of simulation systems and their patterns of configuration and communication, including hardware and software issues. They will gain experience in the development of distributed simulation and training environments. Graduates will be able to implement such systems or manage a team capable of developing such systems. Typical courses include Performance Models of Computers and Networks, Simulation Design and Analysis, High Performance Computer Architecture, and Analysis of Computer and Communication Systems.

### Cornerstone Course

- CDA 5530 Performance Models of Computers and Networks (3 credit hours)

### Restricted Electives

- CDA 5106 Advanced Computer Architecture I (3 credit hours)
- CDA 5501 Computer Communication Networks Architecture (3 credit hours)
- CDA 6107 Advanced Computer Architecture II (3 credit hours)
- COP 6615 Operating Systems Theory (3 credit hours)
- EEL 5708 High Performance Computer Architecture (3 credit hours)

- EEL 5762 Performance Analysis of Computer and Communication Systems (3 credit hours)
- EEL 5891 Continuous System Simulation I (3 credit hours)
- EEL 6785 Computer Network Design (3 credit hours)
- EEL 6878 Modeling and Artificial Intelligence (3 credit hours)
- EEL 6893 Continuous System Simulation II (3 credit hours)

## Simulation Management Focus Area

The Simulation Management focus area caters to those who wish to gain expertise in the management of projects related to modeling, simulation, and training. A graduate will be prepared to manage such projects for military agencies or MS&T companies. Typical courses include Environment of Technical Organizations, Modeling and Simulation of Real-Time Processes, Management Information Systems, and Project Engineering. A course sequence in simulation-based acquisition is being developed.

### Cornerstone Course

- EIN 5108 The Environment of Technical Organizations (3 credit hours)

### Restricted Electives

- EEL 6887 Software Engineering Life-Cycle Control (3 credit hours)
- EIN 5117 Management Information Systems I (3 credit hours)
- EIN 5140 Project Engineering (3 credit hours)
- EIN 5381 Engineering Logistics (3 credit hours)
- EIN 6322 Engineering Management (3 credit hours)
- EIN 6339 Operations Engineering (3 credit hours)
- EIN 6357 Advanced Engineering Economic Analysis (3 credit hours)
- ESI 5316 Operations Research (3 credit hours)
- ESI 6358 Decision Analysis (3 credit hours)
- SIM/EIN 5XXX Simulation-based Acquisition I (under consideration)
- SIM/EIN 6XXX Simulation-based Acquisition II (under consideration)

## Computer Visualization in M&S Focus Area

The Computer Visualization in M&S focus area caters to those who wish to gain expertise in technical aspects of computer graphic systems, virtual environments, and human-centered simulation systems. A graduate will have knowledge and experience in applying the state-of-the-art in computer graphics and other human-interface technologies. Typical courses include Computer Graphics Systems, Computer Vision, Machine Perception, Human-Virtual Environment Interaction, and Sensation and Perception. Some students in this focus area will also have an interest in UCF's Digital Media program.

### Cornerstone Course

- CAP 5725 Computer Graphics Systems I (3 credit hours)

### Restricted Electives

- CAP 5415 Computer Vision (3 credit hours)
- CAP 6411 Computer Vision Systems (3 credit hours)
- CAP 6412 Advanced Computer Vision (3 credit hours)
- EEL 5771C Engineering Applications of Computer Graphics (3 credit hours)
- EEL 5820 Image Processing (3 credit hours)
- EEL 5825 Pattern Recognition (3 credit hours)
- EEL 6843 Machine Perception (3 credit hours)
- EIN 6258 Human Computer Interaction (3 credit hours)

# Simulation Modeling and Analysis Focus Area

The Simulation Modeling and Analysis focus area caters to those who desire to gain expertise in using simulation as a tool for effective design, planning, analysis, and decision making. The emphasis of this track is on problem definition, model formulation, design of simulation experiments, and model-based analysis. A graduate will be prepared to work with corporate and government decision makers as they model and evaluate the impacts of proposed policies and system designs. Typical courses include Discrete System Simulation, Experimental Design, and Object-Oriented Simulation.

## Cornerstone Course

- ESI 5531 Discrete Systems Simulation (3 credit hours)

## Restricted Electives

- EEL 5891 Continuous System Simulation I (3 credit hours)
- EEL 6878 Modeling and Artificial Intelligence (3 credit hours)
- EEL 6893 Continuous System Simulation II (3 credit hours)
- EIN 6524 Simulation Modeling Paradigms (3 credit hours)
- EIN 6529 Simulation Design and Analysis (3 credit hours)
- ESI 6217 Statistical Aspects of Digital Simulation (3 credit hours)
- ESI 6247 Experimental Design and Taguchi Methods (3 credit hours)
- ESI 6529 Advanced Systems Simulation (3 credit hours)
- ESI 6532 Object-Oriented Simulation (3 credit hours)
- ESI 6546 Process Simulation (3 credit hours)

# Interactive Simulation/Intelligent Systems Focus Area

The Interactive Simulation/Intelligent Systems focus area responds to the needs of those who wish to pursue or are currently pursuing careers in the training simulation/simulator industries. Graduates specializing in this focus area possess the basic tools to create system designs for simulators and simulator-based training systems and to apply expert systems and other intelligent systems in a simulation setting. Typical required courses include Training Systems Engineering, Simulation of Real-Time Processes, and Intelligent Simulation.

## Cornerstone Course

- EIN 5255 Interactive Simulation (3 credit hours)

## Restricted Electives

- EEL 5874 Expert Systems and Knowledge Engineering (3 credit hours)
- EEL 6875 Engineering of Artificial Intelligence Systems (3 credit hours)
- EEL 6876 Current Topics in Artificial Intelligence in Engineering Systems (3 credit hours)
- EEL 6895 Current Issues in Real-Time Simulation (3 credit hours)
- EIN 5251 Human-Computer Interaction: Usability Evaluation (3 credit hours)
- EIN 5317 Training System Design (3 credit hours)
- EIN 5602C Expert Systems in Industrial Engineering (3 credit hours)
- EIN 6645 Modeling and Simulation of Real-Time Processes (3 credit hours)
- EIN 6647 Intelligent Simulation (3 credit hours)
- EIN 6946 Simulation Practicum (3 credit hours)
- EIN 6649C Intelligent Tutoring Training System Design (3 credit hours)
- TTE 6270 Intelligent Transportation Systems (3 credit hours)

# Human Systems in M&S Focus Area

The Human Systems in M&S focus area caters to those who wish to gain expertise in the content and techniques of human behavior in simulation systems, including human factors, human-computer interaction, virtual worlds, statistical and quantitative procedures, experimental design, computer techniques, and other research methodologies. Typical problem areas for R&D include human-in-the-loop simulation; team performance under stress; and use of visual, audio, haptic, and other sensory input/output modalities to coordinate human-machine activities. Typical courses include Human Factors, Training Systems Engineering, Human Computer Interaction, Intelligent Simulation, and Distributed Learning.

## Cornerstone Course

- EXP 5256 Human Factors I (3 credit hours)

## Restricted Electives

- EIN 5248C Ergonomics (3 credit hours)
- EIN 6215 System Safety Engineering and Management (3 credit hours)
- EIN 6258 Human Computer Interaction (3 credit hours)
- EME 5051 Technologies of Instruction and Information Management (3 credit hours)
- EME 6457 Distance Education: Technology Process Product (3 credit hours)
- EME 6613 Instructional System Design (3 credit hours)
- EXP 5208 Sensation and Perception (3 credit hours)
- EXP 6255 Human Performance (3 credit hours)
- EXP 6257 Human Factors II (3 credit hours)
- EXP 6258 Human Factors III (3 credit hours)
- EXP 6506 Human Cognition and Learning (3 credit hours)
- EXP 6541 Advanced Human-Computer Interaction (3 credit hours)
- INP 6215 Assessment Centers and Leadership (3 credit hours)
- INP 6317 Organizational Psychology and Motivation (3 credit hours)
- INP 6605 Training and Performance Appraisal (3 credit hours)
- PSY 6216 Advanced Research Methodology I (3 credit hours)
- EXP 6XXX Team Training (under consideration)
- PSY 6XXX Skill Acquisition, Learning and Training (under consideration)
- SIM 5XXX Simulation Approaches to Crisis Management (under consideration)

# Doctor of Philosophy in Modeling and Simulation

The Doctor of Philosophy (Ph.D.) in Modeling and Simulation is an interdisciplinary program primarily intended for students with an academic or work background in mathematics, engineering, or computer science who wish to pursue a career in academia, defense, entertainment, or manufacturing.

## Admission Requirements

Students must satisfy the admission criteria specified for graduate program admissions to UCF. These requirements are a 3.0 GPA or 1000 on the combined verbal-quantitative portions of the GRE; international students must have a Test of English as a Foreign Language (TOEFL) score of at least 220 (computer-based test). Selected outstanding applicants who have a GPA of at least 3.4 in the last 60 attempted semester hours of their undergraduate degrees and at least 1200 on the combined verbal-quantitative portion of the GRE may be considered for direct entrance as doctoral students from their bachelor's degrees. Students meeting these criteria and the approval of the Academic Advisory Board may be admitted into the program.

[Application Deadlines](#)

## Degree Requirements

The Ph.D. degree consists of at least 72 semester hours of course work, including a minimum of 15 dissertation hours. The core will consist of four required courses and two restricted courses. These six core courses and a research seminar will provide an interdisciplinary framework for all students. In addition, students are required to take three of the seven focus area cornerstone courses.

## Required Core—12 Credit Hours

- SIM 5XXX Introduction to Modeling and Simulation (3 credit hours)
- SIM 5XXX Introduction to Quantitative Aspects of Modeling and Simulation (3 credit hours)
- EIN 6258 Human Computer Interaction (3 credit hours)
- SIM 6XXX Research Methods and Practicum (3 credit hours)

## Restricted Core—6 Credit Hours

- EIN 5255 Interactive Simulation or EEL 5891 Continuous System Simulation I (3 credit hours)
- ESI 5531 Discrete Systems Simulation or ESI 6532 Object-Oriented Simulation (3 credit hours)

## Focus Area Cornerstone Courses—9 Credit Hours

- CAP 5725 Computer Graphics Systems I (3 credit hours)
- CDA 5530 Performance Models of Computers and Networks (3 credit hours)
- EIN 5108 The Environment of Technical Organizations (3 credit hours)
- EIN 5255 Interactive Simulation (3 credit hours)
- ESI 5531 Discrete Systems Simulation (3 credit hours)
- EXP 5256 Human Factors I (3 credit hours)
- MAP 5117 Mathematical Modeling (3 credit hours)

## Quantitative Aspects of Simulation Focus Area—Minimum 9 Credit Hours

The Quantitative Aspects of Simulation focus area caters to those who seek to develop skill in the application of advanced quantitative methods to modeling and simulation. Building on backgrounds in mathematics or statistics they will gain experience in modeling and simulation. Graduates will be able to apply mathematics and statistics to build multidisciplinary models and simulations. Typical courses include: Mathematical Modeling, Statistical Aspects of Digital Simulation, Advanced Systems Simulation, and Splines and Data Fitting.

## Cornerstone Course

- MAP 5117 Mathematical Modeling (3 credit hours)

## Restricted Electives

- EML 6062 Boundary Element Methods in Engineering (3 credit hours)
- EML 6067 Finite Elements in Mechanical, Materials, and Aerospace Engineering I (3 credit hours)
- ESI 6217 Statistical Aspects of Digital Simulation (3 credit hours)
- ESI 6358 Decision Analysis (3 credit hours)
- ESI 6529 Advanced Systems Simulation (3 credit hours)
- ESI 6546 Process Simulation (3 credit hours)
- MAP 5385 Applied Numerical Mathematics (3 credit hours)
- MAP 5407 Applied Mathematics I (3 credit hours)
- MAP 5936 Splines and Data Fitting (3 credit hours)
- MAP 6118 Introduction to Nonlinear Dynamics (3 credit hours)
- MAP 6207 Optimization Theory (3 credit hours)
- MAP 6408 Applied Mathematics II (3 credit hours)
- MAP 6445 Approximation Techniques (3 credit hours)
- MAP 6465 Wavelets and Their Applications (3 credit hours)

- STA 5285 Stochastic Processes and Applied Probability Theory (3 credit hours)
- STA 6246 Linear Models (3 credit hours)

## Simulation Infrastructure Focus Area—Minimum 9 Credit Hours

The Simulation Infrastructure focus area caters to those who wish to gain an in-depth understanding of the basic components of simulation systems and their patterns of configuration and communication, including hardware and software issues. They will gain experience in the development of distributed simulation and training environments. Graduates will be able to implement such systems or manage a team capable of developing such systems. Typical courses include Performance Models of Computers and Networks, Simulation Design and Analysis, High Performance Computer Architecture, and Analysis of Computer and Communication Systems.

### Cornerstone Course

- CDA 5530 Performance Models of Computers and Networks (3 credit hours)

### Restricted Electives

- CDA 5106 Advanced Computer Architecture I (3 credit hours)
- CDA 5501 Computer Communication Networks Architecture (3 credit hours)
- CDA 6107 Advanced Computer Architecture II (3 credit hours)
- COP 6615 Operating Systems Theory (3 credit hours)
- EEL 5708 High Performance Computer Architecture (3 credit hours)
- EEL 5762 Performance Analysis of Computer and Communication Systems (3 credit hours)
- EEL 5891 Continuous System Simulation I (3 credit hours)
- EEL 6785 Computer Network Design (3 credit hours)
- EEL 6878 Modeling and Artificial Intelligence (3 credit hours)
- EEL 6893 Continuous System Simulation II (3 credit hours)

## Simulation Management Focus Area—Minimum 9 Credit Hours

Management focus area caters to those who wish to gain expertise in the management of projects related to modeling, simulation, and training. A graduate will be prepared to manage such projects for military agencies or MS&T companies. Typical courses include Environment of Technical Organizations, Modeling and Simulation of Real-Time Processes, Management Information Systems, and Project Engineering. A course sequence in simulation-based acquisition is being developed.

### Cornerstone Course

- EIN 5108 The Environment of Technical Organizations (3 credit hours)

### Restricted Electives

- EEL 6887 Software Engineering Life-Cycle Control (3 credit hours)
- EIN 5117 Management Information Systems I (3 credit hours)
- EIN 5140 Project Engineering (3 credit hours)
- EIN 5381 Engineering Logistics (3 credit hours)
- EIN 6322 Engineering Management (3 credit hours)
- EIN 6339 Operations Engineering (3 credit hours)
- EIN 6357 Advanced Engineering Economic Analysis (3 credit hours)
- ESI 5316 Operations Research (3 credit hours)
- ESI 6358 Decision Analysis (3 credit hours)
- SIM/EIN 5XXX Simulation-based Acquisition I (being considered for development)
- SIM/EIN 5XXX Simulation-based Acquisition II (being considered for development)

# Computer Visualization in M&S Focus Area—Minimum 9 Credit Hours

The Computer Visualization in M&S focus area caters to those who wish to gain expertise in technical aspects of computer graphic systems, virtual environments, and human-centered simulation systems. A graduate will have knowledge and experience in applying the state-of-the-art in computer graphics and other human-interface technologies. Typical courses include Computer Graphics Systems, Computer Vision, Machine Perception, Human-Virtual Environment Interaction, and Sensation and Perception. Some students in this focus area will also have an interest in UCF's Digital Media program.

## Cornerstone Course

- CAP 5725 Computer Graphics Systems I (3 credit hours)

## Restricted Electives

- CAP 5415 Computer Vision (3 credit hours)
- CAP 6411 Computer Vision Systems (3 credit hours)
- CAP 6412 Advanced Computer Vision (3 credit hours)
- EEL 5771C Engineering Applications of Computer Graphics (3 credit hours)
- EEL 5820 Image Processing (3 credit hours)
- EEL 5874 Expert Systems and Knowledge Engineering (3 credit hours)
- EEL 6843 Machine Perception (3 credit hours)
- EIN 6258 Human Computer Interaction (3 credit hours)

# Simulation Modeling and Analysis Focus Area—Minimum 9 Credit Hours

The Simulation Modeling and Analysis focus area caters to those who desire to gain expertise in using simulation as a tool for effective design, planning, analysis, and decision making. The emphasis of this track is on problem definition, model formulation, design of simulation experiments, and model-based analysis. A graduate will be prepared to work with corporate and government decision makers as they model and evaluate the impacts of proposed policies and system designs. Typical courses include Discrete System Simulation, Experimental Design, and Object-Oriented Simulation.

## Cornerstone Course

- ESI 5531 Discrete Systems Simulation (3 credit hours)

## Restricted Courses

- EEL 5891 Continuous System Simulation I (3 credit hours)
- EEL 6878 Modeling and Artificial Intelligence (3 credit hours)
- EEL 6893 Continuous System Simulation II (3 credit hours)
- EIN 6524 Simulation Modeling Paradigms (3 credit hours)
- EIN 6529 Simulation Design and Analysis (3 credit hours)
- ESI 6217 Statistical Aspects of Digital Simulation (3 credit hours)
- ESI 6247 Experimental Design and Taguchi Methods (3 credit hours)
- ESI 6529 Advanced Systems Simulation (3 credit hours)
- ESI 6532 Object-Oriented Simulation (3 credit hours)
- ESI 6546 Process Simulation (3 credit hours)

# Interactive Simulation/Intelligent Systems Focus Area—



# Minimum 9 Credit Hours

The Interactive Simulation/Intelligent Systems focus area responds to the needs of those who wish to pursue or are currently pursuing careers in the training simulation/simulator industries. Graduates specializing in this focus area possess the basic tools to create system designs for simulators and simulator-based training systems and to apply expert systems and other intelligent systems in a simulation setting. Typical required courses include Training Systems Engineering, Simulation of Real-Time Processes, and Intelligent Simulation.

## Cornerstone Course

- EIN 5255 Interactive Simulation (3 credit hours)

## Restricted Electives

- EEL 5874 Expert Systems and Knowledge Engineering (3 credit hours)
- EEL 6875 Engineering of Artificial Intelligence Systems (3 credit hours)
- EEL 6876 Current Topics in Artificial Intelligence in Engineering Systems (3 credit hours)
- EEL 6895 Current Issues in Real-Time Simulation (3 credit hours)
- EIN 5251 Human-Computer Interaction: Usability Evaluation (3 credit hours)
- EIN 5317 Training System Design (3 credit hours)
- EIN 5602C Expert Systems in Industrial Engineering (3 credit hours)
- EIN 6645 Modeling and Simulation of Real-Time Processes (3 credit hours)
- EIN 6647 Intelligent Simulation (3 credit hours)
- EIN 6649C Intelligent Tutoring Training System Design (3 credit hours)
- EIN 6946 Simulation Practicum (3 credit hours)
- TTE 6270 Intelligent Transportation Systems (3 credit hours)

# Human Systems in M&S Focus Area—Minimum 9 Credit Hours

The Human Systems in M&S focus area caters to those who wish to gain expertise in the content and techniques of human behavior in simulation systems, including human factors, human-computer interaction, virtual worlds, statistical and quantitative procedures, experimental design, computer techniques, and other research methodologies. Typical problem areas for R&D include human-in-the-loop simulation; team performance under stress; and use of visual, audio, haptic, and other sensory input/output modalities to coordinate human-machine activities. Typical courses include Human Factors, Training Systems Engineering, Human Computer Interaction, Intelligent Simulation, and Distributed Learning.

## Cornerstone Course

- EXP 5256 Human Factors I (3 credit hours)

## Restricted Electives

- EIN 5248C Ergonomics (3 credit hours)
- EIN 6215 System Safety Engineering and Management (3 credit hours)
- EIN 6258 Human Computer Interaction (3 credit hours)
- EME 5051 Technologies of Instruction and Information Management (3 credit hours)
- EME 6457 Distance Education: Technology Process Product (3 credit hours)
- EME 6613 Instructional System Design (3 credit hours)
- EXP 5208 Sensation and Perception (3 credit hours)
- EXP 6255 Human Performance (3 credit hours)
- EXP 6257 Human Factors II (3 credit hours)
- EXP 6258 Human Factors III (3 credit hours)
- EXP 6506 Human Cognition and Learning (3 credit hours)
- EXP 6541 Advanced Human-Computer Interaction (3 credit hours)
- INP 5825 Human Computer Interface (HCI) Design (3 credit hours)

- INP 6215 Assessment Centers and Leadership (3 credit hours)
- INP 6317 Organizational Psychology and Motivation (3 credit hours)
- INP 6605 Training and Performance Appraisal (3 credit hours)
- PSY 6216 Advanced Research Methodology I (3 credit hours)
- EXP 6XXX Team Training (under consideration)
- PSY 6XXX Skill Acquisition, Learning and Training (under consideration)
- SIM 5XXX Simulation Approaches to Crisis Management (under consideration)

## Qualifying Examination

The Qualifying Examination is a comprehensive written exam that covers core areas in M&S, and is usually taken during the first year of study. The exam is designed to ensure that students know and can integrate knowledge in all interdisciplinary core subjects offered in the program.

## 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 Exam if he/she has passed the Qualifying Examination and has completed all conditions placed as a result thereof. The Candidacy Examination consists of:

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

Students have the responsibility to select a dissertation adviser from a list of Modeling and Simulation faculty authorized to direct dissertations. The Program Coordinator, assisted by the Program Academic Committee, will assist the student and his/her advisers with 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 Modeling and Simulation faculty (one to serve as chair) from at least two colleges. At least one member must be from outside the M&S faculty. Non-Modeling and Simulation faculty, adjunct faculty, and off-campus experts may serve on the committee, but not as chair. At UCF, the Office of Graduate Studies has the right to review appointments to advisory committees, place a representative on any advisory committee, or appoint a co-adviser.

In unusual cases, with approval from the Program Coordinator, two committee members may chair the committee jointly. All members vote on acceptance or rejection of the dissertation proposal and the final dissertation. The dissertation proposal and final dissertation must be approved with at most one dissenting member of the advisory committee. A student is normally given only one opportunity to pass the final dissertation defense, but the Program Coordinator upon the recommendation of the Dissertation Committee may approve a second attempt.

## Transfer Credits

The doctoral program will allow up to 30 credit hours to be transferred into the program, whether from UCF or another institution.

# Molecular Biology and Microbiology

## Description

College of Health and Public Affairs Department of Molecular Biology and Microbiology Chair of the Department: Robert N. Gennaro, Ph.D.  
Graduate Program Coordinator: K. Chai, Ph.D., HPA 2, Room 335, (407) 823-5932. E-mail: [kxchai@mail.ucf.edu](mailto:kxchai@mail.ucf.edu) Web address:  
<http://www.cohpa.ucf.edu/molec.bio/>

The Department of Molecular Biology and Microbiology offers the Master of Science degree program for students to further their knowledge in the field and prepare for professional careers in medical fields, higher education, and research.

## Degree Offered

Master of Science in Molecular Biology and Microbiology (M.S.)

# Master of Science in Molecular Biology and Microbiology

## Admission Requirements

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 research experience, area of interest, and immediate and long-range goals. Personal interviews are helpful but not required. The department requires international students and students whose native language is not English to have a minimum score of 220 (computer-based test; or equivalent score on the paper-based test) on the Test of English as a Foreign Language (TOEFL).

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

Applicants need not have an undergraduate degree in molecular biology or microbiology but are expected to have the equivalent of 16 semester hours credit in biological sciences including a course in general microbiology, plus one year of organic chemistry, one year of physics, basic university mathematics and statistics, and laboratory skills equivalent to the minimum required of our own undergraduates. Minor deficiencies may be remedied after acceptance by enrollment at the first opportunity in an appropriate course.

[Application Deadlines](#)

## Degree Requirements

The course and credit requirements will consist of a minimum of 30 semester hours of credit, including 6 credits of thesis, 2 credits of graduate seminar, and such other courses as specified by the student's graduate committee in the approved Program of Study.

## Molecular Biology and Microbiology

- MCB 5205 Infectious Processes (3 credit hours)
- MCB 5225 Molecular Biology of Disease (3 credit hours)
- MCB 5505 Virology (3 credit hours)

- MCB 5527 Genetic Engineering and Biotechnology (3 credit hours)
- MCB 5654 Applied Microbiology (3 credit hours)
- MCB 5932 Current Topics in Molecular Biology (3 credit hours)
- MCB 6226 Molecular Diagnostics (3 credit hours)
- MCB 6407C Laboratory Methods in Molecular Biology (5 credit hours)
- MCB 6417C Microbial Metabolism (3 credit hours)
- MCB 6528 Plant Molecular Biology (3 credit hours)
- MCB 6938 Seminar (1-2 credit hours)
- MCB 6971 Thesis (1-6 credit hours)
- PCB 5238 Immunopathology (3 credit hours)
- PCB 5239 Tumor Biology (3 credit hours)
- PCB 5275 Signal Transduction Mechanics (3 credit hours)
- ZOO 5745C Essentials of Neuroanatomy (4 credit hours)

## Examinations

A comprehensive examination covering all course work in the program of study is required of all students in the M.S. program. The comprehensive exam must be taken no later than the fourth week of that semester after the one in which the student completes all course work in the program of study. If a student fails the comprehensive examination, a minimum of four weeks must elapse before reexamination. The comprehensive examination 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.

# Music Education

## Description

College of Education Department of Teaching and Learning Principles Chair of Department: Dr. Robert Williams Graduate Program Coordinator: Dr. M. Palmer, (407) UCF-3397. E-mail: [mpalmer@mail.ucf.edu](mailto:mpalmer@mail.ucf.edu) Web address: <http://edcollege.ucf.edu/>

The Master of Education in Music Education program, offered in cooperation with the Department of Music, is for students who are certified to teach music (K-12). The 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.

The Master of Arts program is offered for students who have completed a baccalaureate degree who seek certification in music (K-12). The 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.

## Degrees Offered

Master of Education in Music Education (M.Ed.) Master of Arts in Music Education

## Master of Education in Music Education

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.

[Master's Programs in the College of Education](#)

[Application Deadlines](#)

## Degree Requirements

### Minimum Hours Required for M.Ed.—36 Credit Hours

Area A: Core—12-15 Credit Hours

- EDF 6401 Statistics for Educational Data (3 credit hours) OR
- EDF 6432 Measurement and Evaluation in Education (3 credit hours)
- EDF 6481 Fundamentals of Graduate Research in Education (3 credit hours)

Select one course from the following list:

- EDF 6155 Lifespan Human Development and Learning (3 credit hours) OR
- EDF 6517 Perspectives on Education (3 credit hours) OR
- EDF 6608 Social Factors in American Education (3 credit hours)

Research Report or Course Option:

- MUE 6909 Research Report (2,1 credit hours) OR
- Two elective courses approved by advisor (6 credit hours)

## Area B: Specialization—12 Credit Hours\*

Courses, including performance, music history, music theory, conducting, to be approved by adviser. Music courses may be selected from the following offerings:

- MUG 4103 Advanced Conducting (2 credit hours)
- MUH 4211 History and Literature I (3 credit hours)
- MUH 4212 History and Literature II (3 credit hours)
- MUS 5526 Music and Technology (3 credit hours)
- MUT 5381 Arranging and Composing Music (3 credit hours)
- MVX 5XXX Applied Music
- Seminar in music

\* Graduate performance and advanced conducting courses are available only after admission to the graduate program and successful completion of 9 credit hours of the graduate program.

## Area C: Curriculum Core: Music Education—12 Credit Hours

- MUE 6349 Advanced General Music (3 credit hours)
- MUE 6946 Practicum in Music Education (3 credit hours)
- MUE 6XXX Electives approved by adviser (6 credit hours)

## Additional Program Requirements

Take a placement examination in music history, music theory, and sight singing (or completion of equivalent courses).

- MUH 4218 Review of Music History (1 credit hour)
- MUT 4031 Review of Music Theory (1 credit hour)

Students will complete a culminating Comprehensive Experience in Music Education. The purpose of this experience is to provide an opportunity for each student to synthesize and apply knowledge and experience acquired through the program of study. This experience is generally scheduled during the final semester of the program.

# Master of Arts in Music Education

This program is offered for students who have completed a baccalaureate degree in music and 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.

[Master's Programs in the College of Education](#)

[Application Deadlines](#)

## Degree Requirements

### Minimum Hours Required for M.A.—36 Credit Hours

#### Area A: Core—15 or 18 Credit Hours

- EDF 6155 Lifespan Human Development and Learning (3 credit hours)
- EDG 6236 Principles of Instruction (3 credit hours)
- EDF 6481 Fundamentals of Graduate Research in Education (3 credit hours)
- EDF 6432 Measurement and Evaluation in Education (3 credit hours)

Select one course from the following list:

- EDF 6517 Perspectives on Education (3 credit hours) OR
- EDF 6608 Social Factors in American Education (3 credit hours) OR
- EDF 6886 Multicultural Education (3 credit hours)
- MUE 6909 Research Report or 2 approved electives (2,1 or 6 credit hours)

#### Area B: Specialization—12 Credit Hours\*

Courses, including performance, music history, music theory, conducting, to be approved by adviser. Music courses may be selected from the following offerings:

- MUG 4103 Advanced Conducting (2 credit hours)
- MUH 4211 History and Literature I (3 credit hours)
- MUH 4212 History and Literature II (3 credit hours)
- MUS 5526 Music and Technology (3 credit hours)
- MUT 5381 Arranging and Composing Music (3 credit hours)
- MVX 5XXX Applied Music
- Seminar in music

\* Graduate performance and advanced conducting courses are available only after admission to the graduate program and successful completion of 9 credit hours of the graduate program.

#### Area C: Internship—9 Credit Hours

- MUE 6946 Practicum in Music Education (or equivalent) (3 credit hours)
- MUE 6946 Practicum in Music Education (6 credit hours)

Satisfactory completion of Graduate Internships requires the student to demonstrate proficiency in all 12 Florida Educator Accomplished Practices at the pre-professional level in accordance with State Board of Education Rule 6A-5.065.

## Co-requisites

Music specialization requirements for certification must be met by either a B.A. in Music or additional course work to be determined by adviser upon review of student's transcript.

- MUE 4311 Elementary School Music Methods (2 credit hours)
- MUE 4330 Secondary School Music Methods (2 credit hours)

## Additional Program Requirements

Take a placement examination in music history, music theory and sight singing (or completion of equivalent courses).

- MUH 4218 Review of Music History (1 credit hour)
- MUT 4031 Review of Music Theory (1 credit hour)

Complete a portfolio according to program guidelines. This portfolio requires demonstration of professional growth, reflection, and proficiency in the 12 Florida Educator Accomplished Practices.

Pass the CLAST as well as the Professional Education and Subject Area subtests of the Florida Teacher Certification Examination.

A track is available for this program in Extended Content and requires 18 credit hours of graduate-level content in this program. Only six hours of independent study courses may be used to satisfy degree requirements. It is important to see an adviser if courses are difficult to schedule in content areas.

# Nursing

## Description

College of Health and Public Affairs School of Nursing Acting Director of the School: Dr. Mary Lou Sole Graduate Program Coordinator: Dr. Jean Kijek, HPA 220, (407) 823-2744. E-mail: [gradnurs@mail.ucf.edu](mailto:gradnurs@mail.ucf.edu) Web address: <http://www.cohpa.ucf.edu/nursing/>

The Master of Science in Nursing (M.S.N.) programs are designed to build upon the student's baccalaureate nursing education and professional experience. The goals of the programs are to prepare advanced nurse practitioners and nursing leaders and managers to assume leadership positions in a variety of health care settings. The Master of Science program is accredited by the National League for Nursing Accrediting Commission (NLNAC).

This program will prepare students to:

- Analyze theories as they apply to the profession, health care system, and political systems.
- Analyze social, economic, ethical, legal, and political issues influencing nursing practice and health care delivery.
- Synthesize advanced knowledge from the sciences, the humanities, and nursing theories to support advanced nursing practice.
- Participate in research and disseminate research findings.
- Use nursing research findings to improve nursing practice.
- Demonstrate critical thinking skills in planning, evaluating, and changing the delivery of health care.
- Develop and implement leadership, management, and teaching strategies for the improvement of health care.
- Collaborate with others to improve the quality of professional nursing practice and the health care system.
- Assume responsibility for improving the delivery of health care and influencing health policy.
- Practice in an advanced nursing role. (Graduates of the programs are eligible to sit for certification examinations in the specialty. Nurse practitioner graduates are eligible for licensure as an ARNP in Florida.)

## Degrees Offered

### Master of Science in Nursing (M.S.N.)

- Adult Nurse Practitioner Track
- Clinical Nurse Practitioner Track
- Family Nurse Practitioner Track
- Leadership and Management Track
- Pediatric Nurse Practitioner Track

## Master of Science in Nursing

Students are admitted to the programs in fall and spring semesters. To study full time, Nurse Practitioner and Leadership/Management students should apply for fall admission; Clinical Nurse Specialist students should apply for spring admission. Part-time plans of study are available for both fall and spring admission cycles.

## Admission Requirements

- Requirements for admission to the program include the following:
- A baccalaureate degree in nursing from a program accredited by the NLNAC (National League for Nursing Accreditation Commission) or CCNE (Commission on Collegiate Nursing Education)
- An overall grade point average of 3.0 (on a 4.0 scale) for upper-division undergraduate work (usually the last 60 attempted semester hours) and a combined GRE score of 900 on the verbal and quantitative exams; OR, an overall grade point average of 2.8 (on a 4.0 scale) for upper-division undergraduate work (usually the last 60 attempted semester hours) and a combined GRE score of 1000 on the verbal and quantitative exams
- Licensure as a Registered Nurse in Florida
- Completion of an undergraduate course in statistics



- Completion of an undergraduate course in health assessment (If health assessment content was integrated into other nursing course work, written documentation must be obtained from the school or college of nursing.)
- A personal statement describing interest in the field and career goals
- A resume (no longer than 2 pages)
- Three references; at least one should be from a faculty member who is familiar with the student's abilities and potential for success in the program
- For international students only: A score of 220 (computer-based test; or equivalent score on the paper-based test) on the Test of English as a Foreign Language (TOEFL) or passing score on CGFNS (Commission on Graduates of Foreign Nursing Schools)

Admission to the program is competitive, based on evaluation of the applicant's abilities, past performance, recommendations, and the match of UCF's programs with career goals. The School of Nursing accepts the most qualified students. Since enrollment is limited, not all students who apply may be accepted, even if minimum requirements are met.

Students may take classes as a non-degree-seeking, post-baccalaureate student on a space-available basis. Deadlines for application for this status are earlier than those posted by the university. Students must designate on their application that they are applying to the School of Nursing in order to facilitate processing of Filenames. Students will be notified in writing from the School of Nursing regarding acceptance as a non-degree-seeking student. Students who are accepted will be issued override forms for available courses. Successful completion of post-baccalaureate courses does not guarantee admission to the graduate program.

[Application Deadlines](#)

## Transfer of Courses

- Courses may be transferred into the plan of study according to UCF policies. Courses must be comparable to those taught in the School of Nursing.
- A grade of at least a "B" is required to transfer credit.
- Students must obtain a petition from the School of Nursing and submit the completed petition to the Admission, Progression, and Graduation Committee in order to transfer courses.

## Progression

- Students must maintain a 3.0 grade point average in the plan of study in order to progress.
- Students who receive more than two C's in their plan of study will be dismissed from the program.

## Degree Requirements

- Nursing Leadership and Management—41 Credit Hours
- Adult or Pediatric Nurse Practitioner—47 Credit Hours
- Clinical Nurse Specialist—46 Credit Hours
- Family Nurse Practitioner—49 Credit Hours

Graduate students must complete a minimum of 41-49 credit hours of graduate-level course work, depending on major. Either a thesis or research scholarly work is required.

## Required Courses for All Students—14-17 Credit Hours

- NGR 5744 Roles and Issues in Advanced Practice Nursing I (1 credit hour)
- NGR 5745 Roles and Issues in Advanced Practice Nursing III (1 credit hour)
- NGR 5746 Roles and Issues in Advanced Practice Nursing II (1 credit hour)
- NGR 5800 Nursing Theory/Research I (4 credit hours)
- NGR 5801 Nursing Research II/Statistics (4 credit hours)
- NGR 6971/6813 Thesis or Research Scholarly Work (3-6 credit hours)

## Core Requirements for Nurse Practitioner Tracks—17-20 Credit Hours

- NGR 5003 Advanced Health Assessment, Health Promotion, and Diagnostic Reasoning (3 credit hours)
- NGR 5003L Advanced Health Assessment, Health Promotion, and Diagnostic Reasoning Clinical (2 credit hours)
- NGR 5141 Pathophysiological Bases for Advanced Nursing Practice (3 credit hours)
- NGR 6192 Pharmacology for Advanced Nursing Practice (3 credit hours)
- NGR 6941 Advanced Practice Practicum (6 credit hours)
- Nursing Graduate Elective (0-3 credit hours)

## Requirements for Adult Nurse Practitioner Track—13 Credit Hours

- NGR 6240 Adult I for APNs (3 credit hours)
- NGR 6240L Adult I Clinical for APNs (3 credit hours)
- NGR 6242 Adult II for APNs (2 credit hours)
- NGR 6242L Adult II Clinical for APNs (2 credit hours)
- NGR 6334 Women's Health for APNs (2 credit hours)
- NGR 6482L Women's Health for APNs Clinical (1 credit hour)

## Requirements for Family Nurse Practitioner Track—15 Credit Hours

- NGR 6240 Adult I for APNs (3 credit hours)
- NGR 6240L Adult I Clinical for APNs (3 credit hours)
- NGR 6242 Adult II for APNs (2 credit hours)
- NGR 6331 Pediatrics I for APNs (2 credit hours)
- NGR 6331L Pediatrics I Clinical for APNs (2 credit hours)
- NGR 6334 Women's Health for APNs (2 credit hours)
- NGR 6482L Women's Health for APNs Clinical (1 credit hour)

## Requirements for Pediatric Nurse Practitioner Track—13 Credit Hours

- NGR 6331 Pediatrics I for APNs (2 credit hours)
- NGR 6331L Pediatrics I Clinical for APNs (2 credit hours)
- NGR 6332 Pediatrics II for APNs (3 credit hours)
- NGR 6332L Pediatrics II Clinical for APNs (3 credit hours)
- NGR 6335 Focused Pediatrics for APNs (2 credit hours)
- NGR 6335L Focused Pediatrics Clinical for APNs (1 credit hours)

## Requirements for Nursing Leadership and Management Track—24-27 Credit Hours

- NGR 5720 Organizational Dynamics (3 credit hours)
- NGR 5871 Health Care Informatics (3 credit hours)
- NGR 6722 Financial Management and Resource Development (3 credit hours)
- NGR 6723 Nursing Leadership and Management I (2 credit hours)
- NGR 6723L Nursing Leadership and Management I Practicum (2 credit hours)
- NGR 6724 Nursing Leadership and Management II (2 credit hours)
- NGR 6724L Nursing Leadership and Management II Practicum (3 credit hours)
- Electives (6-9 credit hours)

## Requirements for Clinical Nurse Specialist Track—29-32 Credit Hours

- NGR 5003 Advanced Health Assessment, Health Promotion, and Diagnostic Reasoning (3 credit hours)
- NGR 5004L Advanced Health Assessment, Health Promotion, and Diagnostic Reasoning Clinical (2 credit hours)
- NGR 5141 Pathophysiological Bases for Advanced Nursing Practice (3 credit hours)
- NGR 5720 Organizational Dynamics (3 credit hours)
- NGR 5871 Health Care Informatics (3 credit hours)
- NGR 6192 Pharmacology for Advanced Nursing Practice (3 credit hours)
- NGR 6752 Clinical Nurse Specialist I (3 credit hours)
- NGR 6752L Clinical Nurse Specialist I Practicum (2 credit hours)

- NGR 6753 Clinical Nurse Specialist II (2 credit hours)
- NGR 6753L Clinical Nurse Specialist II Practicum (2 credit hours)
- NGR 6722 Financial Management and Resource Development (3 credit hours)
- Elective (0-3 credit hours)

## RN to MSN Track

The RN-MSN track is an accelerated program for RNs who do not hold a baccalaureate degree in Nursing (BSN). This program is designed for students who have met general education requirements, and who have demonstrated above-average performance in prior undergraduate course work (minimum of 3.0 grade point average), and have the potential for success in graduate school. Students will meet both BSN and MSN objectives.

Available for all tracks in the graduate program: Nursing Leadership and Management, Family Nurse Practitioner, Adult Nurse Practitioner, Pediatric Nurse Practitioner, and Clinical Nurse Specialist. Up to 15 credit hours can be applied toward meeting requirements of both BSN and MSN programs.

## Admission Requirements—Limited Access

Acceptance to the university does not constitute admission to the accelerated RN-MSN program. Separate application to this limited-access program must be made. Application forms and information are available from the School of Nursing or at <http://www.cohpa.ucf.edu/nursing>. All applicants must meet the following criteria:

- Graduate of a state-approved or accredited associate degree or diploma nursing program
- Licensure as an RN in the state of Florida
- Completion of UCF general education requirements or AA degree from a state of Florida school, including CLAST
- Completion of prerequisites for the RN-BSN (undergraduate statistics)
- Minimum cumulative grade point average of 3.0 or higher
- Letter of intent to pursue accelerated master's
- Three references from people who can judge abilities for graduate school
- Resume
- Interview with School of Nursing to assess interest, motivation, and ability to succeed in graduate school

## Interim Requirements

- Completion of the GRE by the end of the first semester in the program

## Admission Requirements for Graduate Nursing Phase

(To be met during the semester the BSN is awarded)

- Completion of requirements/credits for the baccalaureate degree in nursing, including health assessment course
- Completion of all UCF School of Nursing course work to date with a minimum grade point average of 3.0
- Must meet university requirements for undergraduate degree completion (refer to the UCF undergraduate catalog)
- A minimum combined GRE score of 900 on the verbal/quantitative exams
- Updated resume
- Three references

## RN to MSN Program of Study

### Courses Taken Toward BSN

- NUR 3065 Health Assessment (3 credit hours)

- NUR 3809 Transitional Concepts in Nursing I (3 credit hours)
- NUR 4636 Community as the Continuum of Care (3 credit hours)
- NUR 4636L Clinical for Community as a Continuum of Care (2 credit hours)
- NUR 4827 Leadership and Management Principles (3 credit hours)
- NUR 4836 Professional Development Seminar (3 credit hours) (NUR 4084)
- NUR 4837 Health Care Issues, Policy, and Economics (3 credit hours)

Validated credit for previous nursing courses—28 Credit Hours

## Courses Shared BSN/MSN

- An individualized plan of study is developed for each student admitted to the RN to MSN option.
- Students may take NGR 5800 Nursing Theory/Research I instead of NUR 3165 Nursing Research, if they have taken NUR 4836. The credits for this course are applied to both the BSN and MSN programs.
- Students pursuing the MSN in the Nursing Leadership and Management Track may take the following courses:
  - NUR 4838L Directed Practice in Nursing Administration (for NUR 4954L Directed Nursing Practice)
  - NGR 5720 Organizational Dynamics (for NUR 4827 Leadership and Management Principles)
  - NGR 5871 Health Care Informatics (for nursing elective)
  - NGR/HSA graduate elective in area of concentration (e.g., nursing, health services administration for nursing elective)
- Students pursuing the MSN in the Family/Adult/Pediatric Nurse Practitioner or Clinical Nurse Specialist tracks may take the following courses:
  - NGR 5003L Advanced Health Assessment, Health Promotion, and Diagnostic Reasoning (for NUR 4954L Directed Nursing Practice and undergraduate nursing elective)
  - NGR 5141 Pathophysiological Bases for Advanced Nursing Practice (for undergraduate nursing elective)
  - NGR/HSA XXXX—Graduate elective in area of concentration (e.g., nursing, health services administration)

## Courses Taken Toward MSN

Students will follow the degree requirements of the selected MSN track. The baccalaureate degree will be awarded 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.

# Nurse Practitioner to MSN Track

The Nurse Practitioner to MSN track is designed for RNs who are licensed in the State of Florida with active status as an Advanced Registered Nurse Practitioner but have not completed a master's degree in nursing. This track is offered to experienced NPs who wish to remain in their specialty area. If NPs desire to change or add a specialty (e.g., from adult to family), an individualized plan of study can be developed to meet certification requirements.

There are two options in the NP to MSN track. Option 1 is for RNs who already have completed a baccalaureate degree in nursing. Option 2 is for those RNs who do not have a baccalaureate degree in nursing.

## Option 1—Active RN/ARNP license in Florida with baccalaureate in nursing

### Admission and Graduate Requirements

- Documentation of completion of a certificate program for nurse practitioners.
- Other requirements are the same as the Master of Science in Nursing program.

### Degree Requirements

NP to MSN students with a BSN must complete a minimum of 31 credit hours of graduate-level course work. Either a thesis or research scholarly work is required.

## Required Courses

- NGR 5003 Advanced Health Assessment, Health Promotion, and Diagnostic Reasoning (3 credit hours)
- NGR 5004L Advanced Health Assessment, Health Promotion, and Diagnostic Reasoning Clinical (2 credit hours)
- NGR 5141 Pathophysiological Bases for Advanced Nursing Practice (3 credit hours)
- NGR 5744 Roles and Issues in Advanced Practice Nursing I (1 credit hour)
- NGR 5745 Roles and Issues in Advanced Practice Nursing III (1 credit hour)
- NGR 5746 Roles and Issues in Advanced Practice Nursing II (1 credit hour)
- NGR 5800 Nursing Theory/Research I (4 credit hours)
- NGR 5801 Nursing Research II/Statistics (4 credit hours)
- NGR 6192 Pharmacology for Advanced Nursing Practice (3 credit hours). May be waived for elective credits if recent (within last 3 years) pharmacology course taken.
- NGR 6813 Research Scholarly Work (3 credit hours) or NGR 6971 Thesis (3-6 credit hours)
- NGR 6941 Advanced Practice Practicum (3 credit hours)
- Graduate Elective (0-3 credit hours)

## Option 2—Active RN/ARNP license in Florida without baccalaureate in nursing

### Admission and Graduation Requirements

- Documentation of completion of a certificate program for nurse practitioners.
- Other requirements are the same as the RN to MSN track.

### Degree Requirements

NP to MSN students without a BSN must complete requirements for both the BSN and MSN. Twelve to fifteen credits will be applied toward meeting requirements of both degrees. Either a thesis or research scholarly work is required.

### Courses Taken Toward BSN

- NUR 3809 Transitional Concepts in Nursing I (3 credit hours)
- NUR 4636 Community as the Continuum of Care (3 credit hours)
- NUR 4636L Clinical Practice in the Community (2 credit hours)
- NUR 4827 Leadership and Management Principles (3 credit hours)
- NUR 4836 Professional Development Seminar (3 credit hours)
- NUR 4837 Healthcare Issues, Policy, and Economics (3 credit hours)
- Validated credit from previous RN and NP courses (28 hours)

### Courses Shared BSN/MSN

- NGR 5003 Advanced Health Assessment, Health Promotion, and Diagnostic Reasoning (3 credit hours)
- NGR 5004L Advanced Health Assessment, Health Promotion, and Diagnostic Reasoning Clinical (2 credit hours)
- NGR 5141 Pathophysiological Bases for Advanced Nursing Practice (3 credit hours)
- NGR 5800 Nursing Theory/Research I (4 credit hours)
- NGR Elective (3 credit hours)

### Courses Taken Toward MSN

- NGR 5744 Roles and Issues in Advanced Practice Nursing I (1 credit hour)

- NGR 5745 Roles and Issues in Advanced Practice Nursing III (1 credit hour)
- NGR 5746 Roles and Issues in Advanced Practice Nursing II (1 credit hour)
- NGR 5801 Nursing Research II/Statistics (4 credit hours)
- NGR 6192 Pharmacology for Advanced Nursing Practice (3 credit hours) May be waived for elective credits if recent (within last 3 years) pharmacology course taken.
- NGR 6813 Research Scholarly Work (3 credit hours) or NGR 6971 Thesis (6 credit hours)
- NGR 6941 Advanced Practice Practicum (3 credit hours)
- Graduate Elective (0-3 credit hours)

# Optics

## Description

School of Optics/CREOL (Center for Research and Education in Optics and Lasers) Graduate Program Coordinator: David J. Hagan, Ph.D., CREOL 208, (407) 823-6817. E-mail: [dhagan@creol.ucf.edu](mailto:dhagan@creol.ucf.edu) Web address: [www.creol.ucf.edu](http://www.creol.ucf.edu)

The School of Optics offers interdisciplinary graduate programs in optical science and engineering leading to a master's (M.S.) or doctoral (Ph.D.) degree in Optics. The School is one of only three graduate optics academic departments in the nation. The Center for Research and Education in Optics and Lasers (CREOL) is integrated in the school as its research arm. The School has grown to an internationally recognized institute with twenty-four full-time faculty members and more than one hundred graduate students with research activities covering all aspects of optics, photonics, and lasers. It is housed in a state-of-the-art 82,000-square-foot building dedicated to optics research and education.

The master's program in Optics is intended for students with a baccalaureate degree in optics, electrical engineering, physics, or closely related fields. The doctoral program in Optics is intended for students with a master's degree in optics, electrical engineering, physics, or closely related fields who wish to pursue a career in research or academia. Current research areas include: linear and nonlinear guided-wave optics and devices, high speed photonic telecommunications, solid state laser development, nonlinear optics, laser-induced damage, quantum-well optoelectronics, photonic information processing, infrared systems, optical diagnostics, optical system design, image analysis, virtual reality, medical imaging, diffractive optics, optical crystal growth and characterization, high intensity lasers, x-ray optics, EUV sources, optical glasses, laser materials processing, free-electron lasers, and light matter interaction.

## Degrees Offered

Master of Science in Optics (M.S.) Doctor of Philosophy in Optics (Ph.D.)

## Master of Science in Optics

The M.S. program is intended for students with a baccalaureate degree in optics, electrical engineering, physics, or closely related fields.

## Admission Requirements

The minimum admission requirement for the M.S. program is a minimum grade point average of 3.0 (A=4.0) in the last 60 attempted semester hours of the B.S. degree. A competitive GRE score on the verbal and quantitative portions is required. It is highly recommended that the applicants also take and complete the analytical section of the GRE exam. A score of 230 (computer-based test or equivalent score on the paper-based test) on the Test of English as a Foreign Language (TOEFL) is required if the previous degree is from a country where English is not the official language. Students with degrees in related fields may be required to take undergraduate articulation courses determined by the program coordinator on a case-by-case basis. The School strongly encourages applications from minority and diverse populations. Race, national origin, and gender are not used in the evaluation of students for admission into graduate and professional programs.

[Application Deadlines](#)

## Degree Requirements

The Master of Science in Optics requires a minimum of 36 credit hours. There are no specifically required courses for the M.S. degree, and students are allowed considerable freedom in planning their study programs. However, it is strongly recommended that students include at least five courses from the Ph.D. core courses (designated below) in their program of study. A minimum of two optics graduate laboratory courses must be part of the program. One required optics laboratory may be waived if the student can demonstrate an equivalent hands-on laboratory experience. Up to nine credit hours of appropriate graduate courses from accredited universities may be transferred with approval from the School. Only courses with grades of "B" or better can be transferred. A maximum of three credit hours of 4000-level courses may be applied to the M.S. or the Ph.D. program. The M.S. program offers both a thesis and a non-thesis option.

# Optics Courses

The following optics courses are approved to meet the optics course requirements of the program.

## Recommended Core Courses

- OSE 5111 Optical Wave Propagation (3 credit hours)
- OSE 5115 Interference and Diffraction (3 credit hours)
- OSE 5203 Geometrical Optics (3 credit hours)
- OSE 5312 Optical Properties of Materials (3 credit hours)
- OSE 6432 Electro-Optics (3 credit hours)

## Approved Laboratory Courses

- OSE 5234L Applied Optics Laboratory (3 credit hours)
- OSE 6455L Photonics Laboratory (3 credit hours)
- OSE 6526L Laser Engineering Laboratory (3 credit hours)

## Electives

- OSE 5041 Introduction to Wave Optics (3 credit hours)
- OSE 5143 Fiber Optics Communication (3 credit hours)
- OSE 5414 Fundamentals of Optoelectronic Devices (3 credit hours)
- OSE 5421 Integrated Optics (3 credit hours)
- OSE 5511 Laser Principles (3 credit hours)
- OSE 5630C Thin Film Optics (3 credit hours)
- OSE 6118 Optical Propagation in Inhomogeneous Media (3 credit hours)
- OSE 6211 Fourier Optics (3 credit hours)
- OSE 6225 Radiation and Detection (3 credit hours)
- OSE 6265 Optical Systems Design (3 credit hours)
- OSE 6334 Nonlinear Optics (3 credit hours)
- OSE 6335 Nonlinear Guided Wave Optics (3 credit hours)
- OSE 6347 Quantum Optics (3 credit hours)
- OSE 6445 High Speed Photonics (3 credit hours)
- OSE 6473 Optical Networks (3 credit hours)
- OSE 6528 Specific Laser Systems (3 credit hours)
- OSE 6457 Photonics Signal Processing (3 credit hours)
- OSE 6560 Laser Engineering (3 credit hours)
- OSE 6817 Advanced Topics in Electro-Optics (3 credit hours)
- EEL 6564 Statistical Optics with Applications (3 credit hours)
- EMA 5610 Laser Materials Processing (3 credit hours)
- PHY 5455 Modern X-Ray Science (3 credit hours)
- PHZ 5505 Plasma Physics (3 credit hours)

## Thesis Option

The thesis option program requires at least six credit hours of thesis, a minimum of fifteen credit hours in approved optics courses, and a minimum of six credit hours of approved optics laboratory courses. The remaining credit hours consist of appropriately selected optics, engineering, and science courses. Independent Study and Directed Research credit hours are not allowed toward the degree requirements. The student must prepare an approved program of study and form a thesis committee upon completion of nine credit hours. The M.S. thesis committee consists of three members with at least two faculty members from the School of Optics. Students are required to write a thesis and pass an oral exam based primarily on the topics of the thesis and course work.

## Non-thesis Option



The non-thesis option program requires a minimum of 21 course credit hours in approved optics courses and a minimum of six credit hours of approved optics laboratory courses. The remaining credit hours consist of appropriately selected optics, engineering, and science courses. Up to three credit hours of Directed Research or Independent Study may be included with prior approval of the School. Students must prepare an approved program of study upon completion of nine credit hours. Students are required to pass a final oral comprehensive examination based primarily on the subject matter of the courses taken. The purpose of the exam is for the student to demonstrate his or her basic knowledge of the fundamentals of optics and photonics.

Program	Thesis	Non-Thesis
Optics courses (minimum)	15	21
Optics laboratory (minimum)	6	6
Engineering/Sciences electives (maximum)	9	9
Research/Independent Study (maximum)	0	3
Comprehensive exam	No	Yes
Thesis (minimum)	6	0
Total hours required (minimum)	36	36

## Doctor of Philosophy in Optics

The Ph.D. program is intended for students with a master's degree in optics, electrical engineering, physics, or closely related fields who wish to pursue a career in research or academia.

### Admission Requirements

The minimum admission requirement for the Ph.D. program is a minimum grade point average of 3.0 (A=4.0) in the M.S. program. A competitive quantitative and verbal GRE score is required. It is highly recommended that the applicants also take and complete the analytical section of the GRE exam. A minimum score of 230 (computer-based test or equivalent score on the paper-based test) on the Test of English as a Foreign Language (TOEFL) is required if the previous degree is from a country where English is not the official language. Students with degrees in related fields may be required to take undergraduate articulation courses determined by the program coordinator on a case-by-case basis. Students must submit an application for graduate admission, including three letters of recommendation, goals statement, and resume. The School strongly encourages applications from minority and diverse populations. Race, national origin, and gender are not used in the evaluation of students for admission into graduate and professional programs.

[Application Deadlines](#)

### Degree Requirements

The minimum requirement for the Ph.D. degree is 72 credit hours including a minimum of 15 credit hours of dissertation. The program of study must include at least 30 credit hours in approved optics courses and six credit hours in approved optics laboratory courses. The remaining 21 credit hours may consist of appropriately selected optics, engineering, and science electives, independent study, seminars, research, and dissertation. At least six credit hours must be outside the major. One required optics laboratory may be waived if the student can demonstrate an equivalent hands-on laboratory experience. A maximum of 12 credit hours of combined Independent Study and Directed Research credit hours are allowed in the program of study, but they may not be applied toward the optics course requirements. Up to 36 semester credit hours of appropriate graduate courses in the M.S. program from accredited universities may be transferred with approval from the School. Only courses with grades of "B" or better can be transferred.

Students are required to pass a Qualifying Examination, a Candidacy Examination, form a dissertation committee, and submit an approved program of study typically by the end of the second academic year in the program before being admitted to full doctoral status.

The Ph.D. core courses are not required, but they have been designed to include a significant portion of the material upon which the Qualifying Examination is based. Consequently, students are strongly encouraged to include most of these courses in their programs of study.

Program

Credit Hours

Optics courses (minimum)	30
Optics laboratory (minimum)	6
Engineering/Science electives (maximum)	21
Research/Independent Study (maximum)	12
Dissertation (minimum)	15
Total hours required (minimum)	72

## Optics Courses

The following optics courses are approved to meet the optics course requirements of the program.

### Recommended Core Courses

- OSE 5111 Optical Wave Propagation (3 credit hours)
- OSE 5115 Interference and Diffraction (3 credit hours)
- OSE 5203 Geometrical Optics (3 credit hours)
- OSE 5312 Optical Properties of Materials (3 credit hours)
- OSE 6432 Electro-Optics (3 credit hours)

### Approved Laboratory Courses

- OSE 5234L Applied Optics Laboratory (3 credit hours)
- OSE 6455L Photonics Laboratory (3 credit hours)
- OSE 6526L Laser Engineering Laboratory (3 credit hours)

### Electives

- OSE 5041 Introduction to Wave Optics (3 credit hours)
- OSE 5143 Fiber Optics Communication (3 credit hours)
- OSE 5414 Fundamentals of Optoelectronic Devices (3 credit hours)
- OSE 5421 Integrated Optics (3 credit hours)
- OSE 5511 Laser Principles (3 credit hours)
- OSE 5630C Thin Film Optics (3 credit hours)
- OSE 6118 Optical Propagation in Inhomogeneous Media (3 credit hours)
- OSE 6211 Fourier Optics (3 credit hours)
- OSE 6225 Radiation and Detection (3 credit hours)
- OSE 6265 Optical Systems Design (3 credit hours)
- OSE 6334 Nonlinear Optics (3 credit hours)
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- OSE 6347 Quantum Optics (3 credit hours)
- OSE 6445 High Speed Photonics (3 credit hours)
- OSE 6457 Photonic Signal Processing (3 credit hours)
- OSE 6473 Optical Networks (3 credit hours)
- OSE 6528 Specific Laser Systems (3 credit hours)
- OSE 6560 Laser Engineering (3 credit hours)
- OSE 6817 Advanced Topics in Electro-Optics (3 credit hours)
- EEL 6564 Statistical Optics with Applications (3 credit hours)
- EMA 5610 Laser Materials Processing (3 credit hours)
- PHY 5455 Modern X-Ray Science (3 credit hours)
- PHZ 5505 Plasma Physics (3 credit hours)

### Qualifying Examination

Before students are eligible to take the Candidacy Examination, they must first pass a written Qualifying Examination, which for full-time students is normally taken at the end of the first year of graduate study. The purpose of the Qualifying Examination is for the student to demonstrate mastery of the fundamentals of optics, photonics, and lasers. The examination is administered by the doctoral Qualifying Examination committee, which consists of several faculty members representing the appropriate disciplines, appointed by the Director or designee. The committee's duties include the preparation and grading of the examination material. The committee may solicit input from other interested faculty. The exam is a closed book written exam in the general area of electromagnetic foundations of optics, interference, diffraction, coherence, fundamentals of applied optics, optical science, and photonics. Students who do not pass the qualifying examination in two attempts will not continue in the program

## Candidacy Examination

Students are required to successfully complete the Candidacy Examination before admission to full doctoral status. The purpose of the candidacy examination is for the student to demonstrate their readiness for the Ph.D. program through preliminary research work in their chosen field of study. The candidacy examination is administered by the student's dissertation advisory committee and is comprised of written and oral portions. The candidacy exam is normally taken near the completion of required course work. Students must pass the Candidacy Examination before registering for doctoral dissertation hours (OSE 7980).

## Dissertation Proposal and Dissertation Advisory Committee

Within one year after passing the general candidacy examination and after the student has begun research, the student will write a dissertation proposal and present it to the advisory committee for their approval. The proposal must include the research performed to date and the research planned to complete the dissertation. The dissertation advisory committee will meet annually to review the student's progress. The committee, which consists of three faculty members from the School of Optics and one faculty member from outside the School, must be approved by the Director or designee.

## Dissertation Defense

The student must prepare a written dissertation describing the student's research. The student's Ph.D. dissertation advisory committee administers the dissertation oral defense examination.

# Physical Education

## Description

College of Education

The College of Education offers a Master of Arts in Physical Education Program, with tracks in Exercise Physiology, Teaching Physical Education, and Career Enhancement. Two options are available in the Exercise Physiology Track: the first option emphasizes experience in clinical exercise physiology, adult fitness programs, and related areas; the second option emphasizes the development of strength and conditioning programs for wellness centers. The Teaching Physical Education Track is designed to prepare people for initial certification in the teaching of physical education. The Career Enhancement track of the Master of Arts in Physical Education offers students the opportunity to develop knowledge and skills to work in areas such as coaching or fitness.

## Degrees Offered

### Master of Arts in Physical Education (M.A.)

- Exercise Physiology Track
- Teaching Physical Education Track
- Career Enhancement Track

## Master of Arts in Physical Education

### Exercise Physiology Track

Department of Child, Family and Community Sciences Chair of Department: Dr. Bill Wienke Graduate Program Coordinator: Dr. T. Angelopoulos, (407) UCF-0364. E-mail: [tangelop@mail.ucf.edu](mailto:tangelop@mail.ucf.edu)

Students may follow one of two general options in pursuit of a master's degree in the Exercise Physiology Track of the Master of Arts in Physical Education program. Option one in the specialization emphasizes experience in the area of clinical exercise physiology, adult fitness programs, and related areas. Students will work toward training certification as an Exercise Physiologist through the American College of Sports Medicine. This option will prepare students for the clinical exercise physiology examination (RCEP). The second option emphasizes the development of strength and conditioning programs for wellness centers. Course requirements include a common core plus specialized courses in exercise physiology and wellness.

Acceptance into the exercise physiology track is contingent upon having successfully completed basic mathematics, physics, chemistry, biology, human anatomy, and physiology that will allow the student to be successful in master's level courses. Courses in undergraduate exercise physiology courses are desired. A major in Exercise Science, Physical Education, Physical Therapy, Athletic Training, Biological Science, or related areas would usually include the course requirements listed. Deficiencies in content may require the completion of additional course work. The program of study developed by the adviser will reflect these additional requirements.

[Master's Programs in the College of Education](#)

[Application Deadlines](#)

## Degree Requirements

Minimum Hours Required for M.A.—39 Credit Hours

Area A: Core—9 or 12 Credit Hours

- EDF 6481 Fundamentals of Graduate Research in Education (3 credit hours)
- PET 6910 Problem Analysis—Review of Literature (3 credit hours)\*

- PET 6946 Practicum, Clinical Practice (3-6 credit hours)\*

\* Can be taken only after 2/3 of program is completed.

Area B: Specialization—27 Credit Hours—Approved by adviser

Courses must be selected in consultation with an adviser. Courses from other colleges may be chosen as well. NOTE: Credit in human anatomy is a prerequisite or co-requisite for many PET courses. Consult with an adviser.

- HUN 5937 Nutrition and Exercise Physiology (3 credit hours)
- PCB 4805 Endocrinology (3 credit hours)
- PCB 6727 Comparative Animal Physiology (3 credit hours)
- GEY 5937 Physiology of Aging
- PET 6XXX Adherence/Compliance (3 credit hours)
- PET 6086 Exercise as Preventive Medicine (3 credit hours)
- PET 6357C Environmental Exercise Physiology (3 credit hours)
- PET 6367 Bioenergetics of Human Movement and Performance (3 credit hours)
- PET 6381 Physiology of Neuromuscular Mechanisms (3 credit hours)
- PET 6388 Cardiovascular Physiology (3 credit hours)
- PET 6369 Electrocardiography (3 credit hours)
- PET 6690 Exercise Testing and Prescription for Special Populations (3 credit hours)
- Approved Elective

Area C: Thesis Option—6 Credit Hours

- PET 6971 Thesis (6 credit hours)

## Teaching Physical Education Track

Department of Teaching and Learning Principles Interim Chair of Department: Dr. Robert Williams Graduate Program Coordinator: Dr. P. Higginbotham, (407) UCF-2050. E-mail: [higginbp@mail.ucf.edu](mailto:higginbp@mail.ucf.edu)

The Teaching Physical Education Track of the Master of Arts in Physical Education program prepares students for teaching careers in physical education. Since graduates of this program must pass a state of Florida certification examination, the program's educational design enables students to possess the skills for successful completion of the certification process. The intent of the curriculum is to enable students to become efficient and effective teachers of physical education.

[Master's Programs in the College of Education](#)

[Application Deadlines](#)

## Degree Requirements

Minimum Hours Required for the M.A.—33 Credit Hours

Area A: Core—12 Credit Hours\*

- EDF 6155 Lifespan Human Development and Learning (3 credit hours)
- EDF 6608 Social Factors in American Education (3 credit hours)
- EDF 6432 Measurement and Evaluation in Education (3 credit hours)
- EDG 6236 Principles of Instruction (3 credit hours)
- NOTE: The Core may be taken as a certificate program. See Initial Teacher Professional Preparation Graduate Certificate.

Area B: Specialization—21 Credit Hours

- PET 4035C Motor Development and Learning or PET 6505 Wellness Technology in Physical Education (3 credit hours)
- PET 6XXX Kinesiology (3 credit hours)
- PET 6416 Administrative Principles of Sport and Physical Education (3 credit hours)
- PET 5355 Exercise and Health (3 credit hours)

- PET 4640 Adapted Physical Education or PET 6645 Advanced Studies in Adapted Physical Education (3 credit hours)
- PET 5635 Advanced Human Injuries (3 credit hours)
- PET 6238C Perceptual Motor Development or PET 5765 Advanced Coaching Theory (3 credit hours)

#### Area C: Co-requisite Courses—15 Credit Hours

The state requires particular courses for certification that are offered only at the undergraduate level. These courses may have been taken as part of the undergraduate degree. If previous credit in these areas has not been earned, these requirements must be completed with the master's program to complete the UCF state-approved program of study in physical education.

- 9 semester hours in instructional design and content of physical education
- 6 semester hours in internship

NOTE: Credit in Anatomy is not required by the state, but it is a prerequisite to many courses in this program.

## Additional Program Requirements

Complete a portfolio according to program guidelines. This portfolio satisfies the comprehensive examination requirement for this non-thesis master's program. This portfolio requires demonstration of professional growth, reflection, and proficiency in the 12 Florida Educator Accomplished Practices.

Pass the CLAST as well as the Professional Education and subject area tests of the Florida Teacher Certification Examination.

The certification in Physical Education at the present time is either K-8 or 6-12. Soon changes within this program will be made to comply with state mandates to begin certifying K-12.

## Career Enhancement Track

Department of Teaching and Learning Principles Chair of Department: Dr. Robert Williams Graduate Program Coordinator: Dr. P. Higginbotham, (407) 823-2050. E-mail: [higginbp@mail.ucf.edu](mailto:higginbp@mail.ucf.edu)

The Career Enhancement track of the Master of Arts in Physical Education offers students the opportunity to develop knowledge and skills to work in areas such as coaching or fitness. It is very common for physical educators to coach in youth, school, and recreational programs as well as work in the fitness industry teaching in YMCAs, fitness and wellness centers. Often these jobs supplement the teaching salary income.

Graduate Certificate programs are available in Coaching and in Health and Wellness.

[Master's Programs in the College of Education](#)

[Application Deadlines](#)

## Degree Requirements

Minimum Hours Required for M.A.—33 Credit Hours

Area A: Core —12-15 Credit Hours

- PET 6416 Administration of Corporate Wellness Programs (3 credit hours)
- EDF 6481 Fundamentals of Graduate Research in Education (3 credit hours)
- \*PET 6910 Problem Analysis: Review of Literature (3 credit hours)
- \*PET 6946 Practicum/Clinical Practice (3-6 credit hours)

Research Report Option\*

- PET 6909 Research Report (3-6 credit hours)

In consultation with an adviser, the student could continue the research started in PET 6910. Students choosing this option would choose fewer hours in the specialization area.

\*Can be taken after 2/3 of specialization is completed.

#### Area B: Specialization—12-18 Credit Hours

Select courses from the following:

- PET 5355 Exercise and Health (3 credit hours)
- PET 5635 Advanced Human Injuries (3 credit hours)
- PET 5766 Advanced Coaching Theory (3 credit hours)
- PET 6XXX Training and Conditioning Techniques for Coaches (3 credit hours)
- PET 6XXX Peak Performance in Sports (3 credit hours)
- PET 6XXX Kinesiology (3 credit hours)
- PET 6088 Wellness Development in Children (3 credit hours)
- PET 6089 Personal and Organizational Wellness (3 credit hours)
- PET 6XXX Wellness Technology in Physical Education (3 credit hours)

Courses from other colleges or programs can be substituted with adviser approval.

## Additional Program Requirements

A comprehensive examination or another appropriate culminating activity is required of all master's students. Please contact your adviser.

# Physics

## Description

College of Arts and Sciences Department of Physics Chair of the Department: Dr. Brian P. Tonner Graduate Program Coordinator: Dr. Robert Peale, MAP 310, (407) 823-5208. E-mail: [graduate@physics.ucf.edu](mailto:graduate@physics.ucf.edu) Web address: <http://www.physics.ucf.edu>

The University of Central Florida offers master's and doctoral programs in Physics, with tracks in General Physics and Optical Physics. Research opportunities are available in condensed matter physics, nanostructure devices, surface science, optical physics, complex systems, biophysics, and atomic and molecular physics.

## Degrees Offered

### Master of Science in Physics (M.S.)

- o General Physics Track
- o Optical Physics Track

### Doctor of Philosophy in Physics (Ph.D.)

- o General Physics Track
- o Optical Physics Track

## Faculty

Professors: S. K. Bose, Ph.D.; J. J. Brennan, Ph.D.; L. Chow, Ph.D.; R. A. Llewellyn, Ph.D.; W. Luo, Ph.D.; J. E. Neighbor, Ph.D.; H. P. Saha, Ph.D.; B. P. Tonner, Ph.D.

Associate Professors: J. S. Bolemon, Ph.D.; G. Braunstein, Ph.D.; M. D. Johnson, Ph.D.; Ph.D.; R. E. Peale, Ph.D.; A. Schulte, Ph.D.

Assistant Professors: N. G. Barlow, Ph.D.; A. Bhattacharya, Ph.D.; L. Chernyak, Ph.D.; J. M. Saul, Ph.D.; R. Vanfleet, Ph.D.; D. Walters, Ph.D.

Visiting Assistant Professors: C. Efthimiou, Ph.D.; J. Evans, Ph.D.; S. Kleckley, Ph.D.

Adjunct Professors: E. Flitsiyan, Ph.D.

Affiliate Faculty: M. Bass, Ph.D., Professor of Optics; B. H. T. Chai, Ph.D., Professor of Optics; L. R. Elias, Ph.D., Professor of Optics; M. C. Richardson, Ph.D., Professor of Optics; S. Shivamoggi, Ph.D., Professor of Mathematics; W. T. Silfvast, Ph.D., Professor of Optics; M. J. Soileau, Ph.D., Professor of Optics and Vice President for Research; G. I. Stegeman, Ph.D., Cobb-Hooker Eminent Scholar Chair of Optical and Laser Sciences and Engineering; E. W. Van Stryland, Ph.D., Professor of Optics; B. Zel'dovich, Ph.D., Professor of Optics; P. Delfyett, Ph.D., Associate Professor of Optics; D. J. Hagan, Ph.D., Associate Professor of Optics; A. Kar, Ph.D., Associate Professor of Optics; G. Li, Ph.D., Associate Professor of Optics

## Master of Science in Physics

The Master of Science degree offers students the choice of general physics or optical physics. Research opportunities are available in condensed matter physics, nanostructure devices, surface science, optical physics, complex systems, biophysics, and atomic and molecular physics.

## Admission Requirements

The Graduate Record Examination (GRE) is required of all applicants, and the Physics Subject Test of the GRE is recommended. Minimum requirements for admission to the Physics graduate program are the standard university criteria of a 3.0 (A = 4.0) grade point average (GPA) for the last 60 attempted credit 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. Applicants must complete an application for graduate admission (available at [www.graduate.ucf.edu](http://www.graduate.ucf.edu)). Applicants to the doctoral program must also include a resume, goal statement, and three letters of recommendation. International students and students whose native language is not English must score at least 220 (computer-based test; or equivalent score on the paper-based test) on the Test of English as a Foreign Language (TOEFL). 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.

[Application Deadlines](#)

## Degree Requirements

The Master of Science in Physics degree requires a total of 33 credit hours. The student has the option of choosing tracks in general physics or optical physics. In both tracks, there are thesis and non-thesis options for the master's degree. All master's students must take 18 credit hours of core courses. The thesis option requires 9 additional credit hours of electives, plus a minimum of 6 credit hours of thesis and a satisfactory defense. The non-thesis option instead requires 15 credit hours of electives and a written comprehensive 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.

### Requirements for M.S.—33 Credit Hours Minimum

#### Core Courses—18 Credit Hours

All students are required to take:

- PHY 5606 Quantum Mechanics I (3 credit hours)
- PHY 5346 Electrodynamics I (3 credit hours)
- PHZ6156 Advanced Computational Physics (3 credit hours)

The remaining core courses depend on whether the student selects the General Physics Track or the Optical Physics Track.

#### General Physics Track

- PHY 5524 Statistical Physics (3 credit hours)
- PHY 6347 Electrodynamics II (3 credit hours)
- PHY 6624 Quantum Mechanics II (3 credit hours)

Additional electives: 9-15 credit hours (require approval of advisory committee)

#### Optical Physics Track

- OSE 5115 Interference and Diffraction (3 credit hours)
- OSE 6560 Laser Engineering (3 credit hours)
- OSE 6347 Quantum Optics (3 credit hours)

Additional electives: 9-15 credit hours (require approval of advisory committee)

#### Thesis Option—6 Credit 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. These six credit hours count toward the 12 hours of required electives for the degree.

#### Non-Thesis Option

This requirement is met by the student completing 15 credit hours of electives and a written comprehensive exit examination.

## Doctor of Philosophy in Physics

The Department of Physics at the University of Central Florida offers a Doctor of Philosophy (Ph.D.) degree with tracks in general physics and optical physics. The department is characterized by rapid growth and dynamic partnerships. This activity, which is fueled by the university's focus on industrial partnerships and research, strengthens the department and provides research and employment opportunities for our students. Research opportunities are available in condensed matter physics, nanostructure devices, surface science, optical physics, complex systems, biophysics, and atomic and molecular physics.

## Admission Requirements

The Graduate Record Examination (GRE) is required of all applicants, and the Physics Subject Test of the GRE is recommended. Minimum requirements for admission to the Physics graduate program are the standard university criteria of a 3.0 (A = 4.0) grade point average (GPA) for the last 60 attempted credit 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. Applicants must complete an application for graduate admission (available at [www.graduate.ucf.edu](http://www.graduate.ucf.edu)). Applicants to the doctoral program must also include a resume, goal statement, and three letters of recommendation. International students and students whose native language is not English must score at least 220 (computer-based test; or equivalent score on the paper-based test) on the Test of English as a Foreign Language (TOEFL). 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.

[Application Deadlines](#)

## Degree Requirements

The Doctor of Philosophy degree in Physics requires a total of 72 credit hours for completion. A specific set of eight required core courses (24 hours), five electives (15 hours), and a minimum of 15 hours of dissertation are part of those 72 hours. Electives are organized into track specializations with certain track specific requirements. The remaining 18 hours may consist of appropriately selected research, dissertation, and elective courses. In addition, each student is required to participate in the Physics Colloquium/Seminar program. No more than 6 credit hours of independent study may be credited toward the Doctor of Philosophy degree.

### Core Courses—24 Credit Hours

All students are required to take the core courses.

- PHY 5606 Quantum Mechanics I (3 credit hours)
- PHY 6624 Quantum Mechanics II (3 credit hours)
- PHY 5346 Electrodynamics I (3 credit hours)
- PHY 6347 Electrodynamics II (3 credit hours)
- PHZ 6156 Advanced Computational Physics (3 credit hours)
- PHY 5937 Methods of Experimental Physics (3 credit hours)
- PHY 5524 Statistical Physics (3 credit hours)
- PHY 6918 Summer Research Seminar (3 credit hours)

### Elective Courses—15 Credit Hours

The required 15 credit elective hours are track-specific.

### General Physics Track

The General Physics Track emphasizes strong preparation in physics fundamentals. It is intended to prepare students for careers in theoretical physics, teaching at the college level, or other areas not covered by the Materials and Optics Tracks. A number of active research programs exist in the department to accommodate such students. Participating professors include H. Saha, S. Bose, M. Johnson, J. Saul, N. Barlow, S. Shivamoggi, and R. Eastes.

A total of 15 credit hours of electives in the General Physics Track must be taken in consultation with the student's advisory committee. The following courses are recommendations.

- PHY6246 Classical Mechanics (3 credit hours)
- PHY6667 Advanced Quantum Mechanics (3 credit hours)
- PHZ 5405 Condensed Matter Physics (3 credit hours)
- PHY 6428 Condensed Matter Physics II (3 credit hours)
- PHZ 5505 Plasma Physics (3 credit hours)
- PHZ 5304 Nuclear and Particle Physics (3 credit hours)
- PHZ 6234 Atomic Physics (3 credit hours)
- OSE 6347 Quantum Optics (3 credit hours)
- OSE 5312 Optical Properties of Materials (3 credit hours)

Other courses from Physics, Math, Optics, Materials Science, Engineering.

## Optical Physics Track

The Optics Track coordinator is currently Dr. David Hagan, School of Optics. In the Optics Track, students must select five optics courses with the following restrictions.

At least one course from:

- OSE 5111 Optical wave propagation (3 credit hours)
- OSE 5115 Interference and Diffraction (3 credit hours)

At least one of the following laboratory courses:

- OSE 6526L Laser Engineering Lab (3 credit hours)
- OSE 5234L Applied Optics Lab (3 credit hours)
- OSE 6455L Photonics Lab (3 credit hours)

The remaining courses (up to three) may be elected from other graduate course in optics see ([www.creol.ucf.edu](http://www.creol.ucf.edu)).

## Dissertation

All students require a minimum of 15 credit hours of dissertation.

## Examinations

Placement Exam—The Physics field test, to be taken during the beginning of the first semester, for advisement purposes only.

Candidacy Exam—Part 1, written exam covering the common core. Part 2, track specific exam. Taken at the end of the second year. After passing the candidacy examination, the student can register for dissertation hours (PHY 7980). Before passing the candidacy, research credit can be earned as PHY 6918.

Dissertation Proposal—Prepared in consultation with dissertation advisor. Presented within one year of the candidacy exam.

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.

# Physical Therapy

## Description

College of Health and Public Affairs Department of Health Professions Chair of the Department: Aaron Liberman, Ph.D. Graduate Program Coordinator: Eileen Hamby, D.B.A., P.T.; HPA 256, (407) 823-3470. E-mail: [ptinfo@mail.ucf.edu](mailto:ptinfo@mail.ucf.edu) Web address: <http://www.cohpa.ucf.edu/health.pro>

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.

## Degree Offered

Master of Science in Physical Therapy (M.S.)

## Master of Science in Physical Therapy

The program in Physical Therapy (M.S.) is a two-year (seven consecutive semesters), professional curriculum designed to prepare entry-level therapists to practice in a variety of settings. The professional curriculum is a full-time program with no opportunity to take courses other than those prescribed by the curriculum. The professional program includes clinical practicums and internships ranging from four weeks to twelve weeks long. Applicants need to note that one or more of the clinical practicums may be assigned at a site sufficiently removed from the Orlando area to require the student to provide transportation and housing.

Students who successfully complete the course of study will be granted the M.S. degree, enabling the graduate to seek membership in the American Physical Therapy Association and to qualify for Physical Therapy licensure. UCF's Program in Physical Therapy received interim accreditation of its Master of Science in Physical Therapy from the Commission on Accreditation of Physical Therapy Education.

Approximately 28 students are admitted to the program each year. The demographics of the class that entered in 2002 include an average age of 27 years and an overall grade point average of 3.4 (on a 4.0 scale).

## Objectives of the Program

- Preparation of a physical therapist who will practice as a broadly skilled, inquiring clinician in a variety of health care settings, with appropriate skill in education, communication, advocacy, management, and research
- Preparation of a physical therapist who demonstrates a lifelong commitment to the profession and to their patients, through active participation in their communities, patient advocacy, and the ability to adapt to consumer needs and the changing health care environment
- Promotion of the scientific foundations of physical therapy practice and education with emphasis on efficacy of treatment
- Promotion of the physical therapy profession and the physical therapist as a unique and integral component of health care

## Admission Requirements

Acceptance and registration to study at UCF does not constitute admission to the Program in Physical Therapy. Students may apply online to the University of Central Florida at [www.graduate.ucf.edu](http://www.graduate.ucf.edu) or through the Office of Graduate Studies. Acceptance to the program in Physical Therapy is contingent upon admission through Graduate Studies and is based on competitive admission.

Before applying to the program, the applicant must:

- Earn a score of 1000 on the verbal-quantitative portion of the GRE or a 3.0 GPA for the last 60 attempted semester hours earned toward a bachelor's degree (Each applicant must submit official GRE results, regardless of score.)

- Apply to the University of Central Florida, Program in Physical Therapy through the Office of Graduate Studies ([www.graduate.ucf.edu](http://www.graduate.ucf.edu))
- Earn a minimum of ten hours of volunteer/work experience under the direct supervision of a licensed physical therapist in the field of physical therapy

International students and students whose native language is not English must score at least 220 (computer-based test; or equivalent score on the paper-based test) on the Test of English as a Foreign Language (TOEFL).

Before entering the program, the applicant must:

- Earn a bachelor's degree
- Complete program prerequisites with at least a 3.0 grade point average and no grade less than a "C." No CLEP, TSD, or AP credit may be used for prerequisite courses. For an outline of prerequisites, please see the program webpage ([www.cohpa.ucf.edu/health.pro](http://www.cohpa.ucf.edu/health.pro)).

Please visit the webpage for application details as well. Qualified applicants will be selected to participate in the interview process.

[Application Deadlines](#)

## Degree Requirements

### Summer Term 1

- PHT 5115 Gross Anatomy/Neuroscience I (2 credit hours)
- PHT 5115L Gross Anatomy/Neuroscience I Lab (2 credit hours) (May be offered Fall semester)
- PHT 5260 Patient Care Skills (2 credit hours)
- PHT 5260L Patient Care Skills Lab (1 credit hour)
- PHT 5003 Foundations of Physical Therapy I (2 credit hours)
- PHT 5005 Foundations of Physical Therapy II (2 credit hours)
- PHT 5240 Physical Assessment (1 credit hour)
- PHT 5240L Physical Assessment Lab (2 credit hours)

### Fall Term 1

- PHT 5156 Physiology of Therapeutic Exercise (2 credit hours)
- PHT 5156L Physiology of Therapeutic Exercise Lab (2 credit hours)
- PHT 5125 Clinical Kinesiology (3 credit hours)
- PHT 5125L Clinical Kinesiology Lab (2 credit hours)
- PHT 6242 Orthopedic Physical Therapy (2 credit hours)
- PHT 6242L Orthopedic Physical Therapy Lab (1 credit hour)

### Spring Term 1

- PHT 5118 Gross Anatomy/Neuroscience II (2 credit hours)
- PHT 5118L Gross Anatomy/Neuroscience II Lab (2 credit hours)
- PHT 5218 Theories and Procedures I (2 credit hours)
- PHT 5218L Theories and Procedures I Lab (1 credit hour)
- PHT 6716C Advanced Orthopedic Physical Therapy (2 credit hours)
- PHT 6374 Gerontology in Physical Therapy Practice (2 credit hours)
- PHT 5241 Therapeutic Exercises I (2 credit hours)
- PHT 5241L Therapeutic Exercise Lab I (2 credit hours)

### Summer Term 2

- PHT 5722C Physical Therapy Integration I (2 credit hours)
- PHT 5306 Pathology/Pharmacology (2 credit hours)
- PHT 6606 Research Methods in Physical Therapy (2 credit hours)

- PHT 6717C Functional Rehabilitation (2 credit hours)
- PHT 5805 Clinical Education I (1 credit hour)

## Fall Term 2

- PHT 6618C Research Applications in Physical Therapy (2 credit hours)
- PHT 6322C Pediatric Physical Therapy (2 credit hours)
- PHT 6245 Therapeutic Exercise II (3 credit hours)
- PHT 6245L Therapeutic Exercise II Lab (1 credit hour)
- PHT 5718 Neurological Physical Therapy (2 credit hours)
- PHT 5718L Neurological Physical Therapy Lab (1 credit hour)
- PHT 6381C Cardiopulmonary Physical Therapy (2 credit hours)

## Spring Term 2

- PHT 6719 Advanced Neurological Physical Therapy (2 credit hours)
- PHT 6719L Advanced Neurological Physical Therapy Lab (1 credit hour)
- PHT 6822 Advanced Clinical Applications I (1 credit hour)
- PHT 6521 Management of Physical Therapy Services (3 credit hours)
- PHT 6219 Theories and Procedures II (2 credit hours)
- PHT 6219L Theories and Procedures II Lab (1 credit hour)
- PHT 6723C Physical Therapy Integration II (2 credit hours)

## Summer Term 3

- PHT 6823 Advanced Clinical Applications II (1 credit hour)

Master of Science in Physical Therapy Awarded—75 Credit Hours

## Examinations

This non-thesis program requires a final comprehensive examination on course work in the program of study. In addition, comprehensive examinations may be required at the end of each year of the program. Participation in a research project is also required of each student.

# Political Science

## Description

College of Arts and Sciences Department of Political Science Chair of the Department: Dr. Roger Handberg Graduate Program Coordinator: Dr. Philip Pollock, CNH 408E, (407) 823-2608. E-mail: [psgrad@pegasus.cc.ucf.edu](mailto:psgrad@pegasus.cc.ucf.edu) Web address: <http://pegasus.cc.ucf.edu/~politics/>

The University of Central Florida offers a Master of Arts in Political Science degree program that 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.

## Degrees Offered

### Master of Arts in Political Science (M.A.)

- o Political Analysis Track
- o Public Policy Track
- o Environmental Politics Track

## Faculty

Professors: R. Bledsoe, Ph.D.; R. Handberg, Ph.D.; P. H. Pollock, Ph.D.; W. Q. Morales, Ph.D.

Associate Professors: T. S. Fine, Ph.D.; D. Kiel, Ph.D.; J. R. Lilie, Ph.D.; S. A. Lilie, Ph.D.; M. E. Vittes, Ph.D.; K. Hamann, Ph.D.; A. Jewett, Ph.D.; H. Sadri, Ph.D.

Assistant Professors: H. Bartling, Ph.D.; C. Dolan, Ph.D.; B. Jungblut, Ph.D.; B. Kinsey, Ph.D.; J. Knuckey, Ph.D.; D. Lanier, Ph.D., J.D.; S. Reichert; S. Schraufnagel; B. Wilson, Ph.D.

## Master of Arts in Political Science

The Department of Political Science offers students three tracks toward the master's degree: the political analysis track, the public policy track, and the environmental politics 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 several key areas of government activity: Issues in science and technology, social welfare policy, 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.

The environmental politics track gives students the necessary analytic and substantive tools for understanding the evolving environmental debate in the United States, with particular emphasis on the ecologically sensitive state of Florida. The environmental politics track is recommended for students with a special interest in the science and politics of environmental policy.

## Admission Requirements

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 credit hours of undergraduate course work in political science, including Scope and Methods of Political Science (POS 3703) or its equivalent. Students must have a grade of “B” or better in this course work. AND
- Three letters of recommendation from individuals who can attest to the applicant’s potential for graduate work. These letters should address the applicant’s ability to think analytically and to communicate clearly. These letters should be sent directly to the graduate program coordinator. AND
- An undergraduate grade point average of at least 3.0 overall. OR
- A combined (quantitative and verbal) GRE score of at least 1000.

International students and students whose native language is not English must score at least 220 (computer-based test; or equivalent score on the paper-based test) on the Test of English as a Foreign Language (TOEFL).

[Application Deadlines](#)

## 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

After being admitted (either as regular or conditional), students must meet with one of the graduate advisers to discuss their plans for graduate study and to obtain permission to enroll in graduate courses in the department. After completing nine hours of course work, all students must determine a preliminary program of study, either in the political analysis track, the public policy track, or the environmental politics track. Two tracks require 30 credit hours of credit (24 hours of course work plus 6 hours of thesis), and all share the same core requirements. The environmental politics track requires 33 credit hours (27 hours of course work plus 6 hours of thesis).

Core Requirements—12 Credit Hours

- POS 6746 Quantitative Methods in Political Research (3 credit hours)
- POS 6045 Seminar in American National Politics (3 credit hours)
- POT 6007 Seminar in Political Theory (3 credit hours) AND
- INR 6007 Seminar in International Politics (3 credit hours) OR
- CPO 6091 Seminar in Comparative Politics (3 credit hours)

## Political Analysis Track

Requirements for M.A., Political Analysis Track—30 Credit Hours

A program of study in the political analysis track consists of the following course work.

Core Requirements—12 Credit Hours

Three special topics courses—9 Credit Hours

- POS 6938 American Politics (3 credit hours)
- POT 6007 Seminar in Political Theory Political Theory (3 credit hours)
- INR 6XXX International Relations (3 credit hours)
- CPO 6091 Seminar in Comparative Politics (3 credit hours)



- PUP 6938 Political Analysis (3 credit hours)

Elective—3 Credit Hours

Thesis—6 Credit Hours

## Public Policy Track

Requirements for M.A., Public Policy Track—30 Credit Hours

A program of study in the political analysis track consists of the following course work.

Core Requirements—12 Credit Hours

- PUP 6007 Public Policy Analysis (3 credit hours)

Two special topics courses—6 Credit Hours

- INR 6086 International Public Policy (3 credit hours)
- POS 6324 Women and Public Policy (3 credit hours)
- PUP 6938 Science Policy (3 credit hours)
- PUP 6938 Social Policy (3 credit hours)
- INR 6107 Seminar in Foreign and Defense Policy (3 credit hours)

Elective—3 Credit Hours

Thesis—6 Credit Hours

## Environmental Politics Track

Requirements for M.A., Environmental Politics Track—33 Credit Hours

A program of study in the political analysis track consists of the following course work.

Core Requirements—12 Credit Hours

- POS 6208 Environmental Politics (3 credit hours)

Three specialized and special topics courses—9 Credit Hours

- INR 6XXX International Environmental Law (3 credit hours)
- PUP 6XXX Politics of Sustainability (3 credit hours)
- PUP 6XXX Global Information Systems for Environmental Politics (3 credit hours)
- PUP 6XXX Urban Environmental Policy (3 credit hours)
- PUP 6208 Environmental Politics (3 credit hours)

Cognate Elective—3 Credit Hours

- BOT 5623C Plant Geography and Ecology (3 credit hours)
- ECO 6XXX Benefit/Cost Analysis in Economic Policy (3 credit hours)
- ECO 6XXX Resources and Environmental Management Policy (3 credit hours)
- ECO 6XXX Advanced Resources and Environmental Economics (3 credit hours)
- ECP 6605 Economics of Urban and Regional Problems (3 credit hours)
- ECS 6006 Seminar in Comparative Economic Systems (3 credit hours)
- ECS 6015 Economic Development (3 credit hours)
- PAD 5336 Introduction to Urban Planning (3 credit hours)
- PAD 5337 Urban Design (3 credit hours)
- PAD 5338 Land Use and Planning Law (3 credit hours)
- PAD 5356 Managing Community and Economic Development (3 credit hours)

- PAD 6353 Environmental Program Management Research (3 credit hours)
- PCB 5045C Conservation Biology (3 credit hours)
- PCB 5326C Ecosystems of Florida (3 credit hours)

Thesis—6 Credit Hours

## Other Program Requirements

The political science seminars provide the common core of knowledge for students in all three tracks. The specific subject matter of the special 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 special courses may be repeated for credit.

Unless otherwise required, 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. Students are responsible for meeting any prerequisites for elective courses.

After completion of the 24 hours of course work in the chosen track, the student will form a committee of three advisers and submit a written thesis prospectus which, upon acceptance by the committee, will become a part of the student's permanent File name. Guidelines for the prospectus are available from the graduate program coordinator. The completed thesis must be submitted to the thesis committee at least eight weeks prior to the date on which the degree is to be awarded. The student will then orally defend the thesis.

## Comprehensive 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 credit hours. The examination will be based on the political science course work contained in the student's program of study. In addition, all students will be tested in the area of quantitative methods. The examination will be offered two times each academic year, during the final examination period for the fall and spring semesters. Students must inform the graduate program coordinator of their intention to take the examination at least six weeks prior to its scheduled date. A committee, consisting of all political science faculty from whom the student has taken courses, will develop questions for the comprehensive examination. Students not passing the examination may take it a second time within one calendar year, but no student will be allowed to take the examination more than twice.

# Psychology

## Description

College of Arts and Sciences Department of Psychology Chair of the Department: Dr. John M. McGuire Associate Chair: Dr. William Wooten Web address: <http://pegasus.cc.ucf.edu/~psych/>

The Department of Psychology at the University of Central Florida offers master's degrees in Clinical Psychology and Industrial and Organizational Psychology, as well as a doctoral degree in Psychology, with tracks in Applied Experimental and Human Factors Psychology, Clinical Psychology, and Industrial and Organizational Psychology.

## Degrees Offered

Master of Arts in Clinical Psychology (M.A.) Master of Science in Industrial and Organizational Psychology (M.S.) Doctor of Philosophy in Psychology (Ph.D.)

- o Applied Experimental and Human Factors Psychology
- o Clinical Psychology
- o Industrial and Organizational Psychology

## Graduate Program Coordinators

Applied Experimental and Human Factors Psychology: Dr. Eduardo Salas, PH 314A, (407) 823-2552, E-mail: [esalas@pegasus.cc.ucf.edu](mailto:esalas@pegasus.cc.ucf.edu)

Clinical Psychology Ph.D.: Dr. Mark D. Rapport, PH 409J, (407) 823-2974. E-mail: [mrapport@pegasus.cc.ucf.edu](mailto:mrapport@pegasus.cc.ucf.edu)

Clinical Psychology M.A.: Dr. Robert J. Kennerley, DB140-310B (386) 254-4412 ext. 4033. E-mail: [rkennerl@mail.ucf.edu](mailto:rkennerl@mail.ucf.edu)

Industrial and Organizational Psychology Ph.D.: Dr. Eugene Stone-Romero, PH 309F, (407) 823-2544, E-mail: [estone@pegasus.cc.ucf.edu](mailto:estone@pegasus.cc.ucf.edu)

Industrial and Organizational Psychology M.S.: Dr. William Wooten, PH 302H, (407) 823-3478, E-mail: [wwooten@pegasus.cc.ucf.edu](mailto:wwooten@pegasus.cc.ucf.edu)

## Faculty

Professors: W. A. Burroughs, Ph.D.; R. D. Gilson, Ph.D.; J. C. Hitt, Ph.D., President; P. A. Hancock, Ph.D., Distinguished Research Professor; J. M. McGuire, Ph.D.; B. B. Morgan, Jr., Associate Dean Graduate Studies, Ph.D.; M. D. Rapport, Ph.D.; E. J. Rinalducci, Ph.D.; J. B. Rollins, Ph.D., V. P. and Director, Daytona Beach Campus; E. Salas, Ph.D.; E. Stone-Romero, Ph.D.; M. H. Thomas, Ph.D.; R. D. Tucker, Ph.D.; A. Y. Wang, Ph.D.

Associate Professors: B. I. Blau, Ph.D.; C. A. Bowers, Ph.D.; J. C. Brophy, Ph.D.; R. D. Fisher, Ph.D.; B. J. Jensen, Ph.D.; M. Mouloua, Ph.D.; C. Negy, Ph.D.; E. C. Shirkey, Ph.D.; J. A. Smither, Ph.D.; W. Wooten, Ph.D.

Assistant Professors: S. Berman, Ph.D.; M. E. Dunn, Ph.D.; S. T. Dunn, Ph.D.; C. Frederick, Ph.D.; B. A. Fritzsche, Ph.D.; K. Renk, Ph.D.; V. Sims, Ph.D.; J. L. Weaver, Ph.D.

Associate Scientist: F. Jentsch, Ph.D.

Instructors: M. H. Newlin, Ph.D.; M. J. Lavooy, Ph.D.; K. Mottarella, Psy.D.; R. J. Kennerley, Ph.D.

Visiting Instructors: M. Chin, Ph.D.; M. A. Kennerley, Ph.D.

## Master of Arts in Clinical Psychology

The Master of Arts degree in clinical psychology is offered at the Daytona Beach area campus and is concerned with the application of psychological principles to individuals. The two primary areas of emphasis include assessment or evaluation skills, and intervention or psychotherapy skills. 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. M.A. 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. The program curriculum is consistent with the educational criteria for licensure as a Mental Health Counselor in the state of Florida.

[Clinical Psychology](#)

## Master of Science in Industrial and Organizational Psychology

The Master of Science degree program in Industrial/Organizational Psychology is concerned with the application of psychological principles to organizations. Major areas of emphasis include selection and training of employees, applied theories of organizational behavior including models of motivation, job satisfaction, and productivity; test theory and construction; assessment center technology; statistics and experimental design and a variety of current topics. Industrial/Organizational graduates are involved in many issues of critical importance to society including fairness in the selection and treatment of employees, the creation of work environments that maximize the satisfaction and productivity of employees, and the study of technological influences on human performance.

[Master of Science in Industrial and Organizational Psychology](#)

## Doctor of Philosophy in Psychology

The Psychology Department offers a Ph.D. in Psychology with three tracks. One track, Applied Experimental and Human Factors Psychology, seeks to develop the capacity to design, conduct, and apply human factors research in a variety of professional settings. The second track, Clinical Psychology, emphasizes the ability of psychologists to design, conduct, and apply clinical research in administration, treatment, teaching, and supervision. The third track, Industrial and Organizational Psychology, develops competency through research and training for the application of psychological principles to organizations. Each of these tracks is patterned on the scientist-practitioner model of the American Psychological Association (APA).

[Clinical Psychology Track](#)

[Industrial and Organizational Psychology Track](#)

[Applied Experimental and Human Factors Psychology Track](#)

# Public Administration

## Description

College of Health and Public Affairs Department of Public Administration Chair of the Department: K. Tom Liou, Ph.D. Graduate Program Coordinator: Evan Berman, Ph.D., (407) 823-2604. E-mail: [eberman@mail.ucf.edu](mailto:eberman@mail.ucf.edu)

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. The program is intended to produce graduates equipped with the public management skills and analytical techniques needed for successful careers in government, nonprofit, and closely related business fields.

## Degree Offered

Master of Public Administration (M.P.A.)

## Master of Public Administration

### Admission Requirements

The Graduate Record Examination (GRE) is required of all graduate students. Minimum requirements for regular admission are (1) a grade point average (GPA) of 3.0 for the last 60 attempted semester hours of undergraduate study, (2) a grade point average of 3.0 in a previous graduate degree, or (3) a total score of 1000 or higher on the verbal-quantitative sections of the GRE.

A limited number of students who do not meet these requirements but who do have at least a 2.5 GPA and an 800 GRE score may be admitted on a provisional basis. These students must demonstrate proven public sector leadership experience, present strong recommendations from either academic or professional advisers, and provide a clear statement of education goals. More specific information on provisional admissions may be obtained from the department.

Individuals whose native language is other than English are required to have a minimum score of 220 (computer-based test; or equivalent score on the paper-based test) on the Test of English as a Foreign Language (TOEFL).

Students are expected to be computer literate upon entry to the program or are expected to obtain these skills immediately upon admission to the program.

[Application Deadlines](#)

### Degree Requirements

The MPA program consists of 42 credit hours. Each student completes a core of nine courses (27 credit hours), an advanced curriculum of four courses (12 credit hours) selected in consultation with the adviser, and a capstone experience equivalent to one course (3 credit hours).

Minimum Hours Required for M.P.A.—42 Credit Hours

#### Minimum Core Requirements—27 Credit Hours

- PAD 6053 Public Administrators in the Governance Process (3 hours)
- PAD 6035 Public Administration in the Policy Process (3 hours)
- PAD 6700 Analytic Techniques for Public Administration I (3 hours)
- PAD 6701 Analytic Techniques for Public Administration II (3 hours)
- PAD 6037 Public Organization Management (3 hours)
- PAD 6207 Public Financial Management (3 hours)

- PAD 6227 Public Budgeting (3 hours)
- PAD 6417 Human Resource Management (3 hours)
- PAD 6335 Strategic Planning and Management (3 hours)

## Advanced Curriculum—12 Credit Hours

An advanced curriculum of at least four courses that concentrate on a specific area germane to the practice of public administration may be taken within the Department of Public Administration or from other departments. Those elective courses offered within the department will provide an emphasis on state and local government; however, other emphases may be developed in consultation with the adviser. (Those students without practical administrative experience in the public sector are strongly advised to complete an internship (3 credit hours) as part of the advanced curriculum. A research report option (3 credit hours) is available for students wishing to complete a more substantial research project than might be accommodated in the other courses).

## Capstone Experience—3 Credit Hours

Students will engage in a capstone experience intended to bring together the various areas of knowledge and skills covered in the MPA program. Students will complete this requirement through enrollment in PAD 6062 Advanced Concepts and Applications in Public Administration.

## Exit Requirements

Students must achieve a grade of "B" (3.0) or better in every course listed under minimum core requirements.

# Public Affairs

## Description

College of Health and Public Affairs Graduate Program Coordinator: Dr. Eileen M. Abel, HPA 343, (407) 823-0170. E-mail: [phdpa@mail.ucf.edu](mailto:phdpa@mail.ucf.edu) Web address: <http://www.cohpa.ucf.edu/pubaffphd/>

The Ph.D. in Public Affairs at the University of Central Florida provides a unique focus on public policy, planning, and administration. This interdisciplinary program draws from the strengths of faculty in five disciplines (Criminal Justice, Health, Nursing, Public Administration, and Social Work) in its preparation of mid-career professionals (for leadership and/or research positions in public, nonprofit, and private agencies) and more traditional students (for positions in colleges and universities). The integration of this dynamic mix of students creates a stimulating environment in which to examine contemporary organizational, community, and regional problems and issues.

The mission of the program is an important one: The complex social, economic, and demographic issues that compromise the health and welfare of the citizens of Central Florida and the nation require a new breed of professionals who are able to think and work across traditional boundaries with colleagues similarly committed to tackling the complex social challenges of tomorrow. UCF's interdisciplinary Ph.D. in Public Affairs strives to fulfill that need and to meet the challenges of the future.

More specifically, the program brings together disciplines that address important and interrelated social problems confronting all communities. Too often, in the past, the interrelated problems of crime and justice, health services and social welfare delivery, and the administration of organizations that deal with these problems have been approached in a discipline-specific and fragmented way. By integrating knowledge base and intervention approaches, more realistic resolutions to social problems can be identified and implemented.

## Degree Offered

Doctor of Philosophy in Public Affairs (Ph.D.)

## Doctor of Philosophy in Public Affairs

The program will match career goals of students through the interdisciplinary nature of 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 mix of electives, including course work from other UCF programs, while those seeking to teach at the college or university level can concentrate their course work more within a single discipline.

To accommodate the needs of both traditional students and working professionals, Public Affairs students may pursue the program on a full-time (9-12 credits per semester) or part-time (6 credits per semester) basis. Significant support is available for selected full-time students. All course work is offered in the evening hours.

## Admission Requirements

Students applying to the Ph.D. program must have completed their master's degree prior to entering the program. Applications for admission into the Ph.D. program in Public Affairs may be submitted online at [www.graduate.ucf.edu](http://www.graduate.ucf.edu). 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) and sent from ETS directly to UCF
- A narrative statement of 1000 words or less describing the applicant's educational expectations, career aspirations, level of computer skills, and any special qualifications or experiences that may enhance the overall learning environment of the program
- A current resume
- Three letters of reference from professionals who can assess the applicant's ability to succeed in a doctoral program
- International students and students whose native language is not English must score at least 220 (computer-based test; or equivalent score on the paper-based test) on the Test of English as a Foreign Language (TOEFL)

- Transcripts from outside the United States must be evaluated by one of the following agencies:

World Education Services, Inc. E-mail: [SOUTH@WES.ORG](mailto:SOUTH@WES.ORG)

Josef Silny and Assocs., Inc. Website: <http://www.jsilny.com>

[Application Deadlines](#)

## Financial Support

A limited number of graduate teaching/research assistantships and fellowships, funded in amounts up to \$18,000 per year, are available for full-time students (9 credit hours per term). In addition, opportunities to assist in faculty research projects as well as to work in an agency or nonprofit setting may be available.

## Transfer Credit

Course work accepted for transfer must be part of an approved plan of study for a doctoral program at UCF or elsewhere. The acceptance of transfer credit will be determined by the Ph.D. Coordinator on a case-by-case basis. A maximum of six hours may be transferred.

## Assignment of Faculty Advisers

Upon acceptance of a student into the program, the Ph.D. Coordinator will provide an initial orientation and general advising session. The Coordinator will continue to advise the student throughout the Foundation stage of the Program assisting the student in the clarification of interests and goals and facilitating the introduction of the student to faculty with research interests that can facilitate the student's program of study. In addition, the Chairperson from one of the participating Departments (i.e., Criminal Justice, Health, Nursing, Public Administration, Social Work) will help the student select elective courses, finalize the program of study, and facilitate the discussion and review of dissertation topics. The dissertation chair should be selected by the student prior to the completion of the candidacy proposal.

## Degree Requirements

Students must complete 57 credit hours beyond the master's degree, including fourteen courses (42 credit hours) above the master's level distributed in the following manner: (1) a six-course, 18-credit interdisciplinary core; (2) a two-course, 6-credit research tool; and (3) a six-course, 18-credit interdisciplinary specialization component that will be tailored to meet students' individual goals. Fifteen credit hours of dissertation must also be completed.

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.

If students receive grades below a "B" in core courses, they may be reverted to non-degree status. All students who receive a grade of "C" or lower in a required core course must repeat the course and obtain a grade of "B" or better prior to taking the qualifying examinations.

## Required Courses—18 Credit Hours

- PAF 7000 Foundations of Public Affairs (3 credit hours)
- PAF 7110 Ethics and Public Affairs (3 credit hours)
- PAF 7230 Strategic Change and Management in Public Affairs (3 credit hours)
- PAF 7250 Social Justice and Public Policy (3 credit hours)
- PAF 7300 Policy Analysis in Public Affairs (3 credit hours)
- PAF 7982 Dissertation Seminar in Public Affairs (3 hours)

## Research—6 Credit Hours

- PAF 7802 Advanced Research Methods in Public Affairs (3 credit hours)
- PAF 7804 Advanced Quantitative Methods I (3 credit hours)



## Disciplinary Electives—18 Credit Hours

### Criminal Justice Track

- CCJ 6938 Special Topics in Criminal Justice (3 credit hours) (Course may be repeated with different content.)
- CCJ 7457 Seminar in Criminal Justice Theory (3 credit hours)
- CCJ 7930 Seminar in Criminal Justice Policy Analysis (3 credit hours)

### Health Track

- HSA 6126 Principles of Managed Care (3 credit hours)
- HSA 7XXX Advanced Seminar in Health Care Finance (3 credit hours)
- HSA 7XXX Advanced Seminar in Health Care Economics (3 credit hours)
- HSA 7XXX Advanced Seminar in Community Health (3 credit hours)
- NGR 6XXX Patient Population Management (3 credit hours)
- NGR 7XXX Health Care Systems and Policy (3 credit hours)

### Public Administration Track

- PAD 7XXX Advanced Public Budgeting and Finance (3 credit hours)
- PAD 6934 Special Issues in Public Administration (3 credit hours) (Course may be repeated with different content.)
- PAD 7026 Advanced Seminar in Public Administration (3 credit hours)
- PAD 7419 Advanced Public Human Resource Management (3 credit hours)

### Social Work Track

- SOW 6386 Seminar in Social Welfare Planning and Implementation (3 credit hours)
- SOW 6399 Advanced Administration in Social Welfare (3 credit hours)
- SOW 6492 Theory Building in Social Work (3 credit hours)
- SOW 6938 Special Issues in Social Work (3 credit hours) (Course may be repeated with different content.)

### Research Electives

- PAF 7919 Doctoral Research
- PAF 7XXX Advanced Quantitative Methods II (3 credit hours)
- PAF 7510 Seminar in Program Evaluation in Public Affairs (3 credit hours)
- PAF 7810 Seminar in Survey Research in Public Affairs (3 credit hours)
- PAF 7820 Seminar in Qualitative Methods in Public Affairs (3 credit hours)
- PAF 7840 Seminar in Secondary Data Analysis in Public Affairs (3 credit hours)

### General PAF Electives

- PAF 6908 Independent Study
- PAF 7XXX Pedagogy in Public Affairs (3 credit hours)
- PAF 7XXX Comparative Analysis in Global Public Affairs (3 credit hours)

NOTE: Other 5000- and 6000-level courses may be accepted as electives.

## Dissertation—15 Credit Hours

- PAF 7980 Dissertation Research

Minimum Hours Required for Ph.D.—57 Credit Hours

## Qualifying Examination

Following successful completion of the required foundation and research courses, a student is required to pass a qualifying examination. This

examination will test the student's knowledge of the material in the foundation courses only. The examination will be given once each fall and spring semester. The exam may also be given at the end of the summer term per the discretion of the Program Coordinator.

## Candidacy Examination

Students who pass the qualifying examination, once all of their course work has been completed, must write and defend a candidacy proposal. Successful completion of the candidacy examination will consist of 1) passing the qualifying exam and 2) successfully completing the candidacy proposal.

# Reading Education

## Description

College of Education Department of Teaching and Learning Principles Interim Chair of Department: Dr. Robert Williams Graduate Program Coordinator: Dr. T. Blair, (407) UCF-5472. E-mail: [tblair@mail.ucf.edu](mailto:tblair@mail.ucf.edu) Web address: <http://edcollege.ucf.edu/>

The College of Education offers a Master of Education degree in Reading Education. 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 practice 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.

## Degree Offered

Master of Education in Reading Education (M.Ed.)

## Master of Education in Reading Education

The Master of Education in Reading Education 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 practice 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.

[Master's Programs in the College of Education](#)

[Application Deadlines](#)

## Degree Requirements

### Minimum Hours Required for M.Ed.—36 Credit Hours

Area A: Core—15 Credit Hours

- EDF 6432 Measurement and Evaluation in Education (3 credit hours)
- EDF 6481 Fundamentals of Graduate Research in Education (3 credit hours)
- EDF 6886 Multicultural Education (3 credit hours)

Select Option A, B, or C:

Option A: Thesis

- EDF 6401 Statistics for Educational Data (3 credit hours)
- RED 6971 Thesis (2,1 credit hours)

Option B: Research Report

- EDF 6155 Lifespan Human Development and Learning (3 credit hours)
- RED 6909 Research Report (2,1 credit hours)

### Option C: Extended Specialization—6 Credit Hours

- Electives pre-approved by adviser

### Area B: Specialization—21 Credit Hours

- RED 6116 Trends in Reading Education (3 credit hours)
- RED 6336 Reading in the Content Areas (3 credit hours)
- RED 6337 Reading in the Secondary School (PR: RED 6336) (3 credit hours)
- RED 6746 Management of Reading Programs (3 credit hours)
- RED 6845 Advanced Evaluation and Instruction in Reading (3 credit hours)
- RED 6846 Reading Practicum (PR: RED 6845) (6 credit hours)

## Prerequisites

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

- RED 5147 Developmental Reading (3 credit hours) OR
- RED 3012 Basic Foundations of Reading (3 credit hours)
- RED 5514 Classroom Diagnosis and Development of Reading Proficiencies (3 credit hours) OR
- RED 4519 Diagnostic and Corrective Reading Strategies (3 credit hours)
- LAE 3414 Literature for Children (3 credit hours) OR
- LAE 5415 Children's Literature in Elementary Education (3 credit hours) OR
- LAE 4464 Survey of Adolescent Literature (3 credit hours)
- LAE 4314 Language Arts in the Elementary School (3 credit hours) OR
- LAE 4342 Teaching Language and Composition (3 credit hours)

# School Psychology

## Description

College of Education Department of Child, Family and Community Sciences Chair of the Department: Dr. Bill Wienke Graduate Program Coordinators: Dr. Carl Balado, School Psychology. E-mail: [cbalado@pegasus.cc.ucf.edu](mailto:cbalado@pegasus.cc.ucf.edu). Dr. Mike Robinson, Education Ph.D. and Counselor Education. E-mail: [erobinso@pegasus.cc.ucf.edu](mailto:erobinso@pegasus.cc.ucf.edu). Web address: [http://edcollege.ucf.edu/mod\\_depts/prog\\_page.cfm](http://edcollege.ucf.edu/mod_depts/prog_page.cfm)

The School Psychology Education Specialist Program has two tracks. The School Psychology Track is designed for students who wish to become licensed School Psychologists, and the School Counseling Track is appropriate for students with a master's degree who wish to become eligible for a School Counseling certification. These are distinct tracks with very specific programming to meet the respective licensing requirements of each area. Completion of one track will not result in eligibility for licensing in the other area.

## Degrees Offered

### Education Specialist in School Psychology (Ed.S.)

- o School Psychology Track
- o School Counseling Track

## Education Specialist in School Psychology

The School Psychology Education Specialist Program has two tracks. The School Psychology Track is designed for students who wish to become licensed School Psychologists, and the School Counseling Track is appropriate for students with a master's degree who wish to become eligible for a School Counseling certification. These are distinct tracks with very specific programming to meet the respective licensing requirements of each area. Completion of one track will not result in eligibility for licensing in the other area.

## School Psychology Track

Graduate Program Coordinator: Dr. Carl Balado, ED 314, (407) UCF-2054. E-mail: [cbalado@mail.ucf.edu](mailto:cbalado@mail.ucf.edu)

The Education Specialist degree program in School Psychology is a unique specialization in psychology and education. This program is based on two assumptions. 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. Also, 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 closely related undergraduate majors may qualify for the School Psychology Track in this degree program.

The program involves formal preparation and practical experiences focusing on psychological foundations (human development, learning and motivation), psychoeducational assessment, exceptional students, remediation or intervention techniques, counseling skills, as well as full-time supervised internship of two semesters in the public school setting. Graduates are certifiable at the state level and the program is approved and accredited by NASP/NCATE.

[Specialist Programs in the College of Education](#)

## Admission Requirements

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 requirements from an accredited institution (College in Education or Psychology)

- Have an undergraduate grade point average of 3.0 (on a 4.0 scale) for the last 60 attempted Credit 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.

This program can accommodate only a limited number of students; therefore, there is a possibility of being denied admission even when all criteria are met. Admissions to this program will occur only in the fall term. Information concerning specific admissions policies and procedures can be obtained from Dr. Carl Balado, (407) 823-2054. For more information, visit the track website: [pegasus.cc.ucf.edu/~edserv/](http://pegasus.cc.ucf.edu/~edserv/).

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.

### [Application Deadlines](#)

## Degree Requirements

Minimum Hours Required for Ed.S.—53 Credit Hours

Area A: Core—12 Credit Hours

- EDF 6401 Statistics for Educational Data (3 credit hours)
- EDF 6481 Fundamentals of Graduate Research in Education (3 credit hours)
- EEX 5051 Exceptional Children in the Schools (3 credit hours)
- EDP 6056 Advanced Educational Psychology (3 credit hours)

Area B: Specialization—53 Credit Hours

- SPS 6601 Introduction to Psychological Services in Schools (3 credit hours)
- SPS 6606 School Consultation Techniques (3 credit hours)
- SPS 6608 Seminar in School Psychology (3 credit hours)
- SPS 6801 Developmental Basis of Diverse Behaviors (3 credit hours)
- SPS 6225 Behavioral and Observational Analysis of Classroom Interactions in Schools (3 credit hours)
- SPS 6703 Child and Adolescent Deviant Behavior and Treatment (3 credit hours)
- SPS 6931 Ethical and Legal Issues in School Psychological Services (3 credit hours)
- MHS 6400 Theories of Counseling and Personality (3 credit hours)
- MHS 6401 Techniques of Counseling (3 credit hours)
- SPS 6191 Individual Psychoeducational Diagnosis I (4 credit hours)
- SPS 6192 Individual Psychoeducational Diagnosis II (4 credit hours)
- SPS 6125 Infant Development Assessment (3 credit hours)
- SPS 6194 Assessment of Special Needs (3 credit hours)
- SPS 6206 Psychoeducational Interventions (3 credit hours)
- SPS 6175 Cultural Diversity and Nonbiased Assessment (3 credit hours)
- SPS 6909 Research Report I and II (6 credit hours)

Area C: Practicum and Internship—18 Credit Hours

- SPS 6946 Practicum in School Psychology I (3 credit hours)
- SPS 6946 Practicum in School Psychology II (3 credit hours)
- SPS 6949 School Psychology Internship I and II (12 credit hours)

Prerequisites or Co-requisites (DOE Certification)

- EDA 6061 Organization and Administration of Schools (3 credit hours)
- EDF 6517 Perspectives on Education (3 credit hours) OR
- EDF 6608 Social Factors in American Education (3 credit hours)

## School Counseling Track

Graduate Program Coordinator: E. H. Robinson, ED 311, (407) UCF-3819. E-mail: [erobinso@mail.ucf.edu](mailto:erobinso@mail.ucf.edu)

The School Counseling Track of the Education Specialist Program in School Psychology is designed for a very specific audience. This track is open to certified teachers who hold an education master's degree in an area other than school counseling. This track provides, within the degree program, courses for initial certification in school counseling.

[Specialist Programs in the College of Education](#)

## Admission Requirements

To be considered for admission to the School Counseling Track, an applicant must secure, complete, and submit an application by the deadline. A formal interview is required of all applicants and will be considered for final admission after the College of Education admission requirements are met. This program can accommodate only a limited number of students; therefore, there is a possibility of being denied admission even when all criteria are met. The College of Education reserves the right to refuse student entrance or terminate a student after admission to the School Counseling Track, 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.

[Application Deadlines](#)

## Degree Requirements

Minimum Hours Required for Ed.S.—48 Credit Hours

Area A: Core—9 or 12 Credit Hours

- EDF 6155 Lifespan Human Development and Learning (3 credit hours)
- EDF 6481 Fundamentals of Graduate Research in Education (3 credit hours)
- MHS 6220 Individual Psychoeducational Testing I (3 credit hours)

Area B: Specialization—30 Credit Hours

- MHS 6400 Theories of Counseling and Personality (3 credit hours)
- MHS 6401 Techniques of Counseling (3 credit hours)
- MHS 6420 Counseling Special Populations (3 credit hours)
- MHS 6500 Group Procedures and Theories in Counseling (3 credit hours)
- MHS 6780 Ethical and Legal Issues (3 credit hours)
- SDS 6330 Career Development (3 credit hours)
- SDS 6411 Counseling with Children and Adolescents (3 credit hours)
- SDS 6620 Organization and Administration of School Counseling and Guidance Programs (3 credit hours)

Area C: Professional Clinical Experience—9 Credit Hours

- MHS 6800 Practicum in Counselor Education (3 credit hours)
- MHS 6830 Counseling Internship I (3 credit hours)
- MHS 6830 Counseling Internship II (3 credit hours)

Area D: Electives

- Thesis or two electives approved by the adviser

## 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.
- Complete a portfolio and receive approval by Counselor Education faculty.
- Pass comprehensive oral examinations satisfactorily.

# Science Education

## Description

College of Education Department of Teaching and Learning Principles Interim Chair of Department: Dr. Robert Williams Graduate Program Coordinator: Aldrin Sweeney, (407) 823-2561. E-mail: [asweeney@pegasus.cc.ucf.edu](mailto:asweeney@pegasus.cc.ucf.edu) Web address: <http://edcollege.ucf.edu/>

The College of Education offers Master of Education and Master of Arts degrees in Science Education. The Master of Education program is designed to meet the advanced knowledge and skill needs of the science classroom teacher. It is for those persons already holding an undergraduate degree in education, and who are already certified to teach in a science specialization area. The Master of Arts degree is designed for those persons who hold an undergraduate degree in a field other than education and who wish to obtain state certification to teach science at grades 6-12. The M.A. program offers tracks in Biology, Chemistry, and Physics.

## Degrees Offered

Master of Education in Science Education (M.Ed.) Master of Arts in Science Education (M.A.)

- o Biology Track
- o Chemistry Track
- o Physics Track

## Master of Education in Science Education

The Master of Education program is designed to meet the advanced knowledge and skill needs of the science classroom teacher. It is for those persons already holding an undergraduate degree in education, and who are already certified to teach in a science specialization area.

[Master's Programs in the College of Education](#)

[Application Deadlines](#)

## Degree Requirements

### Minimum Hours Required for M.Ed.—33 Credit Hours

Area A: Core—9 Credit Hours

- EDF 6401 Statistics for Educational Data (3 credit hours) OR
- EDF 6432 Measurement and Evaluation in Education (3 credit hours)
- EDF 6481 Fundamentals of Graduate Research in Education (3 credit hours)

Select one course from the following list:

- EDF 6155 Lifespan Human Development and Learning (3 credit hours)
- EDF 6517 Perspectives on Education (3 credit hours)
- EDF 6608 Social Factors in American Education (3 credit hours)
- ESE 6909 Research Report or 2 approved electives (2, 1 or 6 credit hours)

Area B: Specialization—9 Credit Hours

- Electives approved by adviser

Area C: Curriculum—12 Credit Hours



- 9 credit hours approved by adviser
- SCE 6238 Inquiry in the Sciences (3 credit hours)

# Master of Arts in Science Education

The Master of Arts degree is designed for those persons who hold an undergraduate degree in a field other than education and who wish to obtain state certification to teach science at grades 6-12. The M.A. program offers tracks in Biology, Chemistry, and Physics.

## Biology Track

The Biology Track is for non-education majors or previously certified teachers in another field who wish to attain specialization in teaching Biology.

[Master's Programs in the College of Education](#)

[Application Deadlines](#)

## Degree Requirements

Minimum Hours Required for M.A.—39 Credit Hours

Area A: Core—18 or 23 Credit Hours

- EDF 6155 Lifespan Human Development and Learning (3 credit hours)
- EDG 6236 Principles of Instruction (3 credit hours)
- EDF 6481 Fundamentals of Graduate Research in Education (3 credit hours)
- EDF 6517 Perspectives on Education (3 credit hours)
- EDG 6253 Curriculum Inquiry (3 credit hours)

Select one option:

Option A—Research Report—3 Credit Hours

- ESE 6909 Research Report (2,1 credit hours)
- Option B—Non-Thesis—8 Credit Hours
- PCB 5045C Conservation Biology (4 credit hours)
- PCB 6675C Evolutionary Biology (4 credit hours)

Area B: Specialization—12 Credit Hours

- 3 credit hours approved by adviser
- 5000- or 6000-level biology courses approved by adviser\* (9 credit hours)

\* Only 6 credit hours of independent study may apply toward the program.

Area C: Internship—9 Credit Hours

- SCE 6946 Graduate Internship (3 credit hours)
- SCE 6946 Graduate Internship (6 credit hours)

Satisfactory completion of Graduate Internships requires the student to demonstrate proficiency in all 12 Florida Educator Accomplished Practices at the pre-professional level in accordance with State Board of Education Rule 6A-5.065.

Co-requisites

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 credit hours)

## Additional Track Requirements

Complete a portfolio according to program guidelines. This portfolio, which satisfies the requirement for a culminating experience, requires demonstration of professional growth, reflection, and proficiency in the 12 Florida Educator Accomplished Practices.

Pass the CLAST as well as the Professional Education and Subject Area subtests of the Florida Teacher Certification Examination.

## Chemistry Track

The Chemistry Track is for non-education majors or previously certified teachers in another field who wish to attain specialization in teaching Chemistry.

[Master's Programs in the College of Education](#)

[Application Deadlines](#)

## Degree Requirements

Minimum Hours Required for M.A.—39 Credit Hours

Area A: Core—18 or 21 Credit Hours

- EDF 6155 Lifespan Human Development and Learning (3 credit hours)
- EDG 6236 Principles of Instruction (3 credit hours)
- EDF 6481 Fundamentals of Graduate Research in Education (3 credit hours)
- EDF 6517 Perspectives on Education (3 credit hours)
- EDG 6253 Curriculum Inquiry (3 credit hours)

Select one option:

Option A—Research Report—3 Credit Hours

- ESE 6909 Research Report (2,1 credit hours)

Option B—Non-Thesis—6 Credit Hours

- Chemistry 5000- or 6000-level courses; may include 3 credit hours of 4000-level; approved by adviser

Area B: Specialization—12 Credit Hours (Approved by adviser)

- 5000- or 6000-level chemistry approved by adviser\* (9 credit hours)
- SCE 6238 Inquiry in the Sciences (3 credit hours)

\* Only 6 credit hours of independent study may apply toward the program.

Area C: Internship—9 Credit Hours

- SCE 6946 Graduate Internship (3 credit hours)
- SCE 6946 Graduate Internship (6 credit hours)

Satisfactory completion of Graduate Internships requires the student to demonstrate proficiency in all 12 Florida Educator Accomplished Practices at the pre-professional level in accordance with State Board of Education Rule 6A-5.065.

## Co-requisites

Students must have degree in field or 30 credit hours in chemistry including Technology or History of Science.

SCE 4360 Science Instructional Analysis (4 credit hours)

## Additional Track Requirements

Complete a portfolio according to program guidelines. This portfolio, which satisfies the requirements of the culminating experience, requires demonstration of professional growth, reflection, and proficiency in the 12 Florida Educator Accomplished Practices.

Pass the CLAST as well as the Professional Education and Subject Area subtests of the Florida Teacher Certification Examination.

## Physics Track

The Physics Track is for non-education majors or previously certified teachers in another field who wish to attain specialization in teaching Physics.

[Master's Programs in the College of Education](#)

[Application Deadlines](#)

## Degree Requirements

Minimum Hours Required for M.A.—39 Credit Hours

Area A: Core—18 or 21 Credit Hours

- EDF 6155 Lifespan Human Development and Learning (3 credit hours)
- EDF 6236 Principles of Instruction (3 credit hours)
- EDF 6481 Fundamentals of Graduate Research in Education (3 credit hours)
- EDF 6517 Perspectives on Education (3 credit hours)
- EDG 6253 Curriculum Inquiry (3 credit hours)

Select one option:

Option A—Research Report—3 Credit Hours

- ESE 6909 Research Report (2,1 credit hours)

Option B—Non-Thesis—6 Credit Hours

- 3 credit hours in 5000- or 6000-level physics approved by adviser)
- PHY 5015C Physics for Teachers II (3 credit hours)

Area B: Specialization—12 Credit Hours

- 5000- or 6000-level physics approved by adviser\* (9 credit hours)
- SCE 6238 Inquiry in the Sciences (3 credit hours)

\* Only 6 credit hours of independent study may apply toward the program.

Area C: Internship—9 Credit Hours

- SCE 6946 Graduate Internship (3 credit hours)
- SCE 6946 Graduate Internship (6 credit hours)

Satisfactory completion of Graduate Internships requires the student to demonstrate proficiency in all 12 Florida Educator Accomplished Practices at the pre-professional level in accordance with State Board of Education Rule 6A-5.065.

## Co-requisites

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 credit hours)

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

## Additional Program Requirements

- Complete a portfolio according to program guidelines. This portfolio, which satisfies the requirement of the comprehensive examination and serves as the culminating experience for the track, and requires demonstration of professional growth, reflection, and proficiency in the 12 Florida Educator Accomplished Practices.
- Pass the CLAST as well as the Professional Education and Subject Area subtests of the Florida Teacher Certification Examination.

# Social Science Education

## Description

College of Education Department of Teaching and Learning Principles Interim Chair of Department: Dr. Robert Williams Graduate Program Coordinator: Dr. W. Gaudelli, (407) UCF-0215. E-mail: [wgaudell@mail.ucf.edu](mailto:wgaudell@mail.ucf.edu) Web address: <http://edcollege.ucf.edu/>

The College of Education offers Master of Education and Master of Arts degrees in Social Science Education. The Master of Education program is designed to meet advanced knowledge and skill needs of the social science classroom teacher. The Master of Arts program is for non-education majors or previously certified teachers in another field.

## Degrees Offered

Master of Education in Social Science Education (M.Ed.) Master of Arts in Social Science Education (M.A.)

## Master of Education in Social Science Education

The Master of Education Program is designed to meet advanced knowledge and skill needs of the social science classroom teacher.

[Master's Programs in the College of Education](#)

[Application Deadlines](#)

## Degree Requirements

### Minimum Hours Required for M.Ed.—33 Credit Hours

Area A: Core—12 Credit Hours

- EDF 6401 Statistics for Educational Data (3 credit hours) OR
- EDF 6432 Measurement and Evaluation in Education (3 credit hours)
- EDF 6481 Fundamentals of Graduate Research in Education (3 credit hours)
- ESE 6909 Research Report (2, 1 or 6 credit hours)

Select One:

- EDF 6155 Lifespan Human Development and Learning (3 credit hours)
- EDF 6517 Perspectives on Education (3 credit hours)
- EDF 6608 Social Factors in American Education (3 credit hours)

Area B: Specialization—9 Credit Hours

- Electives approved by adviser

Area C: Curriculum—12 Credit Hours

- EDG 6223 Curriculum Theory and Organization (3 credit hours)
- ESE 6235 Curriculum Design (3 credit hours)
- SSE 6636 Contemporary Social Science Education (3 credit hours)
- Elective approved by adviser (3 credit hours)

# Master of Arts in Social Science Education

The Master of Arts Program is designed for non-education majors or previously certified teachers in another field.

[Master's Programs in the College of Education](#)

[Application Deadlines](#)

## Degree Requirements

### Minimum Hours Required for M.A.—39 Credit Hours

#### Area A: Core—18-21 Credit Hours

- EDF 6155 Lifespan Human Development and Learning (3 credit hours)
- EDG 6236 Principles of Instruction (3 credit hours)
- EDF 6432 Measurement and Evaluation in Education (3 credit hours)
- EDF 6481 Fundamentals of Graduate Research in Education (3 credit hours)
- EDF 6517 Perspectives on Education (3 credit hours)
- ESE 6909 Research Report or 2 approved electives (2,1 or 6 credit hours)

#### Area B: Specialization—12-15 Credit Hours

- Electives approved by adviser (9-12 credit hours)\*
- EDG 6253 Curriculum Inquiry (3 credit hours)

\* Only 6 credit hours of independent study may be applied toward the program.

#### Area C: Internship—9 Credit Hours

- SSE 6946 Graduate Internship (3 credit hours)
- SSE 6946 Graduate Internship (6 credit hours)

Satisfactory completion of Graduate Internships requires the student to demonstrate proficiency in all 12 Florida Educator Accomplished Practices at the pre-professional level in accordance with State Board of Education Rule 6A-5.065.

## Co-requisites

Students are required to take 30 credit hours of social science course work to meet certification requirements to teach social science in grades 6-12.

- SSE 4361 Social Science Instructional Analysis (4 credit hours)

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

## Additional Requirements

- Complete a portfolio according to program guidelines. This portfolio, which satisfies the requirement for a culminating experience or comprehensive examination, requires demonstration of professional growth, reflection, and proficiency in the 12 Florida Educator Accomplished Practices.
- Pass the CLAST as well as the Professional Education and Subject Area subtests of the Florida Teacher Certification Examination.

# Social Work

## Description

College of Health and Public Affairs School of Social Work Director of the School: Dr. Mary Van Hook Graduate Program Coordinator: Dr. Paul Maiden, HPA 204, (407) 823-2114. E-mail: [pmaiden@mail.ucf.edu](mailto:pmaiden@mail.ucf.edu)

The master's degree program in Social Work (M.S.W.) prepares students for advanced social work practice. The program educates students for community-based clinical social work practice with individuals, families, and groups. The curriculum draws from a generalist perspective and emphasizes critical thinking skills, empirically based and accountable practice, and ethical services for clients experiencing a wide range of problems. Students learn preventive and therapeutic interventions aimed at enhancing human functioning and quality of life. Graduates of the program have the ability to work with diverse clients in a variety of agency settings.

The MSW Program is accredited by the Council on Social Work Education.

## Degree Offered

Master of Social Work (M.S.W.)

## Master of Social Work

The Master of Social Work Program offers several options to students: full-time study, and advanced standing admission, and part-time study. Each option is described below.

## Admission Requirements

Students begin course work in social work in the fall semester only. Potential students may apply online at [www.graduate.ucf.edu](http://www.graduate.ucf.edu) or through the Office of Graduate Studies. UCF requires the following of all applicants to the MSW 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 undergraduate studies or at least 1000 on the verbal and quantitative sections of the required GRE. Applicants must take all three sections of the GRE.
- One official transcript of all undergraduate and graduate course work attempted and/or completed.
- A resume that outlines work experience.
- Three references (one academic, one employment, and one of the applicant's choice other than a family member.) If an employment reference is not available, then a personal reference may be submitted in support of graduate study. If a person graduated more than five years ago, that applicant may substitute work or personal references in place of academic references.
- One college-level course in each of the following six areas: biology with human content, English or communication, diversity, statistics, psychology, and sociology.
- A medical history report on the UCF health form.
- A typed Personal Statement. Directions for completing this statement can be obtained from the School of Social Work. In the statement the applicant describes reasons and experiences leading to the choice of social work as a profession, professional goals and interests, and strengths and limitations related to the practice of social work. Applicants also discuss an issue facing social work from the perspective of the role and responsibility of the profession in relation to that issue.
- If you are an international student, a confidential financial statement on the form provided by the Office of Graduate Studies and score of 220 (computer-based test; or equivalent score on the paper-based test) on the Test of English as a Foreign Language (TOEFL)

To be accepted into and retained in the program, students are expected to demonstrate initiative, dependability, social concern, self awareness, appreciation for diversity in others, problem solving ability, ease in relating with others, skill in writing and speaking, and professional ethics.

[Application Deadlines](#)

## Full-time Study

The full-time program includes two years of full-time study in residence. The first year of study includes 24 credit hours in class work and 6 credit hours in field education. The second year of study includes 22 credit hours in class work and 8 credit 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 submit an application for Advanced Standing admission to the Master of Social Work program. Admission with advanced standing is limited to those who demonstrate the academic and professional potential to meet the demands of the program and who will have adequate preparation for MSW practice with only one year of graduate study.

Previous course work is reviewed to assure content equivalency. In advanced standing admission, a maximum of 30 undergraduate credits may be accepted as transfer credits to the MSW program. These credits can be accepted to meet foundation year MSW requirements, which consist of courses in human behavior and the social environment, policy, research, social work practice, and social work field placement.

To be considered for advanced standing admission, the bachelor's degree must have been completed within six years of the time of initial enrollment in the master's program.

## Part-time Study

For students who do not have a BSW degree, part-time education in the foundation curriculum is available at UCF Downtown and UCF Daytona Beach campuses. For students who have received a BSW degree from a CSWE-accredited college or university within six years prior to enrollment, there is also a part-time program at the main campus in the advanced clinical curriculum. A part-time, regular standing program at UCF Daytona Beach is under consideration for 2003-2004.

## Transfer Credit

Students who have completed course work in an MSW program in an accredited program may transfer up to 30 credit hours toward the 60 credit hours of the degree. Students must have received at least a "B" in these courses. Courses must be evaluated on a course-by-course basis by the graduate program coordinator. For more information about transferring credit, contact the MSW program coordinator.

## 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 MSW students complete a minimum of 448 hours in the field; advanced students complete a minimum of 608 clock hours in the agency. Field education includes a field seminar.

## Degree Requirements

Prerequisites—18 Credit Hours

Introductory college-level courses in the following areas or equivalents are required before admission into the program.

Biology with human content, English or Communication, Psychology, Statistics, Sociology, Diversity

Minimum Hours Required for MSW—60 Credit Hours

**Foundation Curriculum: Generalist Social Work Practice—30 Credit Hours**



- SOW 5305 Social Work Practice I: Generalist Practice (3 credit hours)
- SOW 5306 Social Work Practice II: Intervention Approaches (3 credit hours)
- SOW 5105 Human Behavior and Social Environment I: Individual (3 credit hours)
- SOW 5106 Human Behavior and Social Environment II: Social Systems (3 credit hours)
- SOW 5132 Diverse Client Populations (3 credit hours)
- SOW 5235 Social Welfare Policies and Services (3 credit hours)
- SOW 5404 Social Work Research (3 credit hours)
- SOW 5532 Generalist Field Education I (224 clock hours) (2 credit hours)
- SOW 5534 Generalist Field Education Integrative Seminar I (1 credit hour)
- SOW 5533 Generalist Field Education II (224 clock hours) (2 credit hours)
- SOW 5537 Generalist Field Education Integrative Seminar II (1 credit hour)
- Practice Elective (3 credit hours)

## Advanced Curriculum: Clinical Specialist—30 Credit Hours

- SOW 6348 Clinical Practice with Individuals (3 credit hours)
- SOW 6324 Clinical Practice with Groups (3 credit hours)
- SOW 6612 Clinical Practice with Families (3 credit hours)
- SOW 6123 Psychosocial Pathology (3 credit hours)
- SOW 6246 Policy Analysis and Social Change (2 credit hours)
- SOW 6914 Integrative Research Project in Clinical Practice (2 credit hours)
- SOW 6535 Clinical Field Education I (304 clock hours) (3 credit hours)
- SOW 6548 Clinical Field Integrative Seminar I (1 credit hour)
- SOW 6536 Clinical Field Education II (304 clock hours) (3 credit hours)
- SOW 6549 Clinical Field Integrative Seminar II (1 credit hour)
- Practice Elective (3 credit hours)
- Practice or Approved General Elective (3 credit hours). Select an approved general elective in consultation with student's adviser and MSW graduate program coordinator.

# Spanish

## Description

College of Arts and Sciences Department of Foreign Languages and Literatures Chair of the Department: Dr. Consuelo Stebbins Graduate Program Coordinator: Dr. Celestino Villanueva, CNH 523, (407) 823-5935. E-mail: [cwillnv@mail.ucf.edu](mailto:cwillnv@mail.ucf.edu) Web address: <http://www.cas.ucf.edu/forlang/>

The master's program in Spanish is intended for those who wish to continue their study in Spanish at the graduate level.

## Degrees Offered

Master of Arts in Spanish (M.A.)

## Faculty

Professor Emeritus: C. N. Micarelli, Ph.D.

Professors: A. V. Cervone, Ph.D.; J. B. Fernández, Ph.D.

Associate Professor: M. Del-Río, Ph.D.; C. Stebbins, Ph.D.

Assistant Professors: H. López-Cruz, Ph.D.; K. Folse, Ph.D.; A. Villanueva, Ph.D.

## Master of Arts in Spanish

## Admission Requirements

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 and quantitative sections of the Graduate Record Examination (GRE). International students must score at least 220 (computer-based test; or equivalent score on the paper-based test) on the Test of English as a Foreign Language (TOEFL). All applicants must also submit three letters of recommendation.

Other criteria for admission are a baccalaureate degree in Spanish or a related field and approval by the Graduate Committee of the Department of Foreign Languages and Literatures. Students are expected to have read widely in Hispanic literature and to be competent in understanding, reading, and writing Spanish. They should also be familiar with the vocabularies of literary criticism and grammar.

[Application Deadlines](#)

## 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 at least 30 semester hours of course work and up to 6 hours of thesis (3 credit hours minimum) is required of students seeking the master's degree in Spanish. A minimum grade of "B" must be earned in each required course. Students will be allowed a maximum total of 6 semester hours of "C" grades in elective courses. Students are allowed to transfer up to 6 semester hours of corresponding graduate courses with the grade of "A" or "B" from an accredited university. University policies and procedures will be followed for all degree requirements. Courses are to be chosen from the following categories in accordance with the number of hours designated in each.

- Research Methods—3 credit hours
- Spanish Language Study—3 credit hours
- Hispanic Culture and Civilization—6 hours

## Hispanic Literature—12 hours

- Methodology and/or Electives—6 hours

Total—30 Credit Hours

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

## Course Requirements

Part I—Research Methods—3 Credit Hours

- SPW 6919 Advanced Spanish Graduate Research (3 credit hours)

Part II—Spanish Language Study—3 Credit Hours

- SPN 5705 Introduction to Spanish Linguistics (3 credit hours)
- SPN 5825 Spanish Dialectology (3 credit hours)
- SPN 5845 History of the Spanish Language (3 credit hours)
- SPN 6805 Spanish Morphosyntax (3 credit hours)

Part III—Hispanic Culture and Civilization—6 Credit Hours

- SPN 5502 Hispanic Culture of the United States (3 credit hours)
- SPN 5505 Spanish Peninsular Culture and Civilization (3 credit hours)
- SPN 5506 Spanish American Culture and Civilization (3 credit hours)

Part IV—Hispanic Literature—12 Credit Hours

- SPW 5825 Seminar Series (May be repeated for credit with different topics) (3 credit hours)\*
- SPW 6405 Medieval Spanish Literature (3 credit hours)
- SPW 6217 Spanish American Prose I (3 credit hours)
- SPW 6218 Spanish American Prose II (3 credit hours)
- SPW 6269 Nineteenth Century Spanish Novel (3 credit hours)
- SPW 6306 Spanish American Drama I (3 credit hours)
- SPW 6307 Spanish American Drama II (3 credit hours)
- SPW 6315 Golden Age Drama (3 credit hours)
- SPW 6216 Golden Age Prose (3 credit hours)
- SPW 6356 Spanish American Poetry (3 credit hours)
- SPW 6585 Contemporary Peninsular Literature (3 credit hours)
- SPW 6725 The Generation of 1898 (3 credit hours)
- SPW 6971 Thesis (6 credit hours)

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

Part V—Methodology (Elective Courses)—6 Credit Hours

- FLE 5870 Methods of Teaching Foreign Languages (3 credit hours)
- FLE 5875 Computer Application in Teaching Foreign Languages (3 credit hours)

## Comprehensive Examination and Reading List

Students must pass a comprehensive examination in order to qualify for the master's degree in Spanish. This examination is based on 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 an advanced level. It is also expected that the responses, both written and oral, will show an excellent

command of the Spanish language.

The Graduate Committee has developed a reading list made up of major Peninsular, Latin American, and linguistics works with which the student must be familiar. The comprehensive examination will be based on the reading list and the courses that the student has taken. An oral examination will follow the written examination. This examination will allow the student to expand more readily on particular points of culture, literature, and linguistics, and also to show ability in the use of the spoken language.

# Sport Business Management

## Description

College of Business Administration Department of Sport Business Management Chair of Department: Dr. Richard Lapchick Graduate Program Coordinator: Ms. Philomena Pirolo, Business Building 45, Room 229; (407) 823-4887. E-mail address: [sportbiz@bus.ucf.edu](mailto:sportbiz@bus.ucf.edu) Web address: [www.bus.ucf.edu/sport](http://www.bus.ucf.edu/sport)

The mission of the DeVos Sports Business Management Program is to provide a comprehensive curriculum with a unique, team-based, integrative business approach and a global sports network in a hands-on environment. Our graduates will be business leaders committed to using the power of sport to improve life in a more-inclusive society.

The goals of the program are to develop professionals who have critical sports business management knowledge and skills, a commitment for using sport to improve life in society, well-developed leadership abilities, and uncompromising ethical standards. They will have had a significant management experience in the business of sport; have worked as a team with fellow students on a meaningful sports business project from conception through implementation, and have developed a network in the sports industry.

Job opportunities for graduates in sport management are in areas such as intercollegiate and professional sport, Olympics, event and facilities management, sport fund raising, radio and television, sport law, corporate and international sport and sport public relations and sport marketing.

Students in the Sport Business Management program have the opportunity to apply to the MBA program and receive an additional degree and diploma for an MBA, Sport Business Management track. This MBA track is only open to Master in Sport Business Management students who apply and who meet MBA admission criteria. Upon successful completion of two additional, adviser-approved, graduate courses (6 credit hours), these students will earn an MBA degree, Sport Business Management track, and receive an MBA diploma, in addition to a Master of Sport Business Management diploma. MSBM students who are interested in applying to this special MBA track should consult with the graduate program coordinator upon admission. MSBA students cannot elect to pursue the MBA track at any point during the MSBM program; an application deadline for the MBA track is enforced by the College of Business Administration.

## Degree Offered

Master in Sport Business Management (M.S.B.M.)

## Faculty

- Dr. Paul Cheney, Professor, Department of Management Information Systems
- Dr. Cameron Ford, Associate Professor, Department of Management
- Dr. Paul Goldwater, Associate Professor, School of Accounting
- Dr. Steve Goodman, Associate Professor, Department of Management Information Systems
- Dr. Jeff Harrison, Professor, Department of Management
- Dr. Richard E. Lapchick, Professor, Chair, DeVos Sport Business Management
- Dr. Ronald E. Michaels, Professor, Chair, Department of Marketing
- Dr. Mark Soskin, Associate Professor, Department of Economics
- Dr. Marshall Schminke, Professor, Department of Management
- Dr. Yun-Oh Whang, Assistant Professor, Department of Marketing
- Nancy Hogshead-Makur, Sports Law

## Master in Sport Business Management

Students in the master's program in Sport Business Management will be full-time students who are part of a cohort group. This is a non-thesis program where the internship serves as a capstone experience.

Graduates will understand the relationship between sport and social issues and the business of sport both nationally and internationally while knowing how the concepts of the legal system impact sports business. They will understand and embrace the strengths and complexities of a

diverse workforce as an actual component of overall business strategy and will be prepared to lead organizations to be corporate good citizens in the community. Graduates will be able to develop and implement integrated marketing plans, develop a business plan, optimize the use of the technology, develop and implement fundraising strategies and design and carry out research necessary to make successful management and business decisions.

## Admission Requirements

### [Admission to Master's Programs in the College of Business Administration](#)

- GPA of 3.0 and GMAT of 500
- TOEFL of 233 (computer test), for international students
- 3 letters of recommendation
- essay; for details, see the [college website](#)
- resume

Both GPA and Test Scores must be officially reported to the Office of Graduate Studies.

### [Application Deadlines](#)

For consideration for college financial assistance, apply at least one month before the application deadline.

## Degree Requirements

### Minimum Hours Required for MSBM—46.5 Credit Hours

The two-year curriculum includes the College of Business Administration's Foundation Core (for those who did not previously have these courses as undergraduates); selected required courses from the College of Business Administration's Professional Core for solid business skills and knowledge; and required Sports Management courses that will create a unique knowledge base for our students and make this program the only Sport Business Management Program emphasizing diversity issues in sports, moral and ethical issues in sports, sports and social issues, and sports leadership. There will also be a series of elective sport business management courses that will combine existing courses from the College of Business Administration and new courses specifically created for the sports business management degree.

Students will complete 46.5 credit hours if they were undergraduate majors in Business or 57 credit hours if they did not have the undergraduate courses.

Students entering the Master in Sport Business Management Program must complete the Foundation Core first. Students will complete 19.5 credit hours of professional core and 24 credit hours of sport business management core along with 3 elective credit hours from sport business management courses.

### [Academic Standards in the College of Business Administration](#)

### Foundation Core—10.5 Credit Hours

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, preferable one accredited by the AACSB.

- ACG 5005 Accounting Foundations (1.5 credit hours)
- ECO 5006 Economic Foundations (1.5 credit hours)
- ECO 5414 Statistical Foundations (1.5 credit hours)
- FIN 5407 Financial Foundations (1.5 credit hours)
- ISM 5020 MIS Foundations (1.5 credit hours)
- MAN 5021 Management Foundations (1.5 credit hours)
- MAR 5055 Marketing Foundations (1.5 credit hours)

## Professional Core—19.5 Credit Hours

The professional core consists of 19.5 credit hours of advanced course work that substantially extends and applies knowledge developed in the foundation core.

- MAN 6245 Organizational Behavior and Development (3 credit hours)
- ISM 6407 Decision Support Systems (1.5 credit hours)
- ISM 6367 Strategic Information Systems (1.5 credit hours)
- ACG 6425 Managerial Accounting Analysis (3 credit hours)
- FIN 6406 Strategic Financial Management (3 credit hours)
- ECO 6416 Applied Business Research Tools (3 credit hours)
- GEB 6895 Business Analysis (1.5 credit hours)
- MAN 6721 Applied Strategy and Business Policy (3 credit hours)

## Sport Business Management Core—24 Credit Hours

The sport business management core consists of 24 credit hours of core work in the related areas of sport.

- GEB 6442 Moral and Ethical Issues in Sport (1.5 credit hours)
- MAN 6XXX Diversity Management Issues in Sport (1.5 credit hours)
- GEB 6443 Sport and Social Issues (1.5 credit hours)
- MAN 6XXX Leadership in Sport (1.5 credit hours)
- MAR 6711 Strategic Sport Marketing (3 credit hours)
- BUL 6581 Sport Law (3 credit hours)
- MAN 6XXX Business of Sport Media (3 credit hours)
- ECO 6XXX Economics of Sport (3 credit hours)

## Elective Sport Business Management Courses—3 Credit Hours

The 3 credit hours elective may be taken in any of the following courses.

- MAR 6407 Professional Selling in Sport (3 credit hours)
- MAN 6448 Conflict Resolution and Negotiation (3 credit hours)
- ECO 6XXX Labor Economics (3 credit hours)
- MAN 6XXX Facilities and Event Management (3 credit hours)
- MAN 6305 Human Resources Management (3 credit hours)
- GEB 6367 The Global Environment of Sport (3 credit hours)

The master's in Sport Business Management is a non-thesis program. However, it does require a six-credit internship with a designated sport organization. The goal for DeVos graduates is for them to work primarily in higher levels on the business side of sport in colleges, professional, or international sport.

# Statistical Computing

## Description

College of Arts and Sciences Department of Statistics and Actuarial Science Chair of the Department: Dr. Ibrahim Ahmad Graduate Program Coordinator: Dr. James R. Schott, CCII 205, (407) 823-2797. E-mail: [jschott@pegasus.cc.ucf.edu](mailto:jschott@pegasus.cc.ucf.edu) Web address: <http://www.cas.ucf.edu/statistics/>

The Department of Statistics and Actuarial Science offers a master's program in Statistical Computing, with tracks in Actuarial Science and Data Mining.

The master's program in Statistical Computing 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.

The Actuarial Science Track focuses on actuarial science and its application to insurance and risk management. The program is particularly well suited for those individuals who have completed an undergraduate program in business, economics, mathematics, statistics, or other related fields, and wish to pursue a career in actuarial science. Actuaries are risk scientists who assess historical data, government regulations, and consumer tendencies to forecast the frequency and consequences of future events.

The Data Mining Track focuses on data mining and its application to business, social, and health problems. The program is particularly well suited for those individuals who have completed an undergraduate program in mathematics, statistics, economics, business, or other related fields, and wish to pursue a career in data mining. Data miners are statisticians who analyze massive data sets to uncover trends and associations, and make theoretically sound decisions on, for example, business, social, and health subjects.

## Degrees Offered

### Master of Science in Statistical Computing (M.S.)

- Actuarial Science Track
- Data Mining Track

## Faculty

Professors: I. A. Ahmad, Ph.D.; M. E. Johnson, Ph.D.; G. D. Richardson, Ph.D.; J. R. Schott, Ph.D.

Associate Professors: L. L. Hoffman, Ph.D.; M. Jamshidian, Ph.D.; D. Nickerson, Ph.D.; M. Pensky, Ph.D.; J. Ren, Ph.D.; N. Uddin, Ph.D.; M. Wang, Ph.D.

Assistant Professors: L. Gou, Ph.D.; X. Su, Ph.D.; Y. Zhang, Ph.D.

Instructors: C. E. Cutchins, M.S.; S. C. Schott, M.S.; K. Suchora, M.S.

## Master of Science in Statistical Computing

Most graduate courses are offered during the late afternoon or evening hours in order to accommodate part-time and working students. Additional information about the program, the department, and its faculty can be found on at <http://www.cas.ucf.edu/statistics/>.

## Admission Requirements

All graduate students are required to take either the Graduate Record Examination (GRE) or the Graduate Management Admission Test (GMAT). Minimum requirements in order to be considered for admission 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 or a GMAT score of at least 450. The GRE/GMAT score must be less than five years old. International students and students whose native language is not English must score at least 220 (computer-based test; or equivalent score on the paper-based test) on the Test of English as a Foreign Language (TOEFL).

Students entering the graduate program should have a good working knowledge of at least one programming language, and should have taken undergraduate courses in calculus and statistical methods. An undergraduate course in matrices or linear algebra is also required except for those students in the Actuarial Science track or the Data Mining track. 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 non-degree-seeking status and later admitted to regular status once all deficiencies have been eliminated, although only nine hours of graduate course work taken as a non-degree-seeking student can count toward a graduate degree.

[Application Deadlines](#)

## Degree Requirements

The master's program provides a sound foundation in statistical theory, statistical methods, numerical methods in statistical computing, and the application of computer methodology to statistical analyses. The program is particularly well suited for those individuals who have completed an undergraduate program in mathematics, statistics, or computer science, but is also available to persons in other disciplines who wish to develop an expertise in data analysis and statistical computing.

Requirements for M.S. in Statistical Computing—36 Credit Hours Minimum

Required Courses—21 Credit Hours

- STA 5205 Experimental Design (3 credit hours)
- STA 6106 Statistical Computing I (3 credit hours)
- STA 6236 Regression Analysis (3 credit hours)
- STA 6326 Theoretical Statistics I (3 credit hours)
- STA 6327 Theoretical Statistics II (3 credit hours)
- STA 6329 Statistical Applications of Matrix Algebra (3 credit hours)

Select One:

- STA 6246 Linear Models (3 credit hours)
- STA 6707 Multivariate Statistical Methods (3 credit hours)

Restricted Electives—15 Credit Hours

Other statistics courses will be selected by the student in consultation with the adviser. 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.

## Actuarial Science Track

The Actuarial Science track of the Master of Science degree program in Statistical Computing provides a sound foundation in actuarial science, and its application to insurance and risk management. The program is particularly well suited for those individuals who have completed an undergraduate program in business, economics, mathematics, statistics, or other related fields, and wish to pursue a career in actuarial science.

Requirements for M.S. in Statistical Computing, Actuarial Science Track—36 Credit Hours Minimum

Required Courses—15 Credit Hours

- STA 5XXX Advanced Theory of Interest (3 credit hours)

- STA 5139 Credibility and Loss Distribution (3 credit hours)
- STA 6XXX Actuarial Models (3 credit hours)
- STA 6326 Theoretical Statistics I (3 credit hours)
- STA 6327 Theoretical Statistics II (3 credit hours)

Restricted Elective Courses—18 Credit Hours (at least 6 hours are to be at 6000 level)

- STA 4130 Life Contingency I (3 credit hours)
- STA 4131 Life Contingency II (3 credit hours)
- STA 5132 Pension Actuarial Science (3 credit hours)
- STA 5646 Casualty Insurance (3 credit hours)
- STA 5825 Stochastic Processes and Applied Probability Theory (3 credit hours)
- STA 5931 Topics in Actuarial Science (3 credit hours)
- STA 6106 Statistical Computing I (3 credit hours)
- STA 6236 Regression Analysis (3 credit hours)
- STA 6246 Linear Models (3 credit hours)
- STA 6329 Statistical Applications of Matrix Algebra (3 credit hours)
- STA 6507 Nonparametric Statistics (3 credit hours)
- STA 6707 Multivariate Statistical Methods (3 credit hours)
- STA 6857 Applied Time Series Analysis (3 credit hours)

Restricted Elective—3 Credit Hours

One additional statistics course will be selected by the student. With the approval of their adviser, students may select, as this elective, a course offered by the Finance, Economics, or Mathematics Departments.

## Examination

All students must take a comprehensive written examination covering the four courses STA 5XXX, STA 6XXX, 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.

## Data Mining Track

Data miners are statisticians who analyze massive data sets to uncover trends and associations, and make theoretically sound decisions on, for example, business, social, and health subjects. Data miners have one of the most coveted jobs, as the demand for them far exceeds the existing number of qualified persons in the area. Currently, the work force in the data mining industry consists mainly of individuals with trained post college education. To date, very few university degree programs exist for training students for such a large and growing industry in the United States.

The Data Mining Track of the Master of Science degree program in Statistical Computing provides a sound foundation in data mining and its application to business, social, and health problems. The program is particularly well suited for those individuals who have completed an undergraduate program in mathematics, statistics, economics, business, or other related fields, and wish to pursue a career in data mining.

Requirements for M.S. in Statistical Computing, Data Mining Track—36 Credit Hours Minimum

Required Courses—24 Credit Hours

- STA 5103 Advanced Computer Processing of Statistical Data (3 credit hours)
- STA 6XXX Data Preparation (3 credit hours)
- STA 6XXX Logistic Regression (3 credit hours)
- STA 6326 Theoretical Statistics I (3 credit hours)
- STA 6327 Theoretical Statistics II (3 credit hours)
- STA 6236 Regression Analysis (3 credit hours)
- STA 5703 Data Mining Methodology I (3 credit hours)
- STA 6704 Data Mining Methodology II (3 credit hours)

Restricted Electives—12 Credit Hours

- COP 4710 Data Base Systems (3 credit hours)

- FIN 5407 Financial Foundations (1.5 credit hours)
- MAR 5055 Marketing Foundations (1.5 credit hours)
- STA 5505 Categorical Data Methods (3 credit hours)
- STA 5825 Stochastic Processes and Applied Probability Theory (3 credit hours)
- STA 6226 Sampling Theory and Applications (3 credit hours)
- STA 6237 Nonlinear Regression (3 credit hours)
- STA 6507 Nonparametric Statistics (3 credit hours)
- STA 6707 Multivariate Statistical Methods (3 credit hours)
- STA 6857 Applied Times Series Analysis (3 credit hours)
- STA 6XXX Data Mining III (3 credit hours)

## Examination

All students must take a comprehensive written examination covering the five course STA 6326, STA 6327, STA 5103, STA 6XXX (Data Preparation) and STA 6XXX (Logistic Regression). For full-time students this examination normally will be taken just prior to the start of the second year of their graduate work.

# Taxation

## Description

College of Business Administration School of Accounting Director of the School: Dr. A. J. Judd Graduate Program Coordinator: Dr. Dale Bandy, BA 435, (407) 823-2964 or 823-2871. E-mail: [dbandy@bus.ucf.edu](mailto:dbandy@bus.ucf.edu)

The Master of Science in Taxation degree program is designed to prepare individuals for careers as Tax Professionals and Tax Consultants in public practice, government, and industry. This degree program along with appropriate foundation work satisfies the Florida requirements to qualify for the CPA examination.

## Degrees Offered

Master of Science in Taxation (M.S.T.)

- Tax Professional Specialization
- Tax Consulting Specialization

## Master of Science in Taxation

The Master of Science in Taxation degree is awarded upon completion of a graduate program with a minimum of 30 credit hours. A minimum of 18 credit hours of course work including a minimum of 12 credit hours of tax/accounting course work must be at the 6000 level. Required courses and available electives in the Tax Professional and Tax Consultant specializations are described below.

## Admission Requirements

### [Admission to Master's Programs in the College of Business Administration](#)

- GPA of 3.0 in last 60 hours and 3.0 in upper division accounting and tax courses and GMAT of 500
- TOEFL of 233 (computer test)
- resume

Both GPA and Test Scores must be officially reported to the Office of Graduate Studies.

### [Application Deadlines](#)

For consideration for college financial assistance, apply at least one month before the application deadline.

### Foundation Core—34.5 Credit Hours

The courses included in the foundation core are listed under the Master of Science in Accounting degree requirements. The requirements must be fulfilled by students completing either the Professional or Consulting Specialization. A recent UCF accounting undergraduate degree satisfies the foundation core requirement. Other recent related business course work may partially or fully satisfy this requirement. Any deficiencies must be satisfied before advanced course work can be taken.

## Degree Requirements

Minimum Hours Required for MST—30 Credit Hours

### [Academic Standards in the College of Business Administration](#)

# Tax Professional Specialization

## Required Course—3 Credit Hours

- TAX 6065 Tax Research (3 credit)
- Tax Electives—12 Credit Hours
- TAX 5015 Advanced Tax Topics (3 credit)
- TAX 6135 Taxation of Corporations and Shareholders (3 credit)
- TAX 6205 Partnership Taxation (3 credit)
- TAX 6405 Taxation of Estates and Gifts (3 credit)
- TAX 6845 Tax Planning and Consulting (3 credit)
- TAX 6505 International Taxation (3 credit)
- TAX 6946 Tax Internship (3 credit)
- TAX 6909 Research Report (3 credit)

## Elective Courses—15 Credit Hours

Electives may be selected from the tax electives listed above, from the courses included in consulting specialization listed below, and from courses available in the Master of Science in Accounting degree program. Other courses require approval. ACG 6636 Advanced Auditing Topics and BUL 5XXX Advanced Business Law are recommended to candidates planning to sit for the CPA examination.

# Tax Consulting Specialization

## Required Courses—9 Credit Hours

- TAX 6065 Tax Research (3 credit)
- TAX 6845 Tax Planning and Consulting (3 credit)
- FIN 6406 Strategic Financial Management (3 credit)

## Tax Electives—9 Credit Hours

- TAX 5015 Advanced Tax Topics (3 credit)
- TAX 6135 Taxation of Corporations and Shareholders (3 credit)
- TAX 6205 Partnership Taxation (3 credit)
- TAX 6405 Taxation of Estates and Gifts (3 credit)
- TAX 6946 Tax Internship (3 credit)
- TAX 6909 Research Report (3 credit)
- TAX 6505 International Taxation (3 credit)

## Restricted Electives—6 Credit Hours

- ACG 6255 International and Multinational Accounting (3 credit)
- ECO 6115 Economic Analysis of the Firm (3 credit)
- FIN 6425 Asset Management and Financial Decisions (3 credit)
- FIN 6475 Business Valuation (3 credit)
- FIN 6515 Analysis of Investment Opportunities (3 credit)
- ISM 6537 Quantitative Models for Business Decisions (3 credit)
- MAR 5941 Small Business Consulting (3 credit)
- MAR 6845 Services Marketing (3 credit)

## Electives—6 Credit Hours

Electives may be selected from the above tax and restricted electives lists and from courses available in the Master of Science in Accounting degree program. Other courses require approval. ACG 6636, Advanced Auditing Topics, and BUL 5XXX, Advanced Business Law, are recommended to candidates planning to sit for the CPA examination.

## Examination or Research Report

Satisfactory completion of either the end-of-program comprehensive examination or a Research Report (TAX 6909) is required.

# TESOL

## Description

College of Arts and Sciences Department of Foreign Languages and Literatures Chair of the Department: Dr. Consuelo Stebbins Graduate Program Coordinator: Dr. Keith Folse, CNH 409, (407) 823-4555. E-mail: [kfolse@mail.ucf.edu](mailto:kfolse@mail.ucf.edu) Web address: <http://www.cas.ucf.edu/forlang/>

The Master of Arts in Teaching English to Speakers of Other Languages (TESOL) 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.

## Degree Offered

Master of Arts in Teaching English to Speakers of Other Languages (M.A.)

## Faculty

Professor Emeritus: C. N. Micarelli, Ph.D.

Professors: A. V. Cervone, Ph.D.; J. B. Fernández, Ph.D.

Associate Professor: M. Del-Río, Ph.D.; C. Stebbins, Ph.D.

Assistant Professors: H. López-Cruz, Ph.D.; K. Folse, Ph.D.;

A. Villanueva, Ph.D.

## Master of Arts in Teaching English to Speakers of Other Languages

The TESOL curriculum incorporates the five required courses for the ESOL Endorsement\* and offers electives in applied linguistics, research, and multicultural education. Graduate students also expand their knowledge of technology by utilizing the multimedia language classroom equipped with the latest software programs for second language learners.

\* TSL 5345, 5525, 6142, 6250, and 6440 are the five courses required by the Florida Department of Education for ESOL Endorsement K-12.

## Admission Requirements

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 (combination of the verbal and quantitative sections) on the GRE or (2) a GPA of less than 3.0 combined with a GRE of 1000 (combination of the verbal and quantitative sections) or above.

International students must score at least 220 (computer-based test; or equivalent score on the paper-based test) on the Test of English as a Foreign Language (TOEFL).

In addition, the department requires three letters of recommendation and a written statement of past experience, area of interest, and immediate and long-range goals.

[Application Deadlines](#)

# Degree Requirements

Degree-seeking students in the TESOL program may elect to follow either a thesis 30 semester hours: (3 credit hours of TSL 6971 plus 27 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. Most students complete the non-thesis course of study so that they can focus more on course work related to specific aspects of TESOL, pedagogy, or education.

All students must take a comprehensive written examination covering the core TSL courses. This examination is normally taken in the second year of graduate work and will be reviewed by members of the TESOL Graduate Committee in their areas of expertise.

## Core Courses

The seven core courses provide a strong foundation in the content of the discipline. The electives provide for three distinct areas of interest: linguistics, multicultural education, and research. Students may opt to take their elective credit in one of these areas depending on their interests. A strong research base is available for those students wishing to pursue the thesis option and advanced graduate degrees.

### Required Courses—21 Credit Hours

- EDF 6481 Fundamentals of Graduate Research in Education (3 credit hours)
- TSL 5345 Methods of ESOL Teaching (3 credit hours)
- TSL 5525 ESOL Cultural Diversity (3 credit hours)
- TSL 6142 Critical Approaches to ESOL (3 credit hours)
- TSL 6250 Applied Linguistics in ESOL (3 credit hours)
- TSL 6440 Problems in Evaluation in ESOL (3 credit hours)
- TSL 6540 Issues in Second Language Acquisition (3 credit hours)

### Thesis Option—9 Credit Hours Electives (6 credit hours)

- TSL 6971 (3 credit hours)

### Non-Thesis Option—15 Credit Hours Electives (15 credit hours)

## Elective Possibilities

### Linguistics:

- LIN 5137 Linguistics (3 credit hours)
- LIN 6932 Problems in Linguistics (3 credit hours)

### Multicultural Education and Pedagogy:

- EDF 6155 Lifespan Human Development and Learning (3 credit hours)
- EDF 6216 Motivation in Learning Performance (3 credit hours)
- EDF 6886 Multicultural Education (3 credit hours)
- FLE 5875 Computer Application in Teaching Foreign Languages (3 credit hours)
- SPN 5502 Hispanic Culture of the United States (3 credit hours)
- TSL 5940 Issues in TEFL (3 credit hours)
- TSL 6350 Grammar for ESOL Teachers (3 credit hours)
- TSL 6940 ESOL Practicum (3 credit hours)

### Research:

- EDF 6401 Statistics for Educational Data (3 credit hours)
- EDF 6486 Research Design in Education (3 credit hours)
- TSL 6640 Research in Second Language (3 credit hours)
- TSL 6971 Thesis (3 credit hours)

# Texts and Technology

## Description

College of Arts and Sciences Department of English Chair of the Department: Dr. Patrick Murphy Coordinator of Texts and Technology: Dr. Craig Saper, CNH 405A, (407) 823-5329. E-mail: [englgrad@pegasus.cc.ucf.edu](mailto:englgrad@pegasus.cc.ucf.edu) Web address: <http://www.textsandtech.org>

The Texts and Technology Ph.D. program extrapolates traditional English textual studies in various media into the digital future. Texts include visual, audio, multimedia, hypertexts, and other digital material as well as printed and spoken words. The curriculum emphasizes theory and practice in new media, as well as historical grounding in pre-digital media studies. Both a teaching practicum and professional internship experience are required of all students to familiarize them with textual technologies from both academic and professional perspectives.

Graduates will be prepared for academic research, teaching, and leadership in program development, or for research in Web design, multimedia production, distributed education, entertainment, publishing or information architecture and visualization in the private sector.

## Degrees Offered

Doctor of Philosophy in Texts and Technology (Ph.D.)

## Faculty

Professors: D. R. Jones, Ph.D.; P. Murphy, Ph.D.; C.J. Saper, Ph.D.

Associate Professors: J. Campbell, Ph.D.; P. Dombrowski, Ph.D.; D. Wallace, Ph.D.

Assistant Professors: J. D. Applen, Ph.D.; M. Bowdon, Ph.D.; A. Grajeda, Ph.D.; M. Kamrath, Ph.D.; K. Kitalong, Ph.D.; B. Mauer, Ph.D.; T. Pugh, Ph.D.; B. Scott, Ph.D.

## Doctor of Philosophy in Texts and Technology

The doctoral program in Texts and Technology establishes an exciting new academic field linking textual studies with the digital technologies of today and tomorrow. This interdisciplinary research program extrapolates traditional English textual studies in various media into the digital future. Texts include visual, audio, multimedia, hypertext, and other digital material as well as printed and spoken words.

## Admission Requirements

Applicants must complete an application for graduate admission (available at [www.graduate.ucf.edu](http://www.graduate.ucf.edu)), including a resume, GRE scores, official transcripts, goal statement, a writing sample, a digital portfolio, and three letters of recommendation. Any transfer credit must be approved by the university and the department. Normally, these credits must correspond to equivalent requirements and performance levels for the program.

Students must hold a master's degree. Because a degree at the master's level comparable to Texts and Technology does not exist anywhere, applicants may hold master's degrees from any accredited field. Fields with a technological and/or textual theory (cultural studies, linguistics) background are especially applicable. As many as 30 credits may be transferred from the student's master's program to the Ph.D. program requirements, subject to approval by the program committee.

[Application Deadlines](#)

## Degree Requirements

The program requires three core courses (3 credit hours each), four restricted elective courses in the English department (3 credit hours each),



and three interdisciplinary courses (3 credit hours each), a professional internship and a teaching practicum (6 credit hours each), a dissertation prospectus course (3 credit hours), and at least 18 credit hours of dissertation research work. Up to 30 hours may be transferred from the student's master's program, and at least 63 semester hours of credit must be taken at UCF. The total program requirements thus amounts to 93 credit hours.

## Requirements for Ph.D.—93 Credit Hours Minimum

### Course Work Transferred from Master's—30 Semester Hours

(or courses required and approved by program committee)

### Required Core Courses—9 Credit Hours

- ENC 6XXX Theory of Texts and Technology (3 credit hours)
- ENC 6XXX Texts and Technology History (3 credit hours)
- ENC 6XXX Research Methods in Texts and Technology (3 credit hours)

### Restricted Elective Courses—12 Credit Hours

Students must take four courses from among the following.

- ENC 6XXX Rhetoric of Digital Literacy (3 credit hours)
- ENC 6XXX Acoustical Texts and Technology (3 credit hours)
- ENC 6XXX Visual Texts and Technology (3 credit hours)
- ENC 6XXX Gender, Texts, and Technology (3 credit hours)
- ENC 6XXX Cultural Contexts of Texts and Technology (3 credit hours)
- ENC 6XXX Theory and Practice of Document Usability (3 credit hours)
- ENC 6XXX Ethics in Texts and Technology (3 credit hours)
- ENC 6XXX Topics in Texts and Technology (3 credit hours)

### Interdisciplinary Elective Courses—9 Credit Hours

Because the program is interdisciplinary, at least three courses in interdisciplinary study are required. These will come from an unrestricted range of possibilities though they need to be relevant to the field of Texts and Technology and to the student's career goals and must be approved by the Ph.D. program coordinator. Several appropriate courses are listed below (3 credit hours each). Others could be considered, conditional on approval by the Texts and Technology program coordinator.

- COP 5021 Program Analysis (3 credit hours)
- EIN 5248C Ergonomics (3 credit hours)
- EME 5051 Technologies of Instruction and Information Management (3 credit hours)
- ENC 5219 Graphics in Technical Writing (3 credit hours)
- ENC 5427 Hypertext (3 credit hours)
- ENC 6296 Computer Documentation (3 credit hours)
- ENG 5018 Literary Criticism (3 credit hours)
- EXP 5256 Human Factors I (3 credit hours)
- LIN 5137 Linguistics (3 credit hours)
- LIT 6009 Literary Genres (3 credit hours)
- LIT 6365 Movements in Literature (3 credit hours)
- STA 5206 Statistical Analysis (3 credit hours)
- SYA 6305 Social Research (3 credit hours)
- SYA 6455 Research Analysis (3 credit hours)

### Dissertation—18 Credit Hours

- ENC 7980 Doctoral Dissertation

## Internship and Teaching Practicum

In addition to meeting course requirements, students must also complete both a professional internship and a teaching practicum, for six credit

hours each. The internship will be arranged at appropriate industrial, academic, or governmental sites established and supervised by the department. The teaching practicum will be arranged and supervised by the department for technologically appropriate courses at UCF.

## Ph.D. Qualifying Examination

The Ph.D. qualifying examination, which determines whether the student will be allowed to continue in the program, will be taken within the first two regular semesters of doctoral study (after 9 credit hours but before 18 credit hours). It takes the form of a three-hour written examination that will be offered twice per academic year, normally in September and January, and will cover both familiarity with the knowledge of the field and technological expertise. Students are allowed two attempts to pass the examination.

## Candidacy Examination

The comprehensive candidacy examination will be taken at or near the fulfillment of course requirements. Students cannot register for dissertation credit (ENC 7980) until the term following passing the candidacy examination.

## Dissertation and Oral Defense

Students must write a dissertation on their research that will explain and defend a significant original contribution to the field of Texts and Technology. It may be of a theoretical, historical, or pragmatic nature but must meet conventional academic standards of rigor, scholarship, relevance, and excellence. 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 work. All members vote on acceptance or rejection of the dissertation, with passing determined by acceptance by a majority of the committee. The dissertation must be approved by the dissertation adviser, the research committee, and the dean of the college or designee. Format approval is required from the Thesis and Dissertation Editor and final approval of satisfaction of degree requirements by the Office of Graduate Studies (Millican Hall 230).

## Residence Requirement

Students in the Ph.D. program are normally expected to be, for at least two consecutive semesters in the regular academic year, in residence on the main campus and registered for a minimum of 9 credit 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.

# Theatre

## Description

College of Arts and Sciences Department of Theatre Chair of the Department: Dr. Donald Seay Assistant Chair: Joseph Rusnock, M.F.A. Graduate Program Coordinator: Dr. Julia Listengarten, VAB 202, (407) 823-3858. E-mail: [jlisteng@mail.ucf.edu](mailto:jlisteng@mail.ucf.edu) Web address: [pegasus.cc.ucf.edu/~theatre](http://pegasus.cc.ucf.edu/~theatre)

The University of Central Florida offers an MFA program in Theatre with tracks in Acting, Design, and Musical Theatre. The MFA is designed for students who demonstrate the artistic and intellectual capacity and evidence of professional promise to pursue careers in professional and academic theatre. The university also offers an MA program in Theatre that is intended to provide high school teachers, community college teachers, and developing theatre scholars with the opportunity to strengthen skills and knowledge beyond the undergraduate level.

## Degrees Offered

### Master of Fine Arts in Theatre (M.F.A.)

- o Acting Track
- o Design Track
- o Musical Theatre Track

### Master of Arts in Theatre (M.A.)

## Faculty

Professors: D. W. Seay, Ph.D.

Associate Professors: J. C. Bell, M.F.A.; M. W. Brotherton, M.F.A.; J. L. DeHesus, Ph.D.; R. L. Harmon, M.F.A.; K. H. Ingram, M.F.A.; A. B. Major, M.F.A.; J. S. Rusnock, M.F.A.

Assistant Professors: J. C. Brown, M.F.A.; T. L. Gebelt, Ph.D.; L. M. Harris, M.F.A.; J. P. Hart, M.F.A.; J. D. Helsinger, M.F.A.; C. Niess, M. F. A.; P. F. Lartonoix, M.F.A.; J. Listengarten, Ph.D.; J. J. Ruscella, M.F.A.; H. Tan, M.F.A.; K. J. Tollefson, M.F.A.

## Master of Fine Arts in Theatre

The MFA degree program in Theatre at UCF is a highly selective, rigorous, three-year professional training program emphasizing both theatre theory and practice. The MFA degree, like our BFA degree, is rooted in the belief that classroom study and practical experience in the theatre are of equal and complementary value. The production program, therefore, is integrated into the curriculum because it is the principal means available for the coordination of all the elements of dramatic art. All possible ways are sought to use the production program effectively for the purpose of teaching and training.

The MFA at UCF is designed for students who demonstrate the artistic and intellectual capacity and evidence of professional promise to pursue careers in professional and academic theatre. Candidates, in addition to becoming highly trained theatre practitioners, must also demonstrate the ability to understand the conceptual basis of their art and to be able to articulate that understanding to others. Toward this end, the department will recruit and develop graduate students who can serve, along with faculty and staff, as role models for undergraduate students whose BFA programs of study are integrally connected and dependent.

## Admission Requirements

The Graduate Record Examination is required of all graduate students. Minimum requirements for admission are a BA or BFA degree in Theatre or equivalent with a 3.00 Theatre grade point average (2.50 overall) or a minimum GRE score of 1000. An audition/interview/portfolio review is also required. In addition, students must submit an essay stating their academic and professional goals, a transcript of previous

academic work, a resume, an 8 X 10 headshot, and three letters of recommendation. Each student entering the program must be approved by the Graduate Committee of the Department of Theatre. No part-time students will be admitted into the MFA program.

**Auditions**—Acting majors must be interviewed and perform two contrasting monologues not to exceed five minutes. Musical Theatre majors must be interviewed and perform two contrasting monologues and two contrasting musical selections. The total audition may not exceed five minutes. For more details about these requirements, contact the Department of Theatre.

**Portfolio Reviews**—Design majors must be interviewed and present a portfolio for review. The portfolio should contain samples of the student's best work in scenic, costume, and lighting design. Three-dimensional pieces can be submitted in slide format. For more details about these requirements, contact the Department of Theatre.

**General Entrance Prerequisites**—Students applying for entrance into the MFA Program in Design and Acting must have successfully completed the following undergraduate courses or their equivalent: Script Analysis or Play Analysis, Theatre History I and II, Dramatic Literature I and II, and Directing I. Students applying for entrance into the MFA Program in Musical Theatre must have successfully completed the following undergraduate courses or their equivalent: Fundamentals of Music I and II and Musical Theatre History.

**Area-Specific Prerequisites**—In addition to General Entrance Prerequisites for the MFA Program, each area of specialization requires area-specific entrance prerequisites. Students applying for entrance into the MFA must have successfully completed the following undergraduate courses or their equivalent:

**Acting**—Stage Voice I, Stage Voice II, Stage Movement I, Stage Movement II, Acting I, Acting II, Acting III.

**Musical Theatre**—Acting I, Acting II, Jazz I, Jazz II, Musical Theatre Voice I, Musical Theatre Voice II.

**Design**—Stagecraft I, Stagecraft II, Theatre Drafting, 2D CADD, Scene Design I, Lighting Design I, Costume Construction, Costume Design I.

[Application Deadlines](#)

## Degree Requirements

The MFA degree, which requires a minimum of seventy credits to complete, offers concentrations in Acting, Design, and Musical Theatre. Candidates for the degree are expected to demonstrate proficiency in one of these areas.

**MFA Graduate Core Curriculum for Acting and Design—33 Credit Hours**

Of the seventy hours required for the Acting and Design concentrations, thirty-three hours constitute the MFA Graduate Core Curriculum.

- Research Methods (3 credit hours)
- Costume History I and II or history electives (6 credit hours)
- Dramatic Theory and Criticism (3 credit hours)
- Theatre Careers or elective (3 credit hours)
- Thesis (6 credit hours)
- Professional Internship (12 credit hours)

**MFA Graduate Core Curriculum for Musical Theatre—24 Credit Hours**

Of the seventy hours required for the Musical Theatre concentration, twenty-four hours will constitute the MFA Graduate Core Curriculum for Musical Theatre.

- Research Methods (3 credit hours)
- Theatre Careers or elective (3 credit hours)
- Thesis (6 credit hours)
- Professional Internship (12 credit hours)

## Additional Degree Requirements

- Students must maintain a minimum "B" (3.00) overall Theatre grade point average to continue in the major.
- Theatre grades of less than "C" will not be counted.
- Continuation in the MFA program requires a positive annual evaluation.

- All graduate students must consult with a departmental adviser.
- All MFA majors must participate, in some capacity, on at least two productions during both the fall and spring semesters. Students failing to participate will be placed on probation for one semester.
- All MFA performance majors are required to audition for all fall and spring productions and must accept the roles assigned.
- All MFA students must successfully complete a professional internship and written journal documenting their experience.
- All MFA students must successfully complete a thesis production project and written thesis in support of that production project.

## Acting Track

Requirements for MFA in Acting—70 Credit Hours Minimum

YEAR 1

Fall—13 Credit Hours

- TPP 5156C Acting Studio I (3 credit hours)
- TPP 5515 Movement Studio I (2 credit hours)
- TPP 5XXXC Stage Voice I (2 credit hours)
- THE 5307 Contemporary Theatre Practice or Dramatic literature elective (3 credit hours)
- THE 5XXX Research Methods in Theatre (3 credit hours)

Spring—13 Credit Hours

- TPP 5157C Acting Studio II (3 credit hours)
- TPP 5516C Movement Studio II (2 credit hours)
- TPP 5XXXC Stage Voice II (2 credit hours)
- THE 5376 Theatre/Drama of Williams, Miller, and Inge or Dramatic literature elective (3 credit hours)
- THE 5XXXC Musical Theatre (3 credit hours)

YEAR 2

Fall—13 Credit Hours

- TPP 6XXXC Acting Studio III (3 credit hours)
- TPP 6XXXC Movement Studio III (2 credit hours)
- TPP 6XXXC Stage Voice III (2 credit hours)
- THE 6XXXC Costume History I or history elective (3 credit hours)
- THE 6XXX Dramatic Theory and Criticism (3 credit hours)

Spring—13 Credit Hours

- TPP 6XXX Acting Studio IV (3 credit hours)
- TPP 6XXX Movement Studio IV (2 credit hours)
- TPP 6XXX Stage Voice IV (2 credit hours)
- THE 6XXXC Costume History II or history elective (3 credit hours)
- THE 6XXX Theatre Careers or elective (3 credit hours)

YEAR 3

Fall—9 Credit Hours

- THE 6XXX Professional Internship (6 credit hours)
- THE 6971 Thesis (3 credit hours)

Spring—9 Credit Hours

- THE 6XXX Professional Internship (6 credit hours)
- THE 6971 Thesis (3 credit hours)

# Design Track

Requirements for MFA in Design—70 Credit Hours

YEAR 1

Fall—13 Credit Hours

- THE 5XXX Research Methods in Theatre (3 credit hours)
- THE 6XXXC Costume History I or history elective (3 credit hours)
- TPA 5062C Scene Design Studio (3 credit hours)
- TPA 5258C Auto Cad-2D for Theatre (3 credit hours)
- TPA 5XXXC Design Practicum I (1 credit hour)

Spring—13 Credit Hours

- TPA 5042C Costume Design Studio (3 credit hours)
- THE 5269 Period Props, Furniture, and Architecture (3 credit hours)
- THE 6XXXC Costume History II or history elective (3 credit hours)
- TPA 5XXXC Auto Cad-3D for Theatre (3 credit hours)
- TPA 6XXXC Design Practicum II (1 credit hour)

YEAR 2

Fall—13 Credit Hours

- TPA 6XXXC Lighting Design Studio (3 credit hours)
- THE 6XXX Scenography: History and Development (3 credit hours)
- TPA 6XXXC Advanced Problems in Design I (3 credit hours)
- THE 6XXX Dramatic Theory and Criticism (3 credit hours)
- TPA 6XXXC Design Practicum III (1 credit hour)

Spring—13 Credit Hours

- TPA 6XXX Theatre Crafts (3 credit hours)
- TPA 6XXX Sound Design Studio (3 credit hours)
- THE 6XXX Theatre Careers or elective (3 credit hours)
- TPA 6XXX Advanced Problems in Design II (3 credit hours)
- TPA 6XXX Design Practicum IV (1 credit hour)

YEAR 3

Fall—9 Credit Hours

- THE 6XXX Professional Internship (6 credit hours)
- THE 6971 Thesis (3 credit hours)

Spring—9 Credit Hours

- THE 6XXX Professional Internship (6 credit hours)
- THE 6971 Thesis (3 credit hours)

# Musical Theatre Track

Requirements for MFA in Musical Theatre—70 Credit Hours

YEAR 1

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- TPP 5XXX Musical Theatre Dance I (2 credit hours)
- TPP 5XXX Musical Theatre Voice I (2 credit hours)
- TPP 5XXX Musical Theatre Acting I (3 credit hours)
- THE 5XXX Musical Theatre in History (3 credit hours)
- THE 5XXX Research Methods in Theatre (3 credit hours)

Spring—13 Credit Hours

- TPP 6XXX Musical Theatre Dance II (2 credit hours)
- TPP 5XXXC Musical Theatre Voice II (2 credit hours)
- TPP 6XXXC Musical Theatre Acting II (3 credit hours)
- THE 5XXX Survey of Musical Theatre Dance (3 credit hours)
- THE 6XXX Theatre Careers (3 credit hours)

YEAR 2

Fall—13 Credit Hours

- TPP 6XXX Musical Theatre Dance III (2 credit hours)
- TPP 6XXX Musical Theatre Voice III (2 credit hours)
- TPP 6XXX Musical Theatre Acting III (3 credit hours)
- THE 6XXX Script and Score Analysis (3 credit hours)
- TPP 6XXX Musical Theatre Master Class (3 credit hours)

Spring—13 Credit Hours

- TPP 6XXX Musical Theatre Dance IV (2 credit hours)
- TPP 6XXX Musical Theatre Voice IV (2 credit hours)
- TPP 6XXX Musical Theatre Acting IV (3 credit hours)
- THE 6XXX Musical Theatre Directing (3 credit hours)
- TPP 6XXX Musical Theatre Master Class (3 credit hours)

YEAR 3

Fall—9 Credit Hours

- THE 6XXX Professional Internship (6 credit hours)
- THE 6971 Thesis (3 credit hours)

Spring—9 Credit Hours

- THE 6XXX Professional Internship (6 credit hours)
- THE 6971 Thesis (3 credit hours)

## Examination

A comprehensive departmental theatre exam is administered to MFA majors during their final semester of study.

## Transfer and Residency

Students who do not hold a master's degree can usually transfer up to nine semester hours into this program. Ordinarily, students holding completed MS or MA degrees will not be admitted into the MFA program. Each case will be evaluated on an individual basis. Final acceptance and number of credits to be transferred will be determined by a graduate faculty committee. A minimum of sixty-one credits must be taken at the University of Central Florida. A student without an earned master's degree must complete a residency requirement of at least five semesters with at least four of them being full-time, consecutive semesters. Summer session may be counted toward the four consecutive semesters.

# Master of Arts in Theatre

The Master of Arts degree program in Theatre at UCF is a general degree intended to provide high school teachers, community college teachers, and developing theatre scholars with the opportunity to strengthen skills and knowledge beyond the undergraduate level. Its purpose is not to train persons for professional careers in the arts and entertainment industry. As a result, the program of study is flexible and more theoretical. It provides less practical theatre training than the MFA degree. MA students typically pursue a variety of goals: increasing specific theatrical skills, extending theatre skills into new areas, preparing for entrance into doctoral Theatre programs, or in the case of educators, expanding their expertise and credentials. Students may be admitted on either a full-time or part-time basis.

## Admission Requirements

The Graduate Record Examination is required of all graduate students. Minimum requirements for admission are a BA or BFA degree in Theatre or equivalent with a 3.00 Theatre GPA (2.50 overall) or a minimum GRE score of 1000. An interview is also required. In addition, students must submit an essay stating their academic and professional goals, a transcript of previous academic work, a resume, an 8 X 10 headshot, and three letters of recommendation. Each student entering the program must be approved by the Graduate Committee of the Department of Theatre.

General Entrance Prerequisites—Students applying for entrance into the MA must have successfully completed the following undergraduate courses or their equivalent: Script Analysis or Play Analysis, Theatre History I and II, Dramatic Literature I and II, Directing I.

[Application Deadlines](#)

## Degree Requirements

The Master of Arts in Theatre is a rigorous one and a half year course of study, culminating in the writing of a scholarly thesis. Candidates must demonstrate the ability to understand the conceptual basis of their art and to be able to articulate that understanding to others. In addition to their theoretical studies, MA students will also be required to demonstrate proficiency in theatrical production. The MA in Theatre will require a minimum of thirty-nine credits in Theatre courses. Students must prove proficiency in a foreign language at the first-year level prior to completing the degree program. There will be no areas of specialization. Of the thirty-nine credits required for the degree, thirty will be required of all MA students with the other nine hours chosen from a specified list of elective Theatre courses offered by the Department. The following courses constitute the MA Graduate Core Curriculum.

MA Graduate Core Curriculum—30 Credit Hours

- Research Methods (3 credit hours)
- Dramatic Theory and Criticism (3 credit hours)
- Dramatic Theatre elective (3 credit hours)
- Theatre Management or elective (3 credit hours)
- Theatre Careers or elective (3 credit hours)
- Theatre Practicum (3 credit hours)
- Thesis (9 hours)

Electives—9 Credit Hours

MA candidates should select 9 credit hours from the following list of courses. Other graduate-level courses may be permitted subject to departmental approval.

- 2D CADD for Theatre
- Advanced CADD for Theatre
- Costume History I
- Costume History II
- Sceneography: History and Development
- Period Props and Furniture
- Studio Design/Tech
- Studio Performance
- Summer Theatre Design/Tech
- Summer Theatre Performance
- Theatre Management

## Additional Degree Requirements



- Students must maintain a minimum “B” (3.00) overall Theatre GPA to continue in the major.
- Theatre grades of less than “C” will not be counted.
- Continuation in the MA program requires a positive annual evaluation.
- All graduate students must consult with a departmental adviser.
- All MA majors must participate, in some capacity, on at least two productions during both the fall and spring semesters. Students failing to participate will be placed on probation for one semester.

## Program of Study

### Requirements for MA in Theatre—39 Credit Hours

#### YEAR 1

##### Fall—13 Credit Hours

- THE 5XXX Research Methods in Theatre (3 credit hours)
- THE 5307 Dramatic literature elective (3 credit hours)
- TPA 5405 Theatre Management for Non-Majors or elective (3 credit hours)
- THE 6XXX Dramatic Theory and Criticism (3 credit hours)
- THE 5XXX Theatre Practicum (1 credit hour)

##### Spring—13 Credit Hours

- THE 6XXX Theatre Careers or elective (3 credit hours)
- THE 5376 Dramatic literature elective (3 credit hours)
- 5000- level Theatre elective (3 credit hours)
- THE 5XXX Theatre Practicum (1 credit hour)
- THE 6971 Thesis (3 credit hours)

#### YEAR 2

##### Fall—13 Credit Hours

- 6000- level Theatre electives (6 credit hours)
- THE 6XXX Theatre Practicum (1 credit hour)
- THE 6971 Thesis (6 credit hours)

## Examination

A comprehensive departmental theatre exam is administered to MA majors during their final semester of study.

## Transfer and Residency

Students without an earned master’s degree can usually transfer up to nine semester hours of credit into this program. A minimum of thirty credits must be taken at the University of Central Florida. A student must complete a residency requirement of at least two full-time consecutive semesters. Summer session may be counted toward the two consecutive semester requirement.

# Vocational Education

## Description

College of Education Department of Teaching and Learning Principles Interim Chair of Department: Dr. Robert Williams Graduate Program Coordinator: Dr. Barry W. Siebert, (407) UCF-2009. E-mail: [siebert@mail.ucf.edu](mailto:siebert@mail.ucf.edu) Web address: <http://edcollege.ucf.edu/>

The College of Education offers Master of Education and Master of Arts degrees 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 intended for students who have 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.

## Degrees Offered

Master of Education in Vocational Education (M.Ed.) Master of Arts in Vocational Education (M.A.)

## Master of Education 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.

[Master's Programs in the College of Education](#)

[Application Deadlines](#)

## Degree Requirements

### Minimum Hours Required for M.Ed.—39 Credit Hours

Area A: Core—12 or 15 Credit Hours

- EDF 6432 Measurement and Evaluation in Education (3 credit hours)
- EDF 6481 Fundamentals of Graduate Research in Education (3 credit hours)

Select one course from the following list:

- EDF 6155 Lifespan Human Development and Learning (3 credit hours)
- EDF 6517 Perspectives on Education (3 credit hours)
- EDF 6608 Social Factors in American Education (3 credit hours)

Select one option:

- EVT 6909 Research Report (2,1 credit hours)
- EVT 6946 Graduate Internship or Electives (approved by adviser) (6 credit hours)

Area B: Vocational Education Core—9 Credit Hours

- EVT 5561 Student Guidance in the Vocational Program (3 credit hours)
- EVT 5817 Management of Vocational Programs (3 credit hours)

- EVT 6267 Vocational Program Planning, Development, and Evaluation (3 credit hours)

Area C: Specialization—18 Credit Hours—Approved by adviser

Areas of focus may include: health, technical training, teaching adults, vocational administration, or business education.

# Master of Arts in Vocational Education

The Master of Arts degree is designed for the student who has a baccalaureate degree in a discipline other than education.

[Master's Programs in the College of Education](#)

[Application Deadlines](#)

## Degree Requirements

### Minimum Hours Required for M.A.—42 Credit Hours

Area A: Core—12 or 15 Credit Hours

- EDF 6432 Measurement and Evaluation in Education (3 credit hours)
- EDF 6481 Fundamentals of Graduate Research in Education (3 credit hours)

Select one course from the following list:

- EDF 6155 Lifespan Human Development and Learning (3 credit hours)
- EDG 6236 Principles of Instruction (3 credit hours)
- EDF 6517 Perspectives on Education (3 credit hours)
- EDF 6608 Social Factors in American Education (3 credit hours)
- EDF 6886 Multicultural Education (3 credit hours)

Select one option:

- EVT 6946 Graduate Internship (6 Credit hours)
- EVT 6909 Research Report (2,1 credit hours)

Area B: Vocational Education Core—9 Credit Hours

- EVT 5561 Student Guidance in the Vocational Program (3 credit hours)
- EVT 5817 Management of Vocational Programs (3 credit hours)
- EVT 6267 Vocational Program Planning, Development, and Evaluation (3 credit hours)

Area C: Specialization—21 Credit Hours—Approved by adviser

Areas of focus may include: health, technical training, teaching adults, or business education.

Area D: Co-requisites

If initial certification is desired, the following courses must be taken:

- EVT 3365 General Methods/Testing Evaluation in Vocational Education (3 credit hours)
- EVT 3502 Special Needs of Vocational Students (3 credit hours)
- EVT 4065 Principles and Practices of Vocational Education (4 credit hours)

Select one course from the following list:

EVT 3312 General Methods/Testing Evaluation in Vocational Education (3 credit hours)

- EVT 3371 Course Construction in Industrial Education (3 credit hours)
- BTE 4410 Course Construction in Business Education (3 credit hours)

# Tracks

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## Business Administration – Ph.D.

### Description

College of Business Administration

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.

### Degrees Offered

#### Doctor of Philosophy in Business Administration (Ph.D.)

- Accounting Track
- Finance Track
- Management Track
- Management Information Systems Track
- Marketing Track

## Doctor of Philosophy in Business Administration

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.

### Admission Requirements

Students applying for admission to the doctoral program in Business Administration will be required to submit scores on the Graduate Management Admission Test (GMAT). International students must submit a score of 233 (computer-based test; or equivalent score on the paper-based test) on the Test of English as a Foreign Language (TOEFL) if they are not a graduate from an accredited college or university in the United States. International students must also submit a minimum score of 240 on the Test of Spoken English (TSE).

Admission decisions are made on the recommendation of the faculty of the appropriate department or school. Admissions will generally be made only for fall semester, every other year; however, exceptions may be made in some cases.

All interested students should contact the program coordinator for their track for information about applying to this program. Work experience, test scores, GPAs in previous undergraduate and graduate programs, personal interviews, resume, goal statement, and three letters of recommendation are used by the Graduate Admissions Committee for the Ph.D. program in making a final admission decision for an applicant.

The college strongly encourages applications from minority and diverse populations. Race, national origin, and gender are not used in the evaluation of students for admission into graduate and professional programs.

All required application documents including application, official transcripts (evaluated, if international), and GMAT test scores must be received in the Office of Graduate Studies (Millican Hall 230) by the published application deadlines. Applicants interested in being considered for financial assistance should apply by the PRIORITY application deadline.

[Application Deadlines](#)

# 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:

## Area and Range of Semester Hours Required

Preparation and Courses:

- MBA degree or equivalent<sup>1</sup>—30 hours
- Major—12-21 hours
- Minor/Support Area—6-9 hours
- Research Tools<sup>2</sup>—12-15 hours
- Teaching<sup>3</sup>—0-3 credit hours
- Candidacy Examination<sup>4</sup>
- Dissertation<sup>5</sup>—24 hours
- Total Semester Hours Required— 84-96 hours

NOTES:

1. Each track may specify different requirements for this category. Consult the doctoral graduate program coordinator for a specific major.
2. All doctoral students are required to take two applied statistics courses. Other research tool courses will be specified by the track.
3. Each track will require some education related to teaching. It may take the form of classes, noncredit seminars, mentoring, or a teaching requirement. Consult the doctoral graduate program coordinator for a specific major.
4. The student must successfully complete a comprehensive Candidacy Examination. This examination has written and oral parts, and covers the candidate's program of study. Students are admitted to candidacy after satisfying all general degree requirements, passing the comprehensive exam, and fulfilling the residency requirement.
5. The student must successfully defend a written dissertation proposal in an oral examination conducted by the student's advisory/dissertation committee. The final defense of the successful dissertation will require a final oral examination that concentrates on, but is not limited to, the student's dissertation defense.

The general expectations for each major follow. Each program is tailored to the needs of the individual student and may require work that is not included in the following descriptions.

[Academic Standards in the College of Business Administration](#)

## Accounting Track

Graduate Program Coordinator: Dr. Robin Roberts, BA 407, (407) 823-6726. E-mail: [robin.roberts@bus.ucf.edu](mailto:robin.roberts@bus.ucf.edu)

Minimum Hours Required for Ph.D.—93 Credit Hours

Foundation Body of Knowledge—30 Credit Hours In Accounting, the foundation body of knowledge may be satisfied with a master's degree in Accounting, Business Administration, Taxation, or its equivalent from an AACSB-accredited school that includes certain accounting courses deemed essential by the Accounting Ph.D. Coordinator. Alternatively, this requirement may be satisfied by courses deemed essential by the School's doctoral advisory committee, consistent with the business knowledge breadth requirements of the College of Business Administration.

## Accounting Major Concentration—21 Credit Hours Minimum

Required Courses—18 Credit Hours

- ACG 7157 Seminar in Financial Accounting Research (3 credit hours)
- ACG 7399 Seminar in Behavioral Accounting Research (3 credit hours)
- ACG 7826 Seminar in the Social and Organizational Context of Accounting (3 credit hours)
- ACG 7885 Research Foundations in Accounting (3 credit hours)

- ACG 7887 Accounting Research Forum (6 credit hours) (Workshop, 1 credit hour per semester)

Elective Courses—3 Credit Hours—Select one course.

- ACG 7888 Seminar in Critical Accounting and AIS (3 credit hours)
- ACG 7917 Advanced Research Methods in Accounting (3 credit hours)
- Other accounting electives as they are developed for the program

## Minor/Support Area—6 Credit Hours

Students must select a minimum of six credit 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 areas with the advice and consent of the respective departments and advisory committee:

- Management Information Systems
- Marketing
- Economics
- Political Science
- Psychology
- Gender Studies
- Management
- Sociology
- Environmental Studies
- Communication
- Philosophy
- Public Affairs

## Research Tools—12 Credit Hours

The research tools requirement is intended to ensure a thorough exposure to research methods. All candidates are expected to demonstrate knowledge of statistical methods as well as usage of statistical packages, including design, analysis, and interpretation of results.

- ECO 7423 Applied Models I (3 credit hours, required course)
- Additional 9 credit hours of research tools courses, approved by the student's advisory committee. Examples of courses that will satisfy this requirement include GEB 7910, STA 5205, PSY 6216, PSY 6217, PSY 6308, ECO 6424, ECO 7425, and ISM 7029.

## Teaching Requirement

The requirements for the teaching component of the doctoral degree will be developed with the doctoral program coordinator based on the student's experience. Normally, this requirement will be satisfied through teaching a minimum of 3 credit 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 examination, fulfilling the residency requirement, and successfully defending a written dissertation proposal in an oral examination conducted by the student's advisory/dissertation committee.

## Dissertation—24 Credit 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 Track

Graduate Program Coordinator: Dr. Pradipkumar Ramanlal. E-mail: [robin.roberts@bus.ucf.edu](mailto:robin.roberts@bus.ucf.edu)

Minimum Hours Required for Ph.D.—84 Credit Hours

## Foundation Body of Knowledge— 30 Credit Hours

In Finance, the foundation body of knowledge includes (a) the common body of knowledge in an M.B.A. degree or its equivalent, and (b) graduate credit hours (6 credit hours total) in macro and microeconomic theory, and (c) graduate courses in financial management, investments, financial institutions, and international finance.

## Finance Major Concentration—12 Credit Hours

- FIN 7807 Corporate Finance Theory (3 credit hours)
- FIN 7811 Seminar in Financial Markets and Institutions (3 credit hours)
- FIN 7816 Investment Theory (3 credit hours)
- FIN 7930 Seminar in Finance (3 credit hours)

## Minor/Support Area—6 Credit Hours

- ECO 7116 Microeconomic Theory (3 credit hours)
- ECO 7205 Macroeconomic Theory (3 credit hours)

## Research Tools—12 Credit Hours

- ECO 6424 Econometrics (3 credit hours)
- ECO 7423 Applied Models I (3 credit hours)
- ECO 7425 Applied Models II (3 credit hours)
- ECO 7428 Time Series (3 credit hours)

## Teaching Requirement—0-3 Credit Hours

The requirements for the teaching component of the doctoral degree will be developed with the doctoral graduate program coordinator based on the student's experience.

## Candidacy Examination

The student must successfully complete a comprehensive candidacy examination. This examination has written and oral parts, and covers the candidate's program of study. Students are admitted to candidacy after satisfying all general degree requirements, passing the comprehensive examination, and fulfilling the residency requirement. The candidate is required to successfully defend a written dissertation proposal in an oral examination conducted by the student's advisory/dissertation committee following advancement to candidacy

## Dissertation—24 Credit 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.

# Management Track



Graduate Program Coordinator: Dr. Cameron Ford. E-mail: [cford@bus.ucf.edu](mailto:cford@bus.ucf.edu)

Minimum Hours Required for Ph.D.—90 Credit Hours

Foundation Body of Knowledge—30 Credit 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 or comparable school.

## Management Major Concentration—18 Credit Hours

- MAN 7275 Seminar in Organizational Behavior (3 credit hours)
- MAN 7207 Seminar in Organizational Theory (3 credit hours)
- MAN 7306 Seminar in Human Resources Management (3 credit hours)
- MAN 7777 Seminar in Strategic Management (3 credit hours)
- MAN 7XXX Foundations of Management Thought (3 credit hours)
- MAN 7900 Directed Readings in Management (3 credit hours)

## Minor/Support Area—6 Credit Hours

Students may select a minimum of six hours, typically within a unified area, approved by the student's doctoral study advisory committee. Each student's program of study is individually tailored to accommodate student interests whenever possible, and this course work may be developed from offerings in the following or other disciplines with the advice and consent of the respective departments and advisory committee: Accounting, Communication, Economics, Finance, Marketing, Psychology, Sociology, Statistics.

## Research Tools—12 Credit 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. This includes design, analysis and interpretation of results. ECO 7423, Applied Models I, is required. An additional 9 hours of research courses must be approved by the student's advisory committee. Examples of courses that will satisfy this requirement include ECO 7425, GEB 7910, STA 5205, PSY 6216, PSY 6217, PSY 6308, and ECO 6424.

## Teaching Requirement

Students are required to teach a minimum of 3 credit 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 admitted to candidacy after satisfying all general degree requirements, passing comprehensive exam requirements and fulfilling the residency requirement.

## Dissertation—24 Credit 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.

## Management Information Systems Track

Graduate Program Coordinator: Dr. Jim Courtney. E-mail: [robin.roberts@bus.ucf.edu](mailto:robin.roberts@bus.ucf.edu)

Minimum Hours Required for Ph.D.—85 Credit Hours

## Foundation Body of Knowledge—30 Credit Hours

For Management Information Systems (MIS) the foundation body of knowledge includes the common body of knowledge in an MS/MIS degree or its equivalent from an AACSB-accredited school. This incorporates the common body of knowledge in an MBA program, plus the technical courses such as programming languages (e.g., JAVA, VB, C, C++), data base technology (e.g., ISM 6938 Advanced Database Administration), and systems development (e.g., ISM 6121 Advanced Systems Analysis and Design).

## Management Information Systems Concentration—19-21 Credit Hours

- ISM 7936 Seminar on Technical Information Systems Research (3 credit hours)
- ISM 7916 Seminar on Behavioral Information Systems Research (3 credit hours)
- ISM 7939 Theoretical Foundations for Information Systems Research (3 credit hours)
- ISM 7027 Systems Support of Organizational Decision Making (3 credit hours)
- ISM 7909 Comprehensive Research Project (3 credit hours)
- ISM 7XXX MIS Research Forum (6 credit hours) (Workshop, 1 hour per semester)

## Minor/Support Area—6-12 Credit Hours

A minimum of six hours of course work is required in a minor/support area. The course work, typically in a unified area, is intended to accommodate and support the student's individual research interests whenever possible and will be developed with the advice and consent of the MIS Department's doctoral advisory committee. Typical support disciplines include any area in the College of Business Administration, Psychology, Computer Science, and Electrical Engineering. Students will be expected to have a faculty member from their support area on their dissertation committee.

## Research Tools—12-18 Credit Hours

Doctoral students majoring in MIS are required to take a minimum of 12 credit hours of research tools. The courses must include ECO 7423 Applied Models I. It is assumed that the research tools classes will be taken early in the program. The MIS department's doctoral advisory committee will determine the additional research tool courses.

## Teaching Requirement

The requirements for the teaching component of the doctoral degree will be developed with the doctoral graduate program coordinator based on the student's experience.

## Comprehensive 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.

## Admission to Candidacy and Dissertation—24 Credit Hours

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.

The student will select a dissertation chairperson and in conjunction with the chair will select a committee consistent with the College of Business Administration and University of Central Florida doctoral program policies. A dissertation proposal includes:

- an introduction, overview, and justification of a viable research topic
- a comprehensive review of the theoretical and empirical research relevant to the topic

The student will present the dissertation topic to the doctoral program committee for approval in an oral defense.

## Final Defense

The successful completion of a final oral examination is required. This examination concentrates on the student's dissertation but may include other topics. The final defense is open to the entire university community.

## Marketing Track

Graduate Program Coordinator: Dr. Raj Echambadi. E-mail: [raj.echambadi@bus.ucf.edu](mailto:raj.echambadi@bus.ucf.edu)

Minimum Hours Required for Ph.D.—90 Credit Hours

### Foundation Body of Knowledge—30 Credit Hours

In Marketing, this requirement may be satisfied with a master's degree in Marketing, Business Administration, or its equivalent from an AACSB-accredited school. Alternatively, this requirement may be satisfied by courses deemed essential by the Department's doctoral advisory committee.

### Marketing Major Concentration—15 Credit Hours

- MAR 7575 Seminar in Consumer Behavior (3 credit hours)
- MAR 7638 Seminar in Marketing Theory, Scaling, and Measurement (3 credit hours)
- MAR 7666 Seminar in Marketing Models (3 credit hours)
- MAR 7807 Seminar in Marketing Strategy (3 credit hours)
- MAR 7939 Special Topics: Comprehensive Research Project (3 credit hours)

### Minor/Support Area—9 Credit Hours

A minimum of nine hours of course work is required in a minor/support area. This course work, typically in a unified area, is intended to accommodate and support the student's individual research interests whenever possible and will be developed with the advice and consent of the department's doctoral advisory committee.

### Research Tools—12 Credit Hours

Doctoral students majoring in marketing are required to take a minimum of 12 credit hours of research tools. The courses required include ECO 7423 Applied Models I (3 credit hours). The department's doctoral advisory committee will determine the additional research tools courses.

### Teaching Requirement

The department's doctoral advisory committee, based on the student's experience, will develop the requirements for the teaching component of the doctoral degree.

### 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 department's doctoral advisory committee.

### Dissertation—24 Credit Hours

## Final Defense

The successful completion of a final oral examination is required. This examination concentrates on the student's dissertation defense.

# Theatre

## Description

College of Arts and Sciences Department of Theatre Chair of the Department: Dr. Donald Seay Assistant Chair: Joseph Rusnock, M.F.A. Graduate Program Coordinator: Dr. Julia Listengarten, VAB 202, (407) 823-3858. E-mail: [jlisteng@mail.ucf.edu](mailto:jlisteng@mail.ucf.edu) Web address: [pegasus.cc.ucf.edu/~theatre](http://pegasus.cc.ucf.edu/~theatre)

The University of Central Florida offers an MFA program in Theatre with tracks in Acting, Design, and Musical Theatre. The MFA is designed for students who demonstrate the artistic and intellectual capacity and evidence of professional promise to pursue careers in professional and academic theatre. The university also offers an MA program in Theatre that is intended to provide high school teachers, community college teachers, and developing theatre scholars with the opportunity to strengthen skills and knowledge beyond the undergraduate level.

## Degrees Offered

### Master of Fine Arts in Theatre (M.F.A.)

- o Acting Track
- o Design Track
- o Musical Theatre Track

### Master of Arts in Theatre (M.A.)

## Faculty

Professors: D. W. Seay, Ph.D.

Associate Professors: J. C. Bell, M.F.A.; M. W. Brotherton, M.F.A.; J. L. DeHesus, Ph.D.; R. L. Harmon, M.F.A.; K. H. Ingram, M.F.A.; A. B. Major, M.F.A.; J. S. Rusnock, M.F.A.

Assistant Professors: J. C. Brown, M.F.A.; T. L. Gebelt, Ph.D.; L. M. Harris, M.F.A.; J. P. Hart, M.F.A.; J. D. Helsinger, M.F.A.; C. Niess, M. F. A.; P. F. Lartonoix, M.F.A.; J. Listengarten, Ph.D.; J. J. Ruscella, M.F.A.; H. Tan, M.F.A.; K. J. Tollefson, M.F.A.

## Master of Fine Arts in Theatre

The MFA degree program in Theatre at UCF is a highly selective, rigorous, three-year professional training program emphasizing both theatre theory and practice. The MFA degree, like our BFA degree, is rooted in the belief that classroom study and practical experience in the theatre are of equal and complementary value. The production program, therefore, is integrated into the curriculum because it is the principal means available for the coordination of all the elements of dramatic art. All possible ways are sought to use the production program effectively for the purpose of teaching and training.

The MFA at UCF is designed for students who demonstrate the artistic and intellectual capacity and evidence of professional promise to pursue careers in professional and academic theatre. Candidates, in addition to becoming highly trained theatre practitioners, must also demonstrate the ability to understand the conceptual basis of their art and to be able to articulate that understanding to others. Toward this end, the department will recruit and develop graduate students who can serve, along with faculty and staff, as role models for undergraduate students whose BFA programs of study are integrally connected and dependent.

## Admission Requirements

The Graduate Record Examination is required of all graduate students. Minimum requirements for admission are a BA or BFA degree in Theatre or equivalent with a 3.00 Theatre grade point average (2.50 overall) or a minimum GRE score of 1000. An audition/interview/portfolio review is also required. In addition, students must submit an essay stating their academic and professional goals, a transcript of previous

academic work, a resume, an 8 X 10 headshot, and three letters of recommendation. Each student entering the program must be approved by the Graduate Committee of the Department of Theatre. No part-time students will be admitted into the MFA program.

**Auditions**—Acting majors must be interviewed and perform two contrasting monologues not to exceed five minutes. Musical Theatre majors must be interviewed and perform two contrasting monologues and two contrasting musical selections. The total audition may not exceed five minutes. For more details about these requirements, contact the Department of Theatre.

**Portfolio Reviews**—Design majors must be interviewed and present a portfolio for review. The portfolio should contain samples of the student's best work in scenic, costume, and lighting design. Three-dimensional pieces can be submitted in slide format. For more details about these requirements, contact the Department of Theatre.

**General Entrance Prerequisites**—Students applying for entrance into the MFA Program in Design and Acting must have successfully completed the following undergraduate courses or their equivalent: Script Analysis or Play Analysis, Theatre History I and II, Dramatic Literature I and II, and Directing I. Students applying for entrance into the MFA Program in Musical Theatre must have successfully completed the following undergraduate courses or their equivalent: Fundamentals of Music I and II and Musical Theatre History.

**Area-Specific Prerequisites**—In addition to General Entrance Prerequisites for the MFA Program, each area of specialization requires area-specific entrance prerequisites. Students applying for entrance into the MFA must have successfully completed the following undergraduate courses or their equivalent:

**Acting**—Stage Voice I, Stage Voice II, Stage Movement I, Stage Movement II, Acting I, Acting II, Acting III.

**Musical Theatre**—Acting I, Acting II, Jazz I, Jazz II, Musical Theatre Voice I, Musical Theatre Voice II.

**Design**—Stagecraft I, Stagecraft II, Theatre Drafting, 2D CADD, Scene Design I, Lighting Design I, Costume Construction, Costume Design I.

[Application Deadlines](#)

## Degree Requirements

The MFA degree, which requires a minimum of seventy credits to complete, offers concentrations in Acting, Design, and Musical Theatre. Candidates for the degree are expected to demonstrate proficiency in one of these areas.

**MFA Graduate Core Curriculum for Acting and Design—33 Credit Hours**

Of the seventy hours required for the Acting and Design concentrations, thirty-three hours constitute the MFA Graduate Core Curriculum.

- Research Methods (3 credit hours)
- Costume History I and II or history electives (6 credit hours)
- Dramatic Theory and Criticism (3 credit hours)
- Theatre Careers or elective (3 credit hours)
- Thesis (6 credit hours)
- Professional Internship (12 credit hours)

**MFA Graduate Core Curriculum for Musical Theatre—24 Credit Hours**

Of the seventy hours required for the Musical Theatre concentration, twenty-four hours will constitute the MFA Graduate Core Curriculum for Musical Theatre.

- Research Methods (3 credit hours)
- Theatre Careers or elective (3 credit hours)
- Thesis (6 credit hours)
- Professional Internship (12 credit hours)

## Additional Degree Requirements

- Students must maintain a minimum "B" (3.00) overall Theatre grade point average to continue in the major.
- Theatre grades of less than "C" will not be counted.
- Continuation in the MFA program requires a positive annual evaluation.

- All graduate students must consult with a departmental adviser.
- All MFA majors must participate, in some capacity, on at least two productions during both the fall and spring semesters. Students failing to participate will be placed on probation for one semester.
- All MFA performance majors are required to audition for all fall and spring productions and must accept the roles assigned.
- All MFA students must successfully complete a professional internship and written journal documenting their experience.
- All MFA students must successfully complete a thesis production project and written thesis in support of that production project.

# Acting Track

Requirements for MFA in Acting—70 Credit Hours Minimum

YEAR 1

Fall—13 Credit Hours

- TPP 5156C Acting Studio I (3 credit hours)
- TPP 5515 Movement Studio I (2 credit hours)
- TPP 5XXXC Stage Voice I (2 credit hours)
- THE 5307 Contemporary Theatre Practice or Dramatic literature elective (3 credit hours)
- THE 5XXX Research Methods in Theatre (3 credit hours)

Spring—13 Credit Hours

- TPP 5157C Acting Studio II (3 credit hours)
- TPP 5516C Movement Studio II (2 credit hours)
- TPP 5XXXC Stage Voice II (2 credit hours)
- THE 5376 Theatre/Drama of Williams, Miller, and Inge or Dramatic literature elective (3 credit hours)
- THE 5XXXC Musical Theatre (3 credit hours)

YEAR 2

Fall—13 Credit Hours

- TPP 6XXXC Acting Studio III (3 credit hours)
- TPP 6XXXC Movement Studio III (2 credit hours)
- TPP 6XXXC Stage Voice III (2 credit hours)
- THE 6XXXC Costume History I or history elective (3 credit hours)
- THE 6XXX Dramatic Theory and Criticism (3 credit hours)

Spring—13 Credit Hours

- TPP 6XXX Acting Studio IV (3 credit hours)
- TPP 6XXX Movement Studio IV (2 credit hours)
- TPP 6XXX Stage Voice IV (2 credit hours)
- THE 6XXXC Costume History II or history elective (3 credit hours)
- THE 6XXX Theatre Careers or elective (3 credit hours)

YEAR 3

Fall—9 Credit Hours

- THE 6XXX Professional Internship (6 credit hours)
- THE 6971 Thesis (3 credit hours)

Spring—9 Credit Hours

- THE 6XXX Professional Internship (6 credit hours)
- THE 6971 Thesis (3 credit hours)

# Design Track

Requirements for MFA in Design—70 Credit Hours

YEAR 1

Fall—13 Credit Hours

- THE 5XXX Research Methods in Theatre (3 credit hours)
- THE 6XXXC Costume History I or history elective (3 credit hours)
- TPA 5062C Scene Design Studio (3 credit hours)
- TPA 5258C Auto Cad-2D for Theatre (3 credit hours)
- TPA 5XXXC Design Practicum I (1 credit hour)

Spring—13 Credit Hours

- TPA 5042C Costume Design Studio (3 credit hours)
- THE 5269 Period Props, Furniture, and Architecture (3 credit hours)
- THE 6XXXC Costume History II or history elective (3 credit hours)
- TPA 5XXXC Auto Cad-3D for Theatre (3 credit hours)
- TPA 6XXXC Design Practicum II (1 credit hour)

YEAR 2

Fall—13 Credit Hours

- TPA 6XXXC Lighting Design Studio (3 credit hours)
- THE 6XXX Scenography: History and Development (3 credit hours)
- TPA 6XXXC Advanced Problems in Design I (3 credit hours)
- THE 6XXX Dramatic Theory and Criticism (3 credit hours)
- TPA 6XXXC Design Practicum III (1 credit hour)

Spring—13 Credit Hours

- TPA 6XXX Theatre Crafts (3 credit hours)
- TPA 6XXX Sound Design Studio (3 credit hours)
- THE 6XXX Theatre Careers or elective (3 credit hours)
- TPA 6XXX Advanced Problems in Design II (3 credit hours)
- TPA 6XXX Design Practicum IV (1 credit hour)

YEAR 3

Fall—9 Credit Hours

- THE 6XXX Professional Internship (6 credit hours)
- THE 6971 Thesis (3 credit hours)

Spring—9 Credit Hours

- THE 6XXX Professional Internship (6 credit hours)
- THE 6971 Thesis (3 credit hours)

# Musical Theatre Track

Requirements for MFA in Musical Theatre—70 Credit Hours

YEAR 1

Fall—13 Credit Hours



- TPP 5XXX Musical Theatre Dance I (2 credit hours)
- TPP 5XXX Musical Theatre Voice I (2 credit hours)
- TPP 5XXX Musical Theatre Acting I (3 credit hours)
- THE 5XXX Musical Theatre in History (3 credit hours)
- THE 5XXX Research Methods in Theatre (3 credit hours)

Spring—13 Credit Hours

- TPP 6XXX Musical Theatre Dance II (2 credit hours)
- TPP 5XXXC Musical Theatre Voice II (2 credit hours)
- TPP 6XXXC Musical Theatre Acting II (3 credit hours)
- THE 5XXX Survey of Musical Theatre Dance (3 credit hours)
- THE 6XXX Theatre Careers (3 credit hours)

YEAR 2

Fall—13 Credit Hours

- TPP 6XXX Musical Theatre Dance III (2 credit hours)
- TPP 6XXX Musical Theatre Voice III (2 credit hours)
- TPP 6XXX Musical Theatre Acting III (3 credit hours)
- THE 6XXX Script and Score Analysis (3 credit hours)
- TPP 6XXX Musical Theatre Master Class (3 credit hours)

Spring—13 Credit Hours

- TPP 6XXX Musical Theatre Dance IV (2 credit hours)
- TPP 6XXX Musical Theatre Voice IV (2 credit hours)
- TPP 6XXX Musical Theatre Acting IV (3 credit hours)
- THE 6XXX Musical Theatre Directing (3 credit hours)
- TPP 6XXX Musical Theatre Master Class (3 credit hours)

YEAR 3

Fall—9 Credit Hours

- THE 6XXX Professional Internship (6 credit hours)
- THE 6971 Thesis (3 credit hours)

Spring—9 Credit Hours

- THE 6XXX Professional Internship (6 credit hours)
- THE 6971 Thesis (3 credit hours)

## Examination

A comprehensive departmental theatre exam is administered to MFA majors during their final semester of study.

## Transfer and Residency

Students who do not hold a master's degree can usually transfer up to nine semester hours into this program. Ordinarily, students holding completed MS or MA degrees will not be admitted into the MFA program. Each case will be evaluated on an individual basis. Final acceptance and number of credits to be transferred will be determined by a graduate faculty committee. A minimum of sixty-one credits must be taken at the University of Central Florida. A student without an earned master's degree must complete a residency requirement of at least five semesters with at least four of them being full-time, consecutive semesters. Summer session may be counted toward the four consecutive semesters.

# Master of Arts in Theatre

The Master of Arts degree program in Theatre at UCF is a general degree intended to provide high school teachers, community college teachers, and developing theatre scholars with the opportunity to strengthen skills and knowledge beyond the undergraduate level. Its purpose is not to train persons for professional careers in the arts and entertainment industry. As a result, the program of study is flexible and more theoretical. It provides less practical theatre training than the MFA degree. MA students typically pursue a variety of goals: increasing specific theatrical skills, extending theatre skills into new areas, preparing for entrance into doctoral Theatre programs, or in the case of educators, expanding their expertise and credentials. Students may be admitted on either a full-time or part-time basis.

## Admission Requirements

The Graduate Record Examination is required of all graduate students. Minimum requirements for admission are a BA or BFA degree in Theatre or equivalent with a 3.00 Theatre GPA (2.50 overall) or a minimum GRE score of 1000. An interview is also required. In addition, students must submit an essay stating their academic and professional goals, a transcript of previous academic work, a resume, an 8 X 10 headshot, and three letters of recommendation. Each student entering the program must be approved by the Graduate Committee of the Department of Theatre.

General Entrance Prerequisites—Students applying for entrance into the MA must have successfully completed the following undergraduate courses or their equivalent: Script Analysis or Play Analysis, Theatre History I and II, Dramatic Literature I and II, Directing I.

[Application Deadlines](#)

## Degree Requirements

The Master of Arts in Theatre is a rigorous one and a half year course of study, culminating in the writing of a scholarly thesis. Candidates must demonstrate the ability to understand the conceptual basis of their art and to be able to articulate that understanding to others. In addition to their theoretical studies, MA students will also be required to demonstrate proficiency in theatrical production. The MA in Theatre will require a minimum of thirty-nine credits in Theatre courses. Students must prove proficiency in a foreign language at the first-year level prior to completing the degree program. There will be no areas of specialization. Of the thirty-nine credits required for the degree, thirty will be required of all MA students with the other nine hours chosen from a specified list of elective Theatre courses offered by the Department. The following courses constitute the MA Graduate Core Curriculum.

MA Graduate Core Curriculum—30 Credit Hours

- Research Methods (3 credit hours)
- Dramatic Theory and Criticism (3 credit hours)
- Dramatic Theatre elective (3 credit hours)
- Theatre Management or elective (3 credit hours)
- Theatre Careers or elective (3 credit hours)
- Theatre Practicums (3 credit hours)
- Thesis (9 hours)

Electives—9 Credit Hours

MA candidates should select 9 credit hours from the following list of courses. Other graduate-level courses may be permitted subject to departmental approval.

- 2D CADD for Theatre
- Advanced CADD for Theatre
- Costume History I
- Costume History II
- Sceneography: History and Development
- Period Props and Furniture
- Studio Design/Tech
- Studio Performance
- Summer Theatre Design/Tech
- Summer Theatre Performance
- Theatre Management

## Additional Degree Requirements

- Students must maintain a minimum “B” (3.00) overall Theatre GPA to continue in the major.
- Theatre grades of less than “C” will not be counted.
- Continuation in the MA program requires a positive annual evaluation.
- All graduate students must consult with a departmental adviser.
- All MA majors must participate, in some capacity, on at least two productions during both the fall and spring semesters. Students failing to participate will be placed on probation for one semester.

## Program of Study

Requirements for MA in Theatre—39 Credit Hours

YEAR 1

Fall—13 Credit Hours

- THE 5XXX Research Methods in Theatre (3 credit hours)
- THE 5307 Dramatic literature elective (3 credit hours)
- TPA 5405 Theatre Management for Non-Majors or elective (3 credit hours)
- THE 6XXX Dramatic Theory and Criticism (3 credit hours)
- THE 5XXX Theatre Practicum (1 credit hour)

Spring—13 Credit Hours

- THE 6XXX Theatre Careers or elective (3 credit hours)
- THE 5376 Dramatic literature elective (3 credit hours)
- 5000- level Theatre elective (3 credit hours)
- THE 5XXX Theatre Practicum (1 credit hour)
- THE 6971 Thesis (3 credit hours)

YEAR 2

Fall—13 Credit Hours

- 60000- level Theatre electives (6 credit hours)
- THE 6XXX Theatre Practicum (1 credit hour)
- THE 6971 Thesis (6 credit hours)

## Examination

A comprehensive departmental theatre exam is administered to MA majors during their final semester of study.

## Transfer and Residency

Students without an earned master’s degree can usually transfer up to nine semester hours of credit into this program. A minimum of thirty credits must be taken at the University of Central Florida. A student must complete a residency requirement of at least two full-time consecutive semesters. Summer session may be counted toward the two consecutive semester requirement.

# Statistical Computing

## Description

College of Arts and Sciences Department of Statistics and Actuarial Science Chair of the Department: Dr. Ibrahim Ahmad Graduate Program Coordinator: Dr. James R. Schott, CCII 205, (407) 823-2797. E-mail: [jschott@pegasus.cc.ucf.edu](mailto:jschott@pegasus.cc.ucf.edu) Web address: <http://www.cas.ucf.edu/statistics/>

The Department of Statistics and Actuarial Science offers a master's program in Statistical Computing, with tracks in Actuarial Science and Data Mining.

The master's program in Statistical Computing 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.

The Actuarial Science Track focuses on actuarial science and its application to insurance and risk management. The program is particularly well suited for those individuals who have completed an undergraduate program in business, economics, mathematics, statistics, or other related fields, and wish to pursue a career in actuarial science. Actuaries are risk scientists who assess historical data, government regulations, and consumer tendencies to forecast the frequency and consequences of future events.

The Data Mining Track focuses on data mining and its application to business, social, and health problems. The program is particularly well suited for those individuals who have completed an undergraduate program in mathematics, statistics, economics, business, or other related fields, and wish to pursue a career in data mining. Data miners are statisticians who analyze massive data sets to uncover trends and associations, and make theoretically sound decisions on, for example, business, social, and health subjects.

## Degrees Offered

### Master of Science in Statistical Computing (M.S.)

- Actuarial Science Track
- Data Mining Track

## Faculty

Professors: I. A. Ahmad, Ph.D.; M. E. Johnson, Ph.D.; G. D. Richardson, Ph.D.; J. R. Schott, Ph.D.

Associate Professors: L. L. Hoffman, Ph.D.; M. Jamshidian, Ph.D.; D. Nickerson, Ph.D.; M. Pensky, Ph.D.; J. Ren, Ph.D.; N. Uddin, Ph.D.; M. Wang, Ph.D.

Assistant Professors: L. Gou, Ph.D.; X. Su, Ph.D.; Y. Zhang, Ph.D.

Instructors: C. E. Cutchins, M.S.; S. C. Schott, M.S.; K. Suchora, M.S.

## Master of Science in Statistical Computing

Most graduate courses are offered during the late afternoon or evening hours in order to accommodate part-time and working students. Additional information about the program, the department, and its faculty can be found on at <http://www.cas.ucf.edu/statistics/>.

## Admission Requirements

All graduate students are required to take either the Graduate Record Examination (GRE) or the Graduate Management Admission Test (GMAT). Minimum requirements in order to be considered for admission 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 or a GMAT score of at least 450. The GRE/GMAT score must be less than five years old. International students and students whose native language is not English must score at least 220 (computer-based test; or equivalent score on the paper-based test) on the Test of English as a Foreign Language (TOEFL).

Students entering the graduate program should have a good working knowledge of at least one programming language, and should have taken undergraduate courses in calculus and statistical methods. An undergraduate course in matrices or linear algebra is also required except for those students in the Actuarial Science track or the Data Mining track. 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 non-degree-seeking status and later admitted to regular status once all deficiencies have been eliminated, although only nine hours of graduate course work taken as a non-degree-seeking student can count toward a graduate degree.

[Application Deadlines](#)

## Degree Requirements

The master's program provides a sound foundation in statistical theory, statistical methods, numerical methods in statistical computing, and the application of computer methodology to statistical analyses. The program is particularly well suited for those individuals who have completed an undergraduate program in mathematics, statistics, or computer science, but is also available to persons in other disciplines who wish to develop an expertise in data analysis and statistical computing.

Requirements for M.S. in Statistical Computing—36 Credit Hours Minimum

Required Courses—21 Credit Hours

- STA 5205 Experimental Design (3 credit hours)
- STA 6106 Statistical Computing I (3 credit hours)
- STA 6236 Regression Analysis (3 credit hours)
- STA 6326 Theoretical Statistics I (3 credit hours)
- STA 6327 Theoretical Statistics II (3 credit hours)
- STA 6329 Statistical Applications of Matrix Algebra (3 credit hours)

Select One:

- STA 6246 Linear Models (3 credit hours)
- STA 6707 Multivariate Statistical Methods (3 credit hours)

Restricted Electives—15 Credit Hours

Other statistics courses will be selected by the student in consultation with the adviser. 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.

## Actuarial Science Track

The Actuarial Science track of the Master of Science degree program in Statistical Computing provides a sound foundation in actuarial science, and its application to insurance and risk management. The program is particularly well suited for those individuals who have completed an undergraduate program in business, economics, mathematics, statistics, or other related fields, and wish to pursue a career in actuarial science.

Requirements for M.S. in Statistical Computing, Actuarial Science Track—36 Credit Hours Minimum

Required Courses—15 Credit Hours

- STA 5XXX Advanced Theory of Interest (3 credit hours)

- STA 5139 Credibility and Loss Distribution (3 credit hours)
- STA 6XXX Actuarial Models (3 credit hours)
- STA 6326 Theoretical Statistics I (3 credit hours)
- STA 6327 Theoretical Statistics II (3 credit hours)

Restricted Elective Courses—18 Credit Hours (at least 6 hours are to be at 6000 level)

- STA 4130 Life Contingency I (3 credit hours)
- STA 4131 Life Contingency II (3 credit hours)
- STA 5132 Pension Actuarial Science (3 credit hours)
- STA 5646 Casualty Insurance (3 credit hours)
- STA 5825 Stochastic Processes and Applied Probability Theory (3 credit hours)
- STA 5931 Topics in Actuarial Science (3 credit hours)
- STA 6106 Statistical Computing I (3 credit hours)
- STA 6236 Regression Analysis (3 credit hours)
- STA 6246 Linear Models (3 credit hours)
- STA 6329 Statistical Applications of Matrix Algebra (3 credit hours)
- STA 6507 Nonparametric Statistics (3 credit hours)
- STA 6707 Multivariate Statistical Methods (3 credit hours)
- STA 6857 Applied Time Series Analysis (3 credit hours)

Restricted Elective—3 Credit Hours

One additional statistics course will be selected by the student. With the approval of their adviser, students may select, as this elective, a course offered by the Finance, Economics, or Mathematics Departments.

## Examination

All students must take a comprehensive written examination covering the four courses STA 5XXX, STA 6XXX, 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.

## Data Mining Track

Data miners are statisticians who analyze massive data sets to uncover trends and associations, and make theoretically sound decisions on, for example, business, social, and health subjects. Data miners have one of the most coveted jobs, as the demand for them far exceeds the existing number of qualified persons in the area. Currently, the work force in the data mining industry consists mainly of individuals with trained post college education. To date, very few university degree programs exist for training students for such a large and growing industry in the United States.

The Data Mining Track of the Master of Science degree program in Statistical Computing provides a sound foundation in data mining and its application to business, social, and health problems. The program is particularly well suited for those individuals who have completed an undergraduate program in mathematics, statistics, economics, business, or other related fields, and wish to pursue a career in data mining.

Requirements for M.S. in Statistical Computing, Data Mining Track—36 Credit Hours Minimum

Required Courses—24 Credit Hours

- STA 5103 Advanced Computer Processing of Statistical Data (3 credit hours)
- STA 6XXX Data Preparation (3 credit hours)
- STA 6XXX Logistic Regression (3 credit hours)
- STA 6326 Theoretical Statistics I (3 credit hours)
- STA 6327 Theoretical Statistics II (3 credit hours)
- STA 6236 Regression Analysis (3 credit hours)
- STA 5703 Data Mining Methodology I (3 credit hours)
- STA 6704 Data Mining Methodology II (3 credit hours)

Restricted Electives—12 Credit Hours

- FIN 5407 Financial Foundations (1.5 credit hours)
- MAR 5055 Marketing Foundations (1.5 credit hours)
- STA 5505 Categorical Data Methods (3 credit hours)
- STA 5825 Stochastic Processes and Applied Probability Theory (3 credit hours)
- STA 6226 Sampling Theory and Applications (3 credit hours)
- STA 6237 Nonlinear Regression (3 credit hours)
- STA 6507 Nonparametric Statistics (3 credit hours)
- STA 6707 Multivariate Statistical Methods (3 credit hours)
- STA 6857 Applied Times Series Analysis (3 credit hours)
- STA 6XXX Data Mining III (3 credit hours)

## Examination

All students must take a comprehensive written examination covering the five course STA 6326, STA 6327, STA 5103, STA 6XXX (Data Preparation) and STA 6XXX (Logistic Regression). For full-time students this examination normally will be taken just prior to the start of the second year of their graduate work.

# Nursing

## Description

College of Health and Public Affairs School of Nursing Acting Director of the School: Dr. Mary Lou Sole Graduate Program Coordinator: Dr. Jean Kijek, HPA 220, (407) 823-2744. E-mail: [gradnurs@mail.ucf.edu](mailto:gradnurs@mail.ucf.edu) Web address: <http://www.cohpa.ucf.edu/nursing/>

The Master of Science in Nursing (M.S.N.) programs are designed to build upon the student's baccalaureate nursing education and professional experience. The goals of the programs are to prepare advanced nurse practitioners and nursing leaders and managers to assume leadership positions in a variety of health care settings. The Master of Science program is accredited by the National League for Nursing Accrediting Commission (NLNAC).

This program will prepare students to:

- Analyze theories as they apply to the profession, health care system, and political systems.
- Analyze social, economic, ethical, legal, and political issues influencing nursing practice and health care delivery.
- Synthesize advanced knowledge from the sciences, the humanities, and nursing theories to support advanced nursing practice.
- Participate in research and disseminate research findings.
- Use nursing research findings to improve nursing practice.
- Demonstrate critical thinking skills in planning, evaluating, and changing the delivery of health care.
- Develop and implement leadership, management, and teaching strategies for the improvement of health care.
- Collaborate with others to improve the quality of professional nursing practice and the health care system.
- Assume responsibility for improving the delivery of health care and influencing health policy.
- Practice in an advanced nursing role. (Graduates of the programs are eligible to sit for certification examinations in the specialty. Nurse practitioner graduates are eligible for licensure as an ARNP in Florida.)

## Degrees Offered

### Master of Science in Nursing (M.S.N.)

- Adult Nurse Practitioner Track
- Clinical Nurse Practitioner Track
- Family Nurse Practitioner Track
- Leadership and Management Track
- Pediatric Nurse Practitioner Track

## Master of Science in Nursing

Students are admitted to the programs in fall and spring semesters. To study full time, Nurse Practitioner and Leadership/Management students should apply for fall admission; Clinical Nurse Specialist students should apply for spring admission. Part-time plans of study are available for both fall and spring admission cycles.

## Admission Requirements

- Requirements for admission to the program include the following:
- A baccalaureate degree in nursing from a program accredited by the NLNAC (National League for Nursing Accreditation Commission) or CCNE (Commission on Collegiate Nursing Education)
- An overall grade point average of 3.0 (on a 4.0 scale) for upper-division undergraduate work (usually the last 60 attempted semester hours) and a combined GRE score of 900 on the verbal and quantitative exams; OR, an overall grade point average of 2.8 (on a 4.0 scale) for upper-division undergraduate work (usually the last 60 attempted semester hours) and a combined GRE score of 1000 on the verbal and quantitative exams
- Licensure as a Registered Nurse in Florida
- Completion of an undergraduate course in statistics



- Completion of an undergraduate course in health assessment (If health assessment content was integrated into other nursing course work, written documentation must be obtained from the school or college of nursing.)
- A personal statement describing interest in the field and career goals
- A resume (no longer than 2 pages)
- Three references; at least one should be from a faculty member who is familiar with the student's abilities and potential for success in the program
- For international students only: A score of 220 (computer-based test; or equivalent score on the paper-based test) on the Test of English as a Foreign Language (TOEFL) or passing score on CGFNS (Commission on Graduates of Foreign Nursing Schools)

Admission to the program is competitive, based on evaluation of the applicant's abilities, past performance, recommendations, and the match of UCF's programs with career goals. The School of Nursing accepts the most qualified students. Since enrollment is limited, not all students who apply may be accepted, even if minimum requirements are met.

Students may take classes as a non-degree-seeking, post-baccalaureate student on a space-available basis. Deadlines for application for this status are earlier than those posted by the university. Students must designate on their application that they are applying to the School of Nursing in order to facilitate processing of Filenames. Students will be notified in writing from the School of Nursing regarding acceptance as a non-degree-seeking student. Students who are accepted will be issued override forms for available courses. Successful completion of post-baccalaureate courses does not guarantee admission to the graduate program.

[Application Deadlines](#)

## Transfer of Courses

- Courses may be transferred into the plan of study according to UCF policies. Courses must be comparable to those taught in the School of Nursing.
- A grade of at least a "B" is required to transfer credit.
- Students must obtain a petition from the School of Nursing and submit the completed petition to the Admission, Progression, and Graduation Committee in order to transfer courses.

## Progression

- Students must maintain a 3.0 grade point average in the plan of study in order to progress.
- Students who receive more than two C's in their plan of study will be dismissed from the program.

## Degree Requirements

- Nursing Leadership and Management—41 Credit Hours
- Adult or Pediatric Nurse Practitioner—47 Credit Hours
- Clinical Nurse Specialist—46 Credit Hours
- Family Nurse Practitioner—49 Credit Hours

Graduate students must complete a minimum of 41-49 credit hours of graduate-level course work, depending on major. Either a thesis or research scholarly work is required.

## Required Courses for All Students—14-17 Credit Hours

- NGR 5744 Roles and Issues in Advanced Practice Nursing I (1 credit hour)
- NGR 5745 Roles and Issues in Advanced Practice Nursing III (1 credit hour)
- NGR 5746 Roles and Issues in Advanced Practice Nursing II (1 credit hour)
- NGR 5800 Nursing Theory/Research I (4 credit hours)
- NGR 5801 Nursing Research II/Statistics (4 credit hours)
- NGR 6971/6813 Thesis or Research Scholarly Work (3-6 credit hours)

## Core Requirements for Nurse Practitioner Tracks—17-20 Credit Hours

- NGR 5003 Advanced Health Assessment, Health Promotion, and Diagnostic Reasoning (3 credit hours)
- NGR 5003L Advanced Health Assessment, Health Promotion, and Diagnostic Reasoning Clinical (2 credit hours)
- NGR 5141 Pathophysiological Bases for Advanced Nursing Practice (3 credit hours)
- NGR 6192 Pharmacology for Advanced Nursing Practice (3 credit hours)
- NGR 6941 Advanced Practice Practicum (6 credit hours)
- Nursing Graduate Elective (0-3 credit hours)

## Requirements for Adult Nurse Practitioner Track—13 Credit Hours

- NGR 6240 Adult I for APNs (3 credit hours)
- NGR 6240L Adult I Clinical for APNs (3 credit hours)
- NGR 6242 Adult II for APNs (2 credit hours)
- NGR 6242L Adult II Clinical for APNs (2 credit hours)
- NGR 6334 Women's Health for APNs (2 credit hours)
- NGR 6482L Women's Health for APNs Clinical (1 credit hour)

## Requirements for Family Nurse Practitioner Track—15 Credit Hours

- NGR 6240 Adult I for APNs (3 credit hours)
- NGR 6240L Adult I Clinical for APNs (3 credit hours)
- NGR 6242 Adult II for APNs (2 credit hours)
- NGR 6331 Pediatrics I for APNs (2 credit hours)
- NGR 6331L Pediatrics I Clinical for APNs (2 credit hours)
- NGR 6334 Women's Health for APNs (2 credit hours)
- NGR 6482L Women's Health for APNs Clinical (1 credit hour)

## Requirements for Pediatric Nurse Practitioner Track—13 Credit Hours

- NGR 6331 Pediatrics I for APNs (2 credit hours)
- NGR 6331L Pediatrics I Clinical for APNs (2 credit hours)
- NGR 6332 Pediatrics II for APNs (3 credit hours)
- NGR 6332L Pediatrics II Clinical for APNs (3 credit hours)
- NGR 6335 Focused Pediatrics for APNs (2 credit hours)
- NGR 6335L Focused Pediatrics Clinical for APNs (1 credit hours)

## Requirements for Nursing Leadership and Management Track—24-27 Credit Hours

- NGR 5720 Organizational Dynamics (3 credit hours)
- NGR 5871 Health Care Informatics (3 credit hours)
- NGR 6722 Financial Management and Resource Development (3 credit hours)
- NGR 6723 Nursing Leadership and Management I (2 credit hours)
- NGR 6723L Nursing Leadership and Management I Practicum (2 credit hours)
- NGR 6724 Nursing Leadership and Management II (2 credit hours)
- NGR 6724L Nursing Leadership and Management II Practicum (3 credit hours)
- Electives (6-9 credit hours)

## Requirements for Clinical Nurse Specialist Track—29-32 Credit Hours

- NGR 5003 Advanced Health Assessment, Health Promotion, and Diagnostic Reasoning (3 credit hours)
- NGR 5004L Advanced Health Assessment, Health Promotion, and Diagnostic Reasoning Clinical (2 credit hours)
- NGR 5141 Pathophysiological Bases for Advanced Nursing Practice (3 credit hours)
- NGR 5720 Organizational Dynamics (3 credit hours)
- NGR 5871 Health Care Informatics (3 credit hours)
- NGR 6192 Pharmacology for Advanced Nursing Practice (3 credit hours)
- NGR 6752 Clinical Nurse Specialist I (3 credit hours)
- NGR 6752L Clinical Nurse Specialist I Practicum (2 credit hours)

- NGR 6753 Clinical Nurse Specialist II (2 credit hours)
- NGR 6753L Clinical Nurse Specialist II Practicum (2 credit hours)
- NGR 6722 Financial Management and Resource Development (3 credit hours)
- Elective (0-3 credit hours)

## RN to MSN Track

The RN-MSN track is an accelerated program for RNs who do not hold a baccalaureate degree in Nursing (BSN). This program is designed for students who have met general education requirements, and who have demonstrated above-average performance in prior undergraduate course work (minimum of 3.0 grade point average), and have the potential for success in graduate school. Students will meet both BSN and MSN objectives.

Available for all tracks in the graduate program: Nursing Leadership and Management, Family Nurse Practitioner, Adult Nurse Practitioner, Pediatric Nurse Practitioner, and Clinical Nurse Specialist. Up to 15 credit hours can be applied toward meeting requirements of both BSN and MSN programs.

## Admission Requirements—Limited Access

Acceptance to the university does not constitute admission to the accelerated RN-MSN program. Separate application to this limited-access program must be made. Application forms and information are available from the School of Nursing or at <http://www.cohpa.ucf.edu/nursing>. All applicants must meet the following criteria:

- Graduate of a state-approved or accredited associate degree or diploma nursing program
- Licensure as an RN in the state of Florida
- Completion of UCF general education requirements or AA degree from a state of Florida school, including CLAST
- Completion of prerequisites for the RN-BSN (undergraduate statistics)
- Minimum cumulative grade point average of 3.0 or higher
- Letter of intent to pursue accelerated master's
- Three references from people who can judge abilities for graduate school
- Resume
- Interview with School of Nursing to assess interest, motivation, and ability to succeed in graduate school

## Interim Requirements

- Completion of the GRE by the end of the first semester in the program

## Admission Requirements for Graduate Nursing Phase

(To be met during the semester the BSN is awarded)

- Completion of requirements/credits for the baccalaureate degree in nursing, including health assessment course
- Completion of all UCF School of Nursing course work to date with a minimum grade point average of 3.0
- Must meet university requirements for undergraduate degree completion (refer to the UCF undergraduate catalog)
- A minimum combined GRE score of 900 on the verbal/quantitative exams
- Updated resume
- Three references

## RN to MSN Program of Study

### Courses Taken Toward BSN

- NUR 3065 Health Assessment (3 credit hours)

- NUR 3809 Transitional Concepts in Nursing I (3 credit hours)
- NUR 4636 Community as the Continuum of Care (3 credit hours)
- NUR 4636L Clinical for Community as a Continuum of Care (2 credit hours)
- NUR 4827 Leadership and Management Principles (3 credit hours)
- NUR 4836 Professional Development Seminar (3 credit hours) (NUR 4084)
- NUR 4837 Health Care Issues, Policy, and Economics (3 credit hours)

Validated credit for previous nursing courses—28 Credit Hours

## Courses Shared BSN/MSN

- An individualized plan of study is developed for each student admitted to the RN to MSN option.
- Students may take NGR 5800 Nursing Theory/Research I instead of NUR 3165 Nursing Research, if they have taken NUR 4836. The credits for this course are applied to both the BSN and MSN programs.
- Students pursuing the MSN in the Nursing Leadership and Management Track may take the following courses:
  - NUR 4838L Directed Practice in Nursing Administration (for NUR 4954L Directed Nursing Practice)
  - NGR 5720 Organizational Dynamics (for NUR 4827 Leadership and Management Principles)
  - NGR 5871 Health Care Informatics (for nursing elective)
  - NGR/HSA graduate elective in area of concentration (e.g., nursing, health services administration for nursing elective)
- Students pursuing the MSN in the Family/Adult/Pediatric Nurse Practitioner or Clinical Nurse Specialist tracks may take the following courses:
  - NGR 5003L Advanced Health Assessment, Health Promotion, and Diagnostic Reasoning (for NUR 4954L Directed Nursing Practice and undergraduate nursing elective)
  - NGR 5141 Pathophysiological Bases for Advanced Nursing Practice (for undergraduate nursing elective)
  - NGR/HSA XXXX—Graduate elective in area of concentration (e.g., nursing, health services administration)

## Courses Taken Toward MSN

Students will follow the degree requirements of the selected MSN track. The baccalaureate degree will be awarded 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.

# Nurse Practitioner to MSN Track

The Nurse Practitioner to MSN track is designed for RNs who are licensed in the State of Florida with active status as an Advanced Registered Nurse Practitioner but have not completed a master's degree in nursing. This track is offered to experienced NPs who wish to remain in their specialty area. If NPs desire to change or add a specialty (e.g., from adult to family), an individualized plan of study can be developed to meet certification requirements.

There are two options in the NP to MSN track. Option 1 is for RNs who already have completed a baccalaureate degree in nursing. Option 2 is for those RNs who do not have a baccalaureate degree in nursing.

## Option 1—Active RN/ARNP license in Florida with baccalaureate in nursing

### Admission and Graduate Requirements

- Documentation of completion of a certificate program for nurse practitioners.
- Other requirements are the same as the Master of Science in Nursing program.

### Degree Requirements

NP to MSN students with a BSN must complete a minimum of 31 credit hours of graduate-level course work. Either a thesis or research scholarly work is required.

## Required Courses

- NGR 5003 Advanced Health Assessment, Health Promotion, and Diagnostic Reasoning (3 credit hours)
- NGR 5004L Advanced Health Assessment, Health Promotion, and Diagnostic Reasoning Clinical (2 credit hours)
- NGR 5141 Pathophysiological Bases for Advanced Nursing Practice (3 credit hours)
- NGR 5744 Roles and Issues in Advanced Practice Nursing I (1 credit hour)
- NGR 5745 Roles and Issues in Advanced Practice Nursing III (1 credit hour)
- NGR 5746 Roles and Issues in Advanced Practice Nursing II (1 credit hour)
- NGR 5800 Nursing Theory/Research I (4 credit hours)
- NGR 5801 Nursing Research II/Statistics (4 credit hours)
- NGR 6192 Pharmacology for Advanced Nursing Practice (3 credit hours). May be waived for elective credits if recent (within last 3 years) pharmacology course taken.
- NGR 6813 Research Scholarly Work (3 credit hours) or NGR 6971 Thesis (3-6 credit hours)
- NGR 6941 Advanced Practice Practicum (3 credit hours)
- Graduate Elective (0-3 credit hours)

## Option 2—Active RN/ARNP license in Florida without baccalaureate in nursing

### Admission and Graduation Requirements

- Documentation of completion of a certificate program for nurse practitioners.
- Other requirements are the same as the RN to MSN track.

### Degree Requirements

NP to MSN students without a BSN must complete requirements for both the BSN and MSN. Twelve to fifteen credits will be applied toward meeting requirements of both degrees. Either a thesis or research scholarly work is required.

### Courses Taken Toward BSN

- NUR 3809 Transitional Concepts in Nursing I (3 credit hours)
- NUR 4636 Community as the Continuum of Care (3 credit hours)
- NUR 4636L Clinical Practice in the Community (2 credit hours)
- NUR 4827 Leadership and Management Principles (3 credit hours)
- NUR 4836 Professional Development Seminar (3 credit hours)
- NUR 4837 Healthcare Issues, Policy, and Economics (3 credit hours)
- Validated credit from previous RN and NP courses (28 hours)

### Courses Shared BSN/MSN

- NGR 5003 Advanced Health Assessment, Health Promotion, and Diagnostic Reasoning (3 credit hours)
- NGR 5004L Advanced Health Assessment, Health Promotion, and Diagnostic Reasoning Clinical (2 credit hours)
- NGR 5141 Pathophysiological Bases for Advanced Nursing Practice (3 credit hours)
- NGR 5800 Nursing Theory/Research I (4 credit hours)
- NGR Elective (3 credit hours)

### Courses Taken Toward MSN

- NGR 5744 Roles and Issues in Advanced Practice Nursing I (1 credit hour)

- NGR 5745 Roles and Issues in Advanced Practice Nursing III (1 credit hour)
- NGR 5746 Roles and Issues in Advanced Practice Nursing II (1 credit hour)
- NGR 5801 Nursing Research II/Statistics (4 credit hours)
- NGR 6192 Pharmacology for Advanced Nursing Practice (3 credit hours) May be waived for elective credits if recent (within last 3 years) pharmacology course taken.
- NGR 6813 Research Scholarly Work (3 credit hours) or NGR 6971 Thesis (6 credit hours)
- NGR 6941 Advanced Practice Practicum (3 credit hours)
- Graduate Elective (0-3 credit hours)

# Applied Experimental and Human Factors Psychology

## Description

College of Arts and Sciences Department of Psychology Department Chair: Dr. John M. McGuire Graduate Program Coordinator: Dr. Eduardo Salas, PH 314A, (407) 823-2552. E-mail: [esalas@pegasus.cc.ucf.edu](mailto:esalas@pegasus.cc.ucf.edu)

Web Address: <http://pegasus.cc.ucf.edu/~psych/>

A Ph.D. professional's degree track in Applied Experimental and Human Factors Psychology is offered to those with a baccalaureate or master's degree in psychology or an allied area. The track seeks to develop the capacity to design, conduct, and apply human factors research in a variety of professional settings. It is patterned on the scientist-practitioner model of the American Psychological Association (APA) and adheres to guidelines established by the committee for Education and Training of APA's Division 21 (Applied Experimental and Engineering Psychology). The track has been accredited by the Human Factors and Ergonomics Society. A variety of research, consulting, and internship arrangements are included in the track.

## Degrees Offered

### Doctor of Philosophy in Psychology (Ph.D.)

- o Applied Experimental and Human Factors Psychology Track

## Faculty

C. A. Bowers, Ph.D., Associate Professor and Assistant Dean R. D. Gilson, Ph.D., Professor P. A. Hancock, Ph.D., Professor M. Mouloua, Ph.D., Associate Professor E. Salas, Ph.D., Professor and Graduate Program Coordinator V. Sims, Ph.D., Assistant Professor J. A. Smither, Ph.D., Associate Professor J. L. Weaver, Ph.D., Assistant Professor

## Doctor of Philosophy in Psychology, Applied Experimental and Human Factors Psychology Track

Students receive training in the content and techniques of human factors psychology—including statistical and quantitative procedures, experimental design, survey methods, computer techniques, and other research methodologies. Students must also select a concentration area, which may be in human-computer interaction, human-machine-environment interface, human performance, human factors in simulation and training, or other areas of interest with the adviser's authorization. A dissertation representing a significant research contribution to the field is required.

## Admission Requirements

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 220 (computer-based test; or equivalent score on the paper-based test) on the Test of English as a Foreign Language (TOEFL).

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.

To be considered for admission, applicants must provide:

- 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.

All requested material must be submitted by the deadline. Applicants are encouraged to apply online. Acceptance decisions are made only in the spring semester for admission in the fall of each year.

[Application Deadlines](#)

## Residency Requirements

A minimum of one year full-time student status is required. 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.

## Degree Requirements

For students who enter with a baccalaureate degree, the program requires 91 semester hours minimum. Students who enter with a master's degree will be granted up to 30 hours of transfer credit with approval of the program faculty. These students will be required to complete a minimum of 60 semester hours at UCF.

## Required Courses—67 Credit Hours

- EIN 5248C Ergonomics (3 credit hours)
- EIN 6258 Human Computer Interaction (3 credit hours)
- EXP 5256 Human Factors I (3 credit hours)
- EXP 6257 Human Factors II (3 credit hours)
- EXP 6258 Human Factors III (3 credit hours)
- EXP 5208 Sensation and Perception (3 credit hours)
- EXP 6116 Visual Performance (3 credit hours)
- EXP 6255 Human Performance (3 credit hours)
- EXP 6506 Human Cognition and Learning (3 credit hours)
- EXP 6938 Teaching Seminar (3 credit hours)
- PSY 7XXX Human Factors Professional Issues (1 credit hour)
- INP 6317 Organizational Psychology and Motivation (3 credit hours)
- PSB 5005 Physiological Psychology (3 credit hours)
- PSY 6216 Advanced Research Methodology I (4 credit hours)
- PSY 6217 Advanced Research Methodology II (4 credit hours)
- PSY 6219C Advanced Research Methods III (4 credit hours)
- PSY 7980 Doctoral Dissertation (15 credit hours)
- SOP 5059 Advanced Social Psychology (3 credit hours)

## Internship—6 Credit Hours



Sometime during the last two years students will be required to complete an internship.

- EXP 6946 Human Factors Internship (6 credit hours)

## Electives—18 Credit Hours

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.

- DEP 5057 Developmental Psychology (3 credit hours)
- EIN 5251 Human-Computer Interaction: Usability Evaluation (3 credit hours)
- EXP 5067 Human Factors and Aging (3 credit hours)
- EXP 6XXX Aviation Psychology (3 credit hours)
- EXP 6541 Advanced Human-Computer Interaction (3 credit hours)
- EXP 6XXX Team Training (3 credit hours)
- PPE 5055 Personality Theories (3 credit hours)
- INP 5825 HCI Design: Team Approach (3 credit hours)

## Mathematics and Computer Skills

Students must demonstrate graduation proficiency in both mathematics and computer skills equivalent to first-level calculus and to a programming language beyond basic, respectively.

## Candidacy Exam

The goal of this exam is to ensure that the student possesses the appropriate critical thinking to perform applied experimental and human factors psychology work. The exam covers nine competency areas.

## Program Requirements

Other program requirements, including research productivity, are detailed in the Applied Experimental and Human Factors Psychology Graduate Student Handbook. The handbook is provided to each student at orientation.

# Science Education

## Description

College of Education Department of Teaching and Learning Principles Interim Chair of Department: Dr. Robert Williams Graduate Program Coordinator: Aldrin Sweeney, (407) 823-2561. E-mail: [asweeney@pegasus.cc.ucf.edu](mailto:asweeney@pegasus.cc.ucf.edu) Web address: <http://edcollege.ucf.edu/>

The College of Education offers Master of Education and Master of Arts degrees in Science Education. The Master of Education program is designed to meet the advanced knowledge and skill needs of the science classroom teacher. It is for those persons already holding an undergraduate degree in education, and who are already certified to teach in a science specialization area. The Master of Arts degree is designed for those persons who hold an undergraduate degree in a field other than education and who wish to obtain state certification to teach science at grades 6-12. The M.A. program offers tracks in Biology, Chemistry, and Physics.

## Degrees Offered

Master of Education in Science Education (M.Ed.) Master of Arts in Science Education (M.A.)

- o Biology Track
- o Chemistry Track
- o Physics Track

## Master of Education in Science Education

The Master of Education program is designed to meet the advanced knowledge and skill needs of the science classroom teacher. It is for those persons already holding an undergraduate degree in education, and who are already certified to teach in a science specialization area.

[Master's Programs in the College of Education](#)

[Application Deadlines](#)

## Degree Requirements

### Minimum Hours Required for M.Ed.—33 Credit Hours

Area A: Core—9 Credit Hours

- EDF 6401 Statistics for Educational Data (3 credit hours) OR
- EDF 6432 Measurement and Evaluation in Education (3 credit hours)
- EDF 6481 Fundamentals of Graduate Research in Education (3 credit hours)

Select one course from the following list:

- EDF 6155 Lifespan Human Development and Learning (3 credit hours)
- EDF 6517 Perspectives on Education (3 credit hours)
- EDF 6608 Social Factors in American Education (3 credit hours)
- ESE 6909 Research Report or 2 approved electives (2, 1 or 6 credit hours)

Area B: Specialization—9 Credit Hours

- Electives approved by adviser

Area C: Curriculum—12 Credit Hours

- 9 credit hours approved by adviser
- SCE 6238 Inquiry in the Sciences (3 credit hours)

# Master of Arts in Science Education

The Master of Arts degree is designed for those persons who hold an undergraduate degree in a field other than education and who wish to obtain state certification to teach science at grades 6-12. The M.A. program offers tracks in Biology, Chemistry, and Physics.

## Biology Track

The Biology Track is for non-education majors or previously certified teachers in another field who wish to attain specialization in teaching Biology.

[Master's Programs in the College of Education](#)

[Application Deadlines](#)

## Degree Requirements

Minimum Hours Required for M.A.—39 Credit Hours

Area A: Core—18 or 23 Credit Hours

- EDF 6155 Lifespan Human Development and Learning (3 credit hours)
- EDG 6236 Principles of Instruction (3 credit hours)
- EDF 6481 Fundamentals of Graduate Research in Education (3 credit hours)
- EDF 6517 Perspectives on Education (3 credit hours)
- EDG 6253 Curriculum Inquiry (3 credit hours)

Select one option:

Option A—Research Report—3 Credit Hours

- ESE 6909 Research Report (2,1 credit hours)
- Option B—Non-Thesis—8 Credit Hours
- PCB 5045C Conservation Biology (4 credit hours)
- PCB 6675C Evolutionary Biology (4 credit hours)

Area B: Specialization—12 Credit Hours

- 3 credit hours approved by adviser
- 5000- or 6000-level biology courses approved by adviser\* (9 credit hours)

\* Only 6 credit hours of independent study may apply toward the program.

Area C: Internship—9 Credit Hours

- SCE 6946 Graduate Internship (3 credit hours)
- SCE 6946 Graduate Internship (6 credit hours)

Satisfactory completion of Graduate Internships requires the student to demonstrate proficiency in all 12 Florida Educator Accomplished Practices at the pre-professional level in accordance with State Board of Education Rule 6A-5.065.

Co-requisites

Students must meet the 30-hour rule with courses in Genetics, General Biology, Ecology, Technology, or History of Science.

## Additional Track Requirements

Complete a portfolio according to program guidelines. This portfolio, which satisfies the requirement for a culminating experience, requires demonstration of professional growth, reflection, and proficiency in the 12 Florida Educator Accomplished Practices.

Pass the CLAST as well as the Professional Education and Subject Area subtests of the Florida Teacher Certification Examination.

## Chemistry Track

The Chemistry Track is for non-education majors or previously certified teachers in another field who wish to attain specialization in teaching Chemistry.

[Master's Programs in the College of Education](#)

[Application Deadlines](#)

## Degree Requirements

Minimum Hours Required for M.A.—39 Credit Hours

Area A: Core—18 or 21 Credit Hours

- EDF 6155 Lifespan Human Development and Learning (3 credit hours)
- EDG 6236 Principles of Instruction (3 credit hours)
- EDF 6481 Fundamentals of Graduate Research in Education (3 credit hours)
- EDF 6517 Perspectives on Education (3 credit hours)
- EDG 6253 Curriculum Inquiry (3 credit hours)

Select one option:

Option A—Research Report—3 Credit Hours

- ESE 6909 Research Report (2,1 credit hours)

Option B—Non-Thesis—6 Credit Hours

- Chemistry 5000- or 6000-level courses; may include 3 credit hours of 4000-level; approved by adviser

Area B: Specialization—12 Credit Hours (Approved by adviser)

- 5000- or 6000-level chemistry approved by adviser\* (9 credit hours)
- SCE 6238 Inquiry in the Sciences (3 credit hours)

\* Only 6 credit hours of independent study may apply toward the program.

Area C: Internship—9 Credit Hours

- SCE 6946 Graduate Internship (3 credit hours)
- SCE 6946 Graduate Internship (6 credit hours)

Satisfactory completion of Graduate Internships requires the student to demonstrate proficiency in all 12 Florida Educator Accomplished Practices at the pre-professional level in accordance with State Board of Education Rule 6A-5.065.

## Co-requisites

Students must have degree in field or 30 credit hours in chemistry including Technology or History of Science.

SCE 4360 Science Instructional Analysis (4 credit hours)

## Additional Track Requirements

Complete a portfolio according to program guidelines. This portfolio, which satisfies the requirements of the culminating experience, requires demonstration of professional growth, reflection, and proficiency in the 12 Florida Educator Accomplished Practices.

Pass the CLAST as well as the Professional Education and Subject Area subtests of the Florida Teacher Certification Examination.

## Physics Track

The Physics Track is for non-education majors or previously certified teachers in another field who wish to attain specialization in teaching Physics.

[Master's Programs in the College of Education](#)

[Application Deadlines](#)

## Degree Requirements

Minimum Hours Required for M.A.—39 Credit Hours

Area A: Core—18 or 21 Credit Hours

- EDF 6155 Lifespan Human Development and Learning (3 credit hours)
- EDF 6236 Principles of Instruction (3 credit hours)
- EDF 6481 Fundamentals of Graduate Research in Education (3 credit hours)
- EDF 6517 Perspectives on Education (3 credit hours)
- EDG 6253 Curriculum Inquiry (3 credit hours)

Select one option:

Option A—Research Report—3 Credit Hours

- ESE 6909 Research Report (2,1 credit hours)

Option B—Non-Thesis—6 Credit Hours

- 3 credit hours in 5000- or 6000-level physics approved by adviser)
- PHY 5015C Physics for Teachers II (3 credit hours)

Area B: Specialization—12 Credit Hours

- 5000- or 6000-level physics approved by adviser\* (9 credit hours)
- SCE 6238 Inquiry in the Sciences (3 credit hours)

\* Only 6 credit hours of independent study may apply toward the program.

Area C: Internship—9 Credit Hours

- SCE 6946 Graduate Internship (3 credit hours)
- SCE 6946 Graduate Internship (6 credit hours)

Satisfactory completion of Graduate Internships requires the student to demonstrate proficiency in all 12 Florida Educator Accomplished Practices at the pre-professional level in accordance with State Board of Education Rule 6A-5.065.

## Co-requisites

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 credit hours)

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

## Additional Program Requirements

- Complete a portfolio according to program guidelines. This portfolio, which satisfies the requirement of the comprehensive examination and serves as the culminating experience for the track, and requires demonstration of professional growth, reflection, and proficiency in the 12 Florida Educator Accomplished Practices.
- Pass the CLAST as well as the Professional Education and Subject Area subtests of the Florida Teacher Certification Examination.

# Physical Education

## Description

College of Education

The College of Education offers a Master of Arts in Physical Education Program, with tracks in Exercise Physiology, Teaching Physical Education, and Career Enhancement. Two options are available in the Exercise Physiology Track: the first option emphasizes experience in clinical exercise physiology, adult fitness programs, and related areas; the second option emphasizes the development of strength and conditioning programs for wellness centers. The Teaching Physical Education Track is designed to prepare people for initial certification in the teaching of physical education. The Career Enhancement track of the Master of Arts in Physical Education offers students the opportunity to develop knowledge and skills to work in areas such as coaching or fitness.

## Degrees Offered

### Master of Arts in Physical Education (M.A.)

- Exercise Physiology Track
- Teaching Physical Education Track
- Career Enhancement Track

## Master of Arts in Physical Education

### Exercise Physiology Track

Department of Child, Family and Community Sciences Chair of Department: Dr. Bill Wienke Graduate Program Coordinator: Dr. T. Angelopoulos, (407) UCF-0364. E-mail: [tangelop@mail.ucf.edu](mailto:tangelop@mail.ucf.edu)

Students may follow one of two general options in pursuit of a master's degree in the Exercise Physiology Track of the Master of Arts in Physical Education program. Option one in the specialization emphasizes experience in the area of clinical exercise physiology, adult fitness programs, and related areas. Students will work toward training certification as an Exercise Physiologist through the American College of Sports Medicine. This option will prepare students for the clinical exercise physiology examination (RCEP). The second option emphasizes the development of strength and conditioning programs for wellness centers. Course requirements include a common core plus specialized courses in exercise physiology and wellness.

Acceptance into the exercise physiology track is contingent upon having successfully completed basic mathematics, physics, chemistry, biology, human anatomy, and physiology that will allow the student to be successful in master's level courses. Courses in undergraduate exercise physiology courses are desired. A major in Exercise Science, Physical Education, Physical Therapy, Athletic Training, Biological Science, or related areas would usually include the course requirements listed. Deficiencies in content may require the completion of additional course work. The program of study developed by the adviser will reflect these additional requirements.

[Master's Programs in the College of Education](#)

[Application Deadlines](#)

## Degree Requirements

Minimum Hours Required for M.A.—39 Credit Hours

Area A: Core—9 or 12 Credit Hours

- EDF 6481 Fundamentals of Graduate Research in Education (3 credit hours)
- PET 6910 Problem Analysis—Review of Literature (3 credit hours)\*

- PET 6946 Practicum, Clinical Practice (3-6 credit hours)\*

\* Can be taken only after 2/3 of program is completed.

Area B: Specialization—27 Credit Hours—Approved by adviser

Courses must be selected in consultation with an adviser. Courses from other colleges may be chosen as well. NOTE: Credit in human anatomy is a prerequisite or co-requisite for many PET courses. Consult with an adviser.

- HUN 5937 Nutrition and Exercise Physiology (3 credit hours)
- PCB 4805 Endocrinology (3 credit hours)
- PCB 6727 Comparative Animal Physiology (3 credit hours)
- GEY 5937 Physiology of Aging
- PET 6XXX Adherence/Compliance (3 credit hours)
- PET 6086 Exercise as Preventive Medicine (3 credit hours)
- PET 6357C Environmental Exercise Physiology (3 credit hours)
- PET 6367 Bioenergetics of Human Movement and Performance (3 credit hours)
- PET 6381 Physiology of Neuromuscular Mechanisms (3 credit hours)
- PET 6388 Cardiovascular Physiology (3 credit hours)
- PET 6369 Electrocardiography (3 credit hours)
- PET 6690 Exercise Testing and Prescription for Special Populations (3 credit hours)
- Approved Elective

Area C: Thesis Option—6 Credit Hours

- PET 6971 Thesis (6 credit hours)

## Teaching Physical Education Track

Department of Teaching and Learning Principles Interim Chair of Department: Dr. Robert Williams Graduate Program Coordinator: Dr. P. Higginbotham, (407) UCF-2050. E-mail: [higginbp@mail.ucf.edu](mailto:higginbp@mail.ucf.edu)

The Teaching Physical Education Track of the Master of Arts in Physical Education program prepares students for teaching careers in physical education. Since graduates of this program must pass a state of Florida certification examination, the program's educational design enables students to possess the skills for successful completion of the certification process. The intent of the curriculum is to enable students to become efficient and effective teachers of physical education.

[Master's Programs in the College of Education](#)

[Application Deadlines](#)

## Degree Requirements

Minimum Hours Required for the M.A.—33 Credit Hours

Area A: Core—12 Credit Hours\*

- EDF 6155 Lifespan Human Development and Learning (3 credit hours)
- EDF 6608 Social Factors in American Education (3 credit hours)
- EDF 6432 Measurement and Evaluation in Education (3 credit hours)
- EDG 6236 Principles of Instruction (3 credit hours)
- NOTE: The Core may be taken as a certificate program. See Initial Teacher Professional Preparation Graduate Certificate.

Area B: Specialization—21 Credit Hours

- PET 4035C Motor Development and Learning or PET 6505 Wellness Technology in Physical Education (3 credit hours)
- PET 6XXX Kinesiology (3 credit hours)
- PET 6416 Administrative Principles of Sport and Physical Education (3 credit hours)
- PET 5355 Exercise and Health (3 credit hours)



- PET 4640 Adapted Physical Education or PET 6645 Advanced Studies in Adapted Physical Education (3 credit hours)
- PET 5635 Advanced Human Injuries (3 credit hours)
- PET 6238C Perceptual Motor Development or PET 5765 Advanced Coaching Theory (3 credit hours)

#### Area C: Co-requisite Courses—15 Credit Hours

The state requires particular courses for certification that are offered only at the undergraduate level. These courses may have been taken as part of the undergraduate degree. If previous credit in these areas has not been earned, these requirements must be completed with the master's program to complete the UCF state-approved program of study in physical education.

- 9 semester hours in instructional design and content of physical education
- 6 semester hours in internship

NOTE: Credit in Anatomy is not required by the state, but it is a prerequisite to many courses in this program.

## Additional Program Requirements

Complete a portfolio according to program guidelines. This portfolio satisfies the comprehensive examination requirement for this non-thesis master's program. This portfolio requires demonstration of professional growth, reflection, and proficiency in the 12 Florida Educator Accomplished Practices.

Pass the CLAST as well as the Professional Education and subject area tests of the Florida Teacher Certification Examination.

The certification in Physical Education at the present time is either K-8 or 6-12. Soon changes within this program will be made to comply with state mandates to begin certifying K-12.

## Career Enhancement Track

Department of Teaching and Learning Principles Chair of Department: Dr. Robert Williams Graduate Program Coordinator: Dr. P. Higginbotham, (407) 823-2050. E-mail: [higginbp@mail.ucf.edu](mailto:higginbp@mail.ucf.edu)

The Career Enhancement track of the Master of Arts in Physical Education offers students the opportunity to develop knowledge and skills to work in areas such as coaching or fitness. It is very common for physical educators to coach in youth, school, and recreational programs as well as work in the fitness industry teaching in YMCAs, fitness and wellness centers. Often these jobs supplement the teaching salary income.

Graduate Certificate programs are available in Coaching and in Health and Wellness.

[Master's Programs in the College of Education](#)

[Application Deadlines](#)

## Degree Requirements

Minimum Hours Required for M.A.—33 Credit Hours

Area A: Core—12-15 Credit Hours

- PET 6416 Administration of Corporate Wellness Programs (3 credit hours)
- EDF 6481 Fundamentals of Graduate Research in Education (3 credit hours)
- \*PET 6910 Problem Analysis: Review of Literature (3 credit hours)
- \*PET 6946 Practicum/Clinical Practice (3-6 credit hours)

Research Report Option\*

- PET 6909 Research Report (3-6 credit hours)

In consultation with an adviser, the student could continue the research started in PET 6910. Students choosing this option would choose fewer hours in the specialization area.

\*Can be taken after 2/3 of specialization is completed.

Area B: Specialization—12-18 Credit Hours

Select courses from the following:

- PET 5355 Exercise and Health (3 credit hours)
- PET 5635 Advanced Human Injuries (3 credit hours)
- PET 5766 Advanced Coaching Theory (3 credit hours)
- PET 6XXX Training and Conditioning Techniques for Coaches (3 credit hours)
- PET 6XXX Peak Performance in Sports (3 credit hours)
- PET 6XXX Kinesiology (3 credit hours)
- PET 6088 Wellness Development in Children (3 credit hours)
- PET 6089 Personal and Organizational Wellness (3 credit hours)
- PET 6XXX Wellness Technology in Physical Education (3 credit hours)

Courses from other colleges or programs can be substituted with adviser approval.

## Additional Program Requirements

A comprehensive examination or another appropriate culminating activity is required of all master's students. Please contact your adviser.

# Clinical Psychology

## Description

College of Arts and Sciences Department of Psychology Department Chair: Dr. John M. McGuire

## Degrees Offered

Master of Arts in Clinical Psychology (M.A.) Doctor of Philosophy in Psychology, Clinical Psychology Track

## Master of Arts in Clinical Psychology

Graduate Program Coordinator: Dr. Robert J. Kennerley, DB 140-310B, (386) 254-4412, ext. 4033. E-mail: [rkennerl@mail.ucf.edu](mailto:rkennerl@mail.ucf.edu)

The Master of Arts degree in Clinical Psychology is offered at the Daytona Beach area campus and is concerned with the application of psychological principles to individuals. The two primary areas of emphasis include assessment or evaluation skills, and intervention or psychotherapy skills. 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. M.A. 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. The program curriculum is consistent with the educational criteria for licensure as a Mental Health Counselor in the state of Florida.

Admission into the clinical master's program is 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, interview performance [if held]) considered in admission's decisions. Many applicants who meet minimum university requirements may not be admitted to the program.

## Admission Requirements

The Graduate Record Examination (GRE) is required of all graduate students. Competitive applicants will score a minimum of 500 on the verbal and 500 on the quantitative sections of the GRE and have a GPA of 3.0 for the last 60 semester hours of attempted work for the baccalaureate degree. International students and students whose native language is not English must score at least 220 (computer-based test; or equivalent score on the paper-based test) on the Test of English as a Foreign Language (TOEFL).

Applicants are encouraged to apply online. To be considered for admission, applicants must provide:

- A completed UCF graduate degree program application form
- 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 background and goals
- Three letters of reference, with at least two furnished by college or university professors who are acquainted with the applicant.

A department admissions committee reviews each student's credentials and may invite candidates for an interview. Final selection is based on both submitted credentials and the interview, if held.

[Application Deadlines](#)

## Competency/Prerequisite Requirements

Applicants must have either a baccalaureate degree with a major in psychology or a baccalaureate degree in another content area and completion of a minimum 15 semester hours of undergraduate psychology courses prior to matriculation. Competitive students will have completed courses in the following areas: abnormal psychology; developmental (lifespan preferred) or child psychology; personality theories; learning;

physiological psychology; and courses in research methods and statistics.

## Degree Requirements

The M.A. degree program in Clinical Psychology is a two-year, six-semester program for full-time students, with summer course work required in both years. Part-time students should plan their curriculum carefully in consultation with their advisor. The program consists of a minimum of 60 semester hours of work as follows.

Requirements for M.A.—60 Credit Hours Minimum

### Academic Course Work—48 Credit Hours

- CLP 5166 Advanced Abnormal Psychology (3 credit hours)
- CLP 6181 Psychological Theories of Substance Abuse Treatment (3 credit hours)
- CLP 6191 Cross-Cultural Psychotherapy (3 credit hours)
- CLP 6321 Psychotherapy in Community Settings (3 credit hours)
- CLP 6441C Individual Psychological Assessment I (3 credit hours)
- CLP 6456 Individual Counseling - Theory and Practice (3 credit hours)
- CLP 6457C Group Psychotherapy (3 credit hours)
- CLP 6458C Behavior Therapy (3 credit hours)
- CLP 6459 Human Sexuality, Marriage, and Sex Therapies (3 credit hours)
- CLP 6460C Introduction to Child, Adolescent, and Family Therapies (3 credit hours)
- CLP 6932 Ethical and Professional Issues in Mental Health Practice (3 credit hours)
- CLP 6943C Clinical Practicum (2 hours)
- DEP 5057 Developmental Psychology (3 credit hours)
- PSY 6216 Advanced Research Methodology I (4 credit hours)
- MHS 6020 Mental Health Care Systems (3 credit hours)\*
- SDS 6330 Career Development (3 credit hours)\*

\* These courses are offered in the Mental Health Counseling Track in the Counselor Education Program of the College of Education

### Internship—12 Credit Hours

(See description below.)

- CYP 6948C Psychology Internship (12 credit 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 is the prototype. The intern is assigned to an acceptable agency for a total of 1000 hours during three consecutive academic semesters (20 hours per week for 16 weeks during Fall and Spring Terms, and 30 hours per week for 12 weeks during the Summer Term). An additional commitment of two 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 the following courses is generally required prior to internship: CLP 5166, CLP 6191, CLP 6321, CLP 6441, CLP 6456, CLP 6458, CLP 6943., and MHS 6020. Internship placements are assigned by the program coordinator.

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 is completed through a case presentation. During their final semester of internship training, students must present a 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 write a paper on the case (ensuring ethical consideration of confidentiality issues) and present it to their faculty internship supervisor for final approval.

# Doctor of Philosophy in Psychology, Clinical Psychology Track

Clinical Psychology Ph.D. Graduate Program Coordinator: Mark D. Rapport, PH 409J, (407) 823-2974, E-mail: [mrapport@pegasus.cc.ucf.edu](mailto:mrapport@pegasus.cc.ucf.edu)

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.

## Faculty

M. D. Rapport, Ph.D., Professor and Director of Clinical Training

Jack McGuire, Ph.D., Professor and Department Chair

Clint Bowers, Ph.D., Associate Professor

Michael Dunn, Ph.D., Assistant Professor

Stacey Dunn, Ph.D., Assistant Professor

Kim Renk, Ph.D., Assistant Professor

Charles Negy, Ph.D., Associate Professor

Log on to the Department's website to review clinical faculty research and training interests. (Web address: <http://www.pegasus.cc.ucf.edu/~psych/>).

## Admission Requirements

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

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 220 (computer-based test; or equivalent score on the paper-based test) on the Test of English as a Foreign Language (TOEFL). Previous graduate work will be considered on a case-by-case basis (including acceptance of a previously completed master's thesis). A maximum of 30 semester hours may be transferred for credit.

During the past two years (2000, 2001), for example, the Clinical Psychology Program received 65 and 82 applications for admission and a total of 7 (2000) and 7 (2001) students entered the Ph.D. program. The mean GRE verbal (585, 576) and quantitative (596, 590) scores for students accepted for graduate study in 2000 and 2001, respectively, were complemented by a cumulative grade point average of 3.6 and 3.8.

To be considered for admission, applicants must provide:

- 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, coupled with a clear statement concerning the type of research you wish to pursue as a graduate student at UCF and the clinical faculty member you believe would be best suited to serve as your major professor and mentor. (Note: Interested applicants may wish to read about clinical faculty research interests on the department website at <http://pegasus.cc.ucf.edu/~psych/faculty.html>.)
- Three letters of reference, with at least two furnished by college or university professors who are acquainted with the applicant

All requested material must be submitted by January 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 submitted credentials and the interview, if held.

## Competency/Prerequisite Requirements

Applicants must have at least 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). Students who enter with a master's degree will be granted a maximum of 30 hours of transfer credit.

## Degree Requirements

The Clinical Ph.D. track is designed to be completed in five years of full-time study beyond the baccalaureate or 3-4 years beyond the master's. The program 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 107 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 may earn the M.S. degree in route to the Ph.D. Students who enter with a master's degree must complete at least 77 semester hours at UCF. (Note: courses listed under the Ph.D. program that are required for the M.S. degree are listed separately after the Ph.D. courses.) A master's thesis and a dissertation, which represents a significant contribution to the discipline, are both required. Successful completion of the Qualifying and Comprehensive Examination is required prior to initiation of dissertation research.

## Requirements for Ph.D.

108 Credit Hours Minimum

Psychology Foundation Courses—15 Credit Hours

- DEP 5057 Developmental Psychology (3 credit hours)
- SOP 5059 Advanced Social Psychology (3 credit hours)
- PSY 5605 History and Systems of Psychology (3 credit hours)
- PSB 5005 Physiological Psychology (3 credit hours)
- EXP 6506 Human Cognition and Learning (3 credit hours)

Research Courses—34 Credit Hours

- PSY 6216 Advanced Research Methodology I (4 credit hours)
- PSY 6217 Advanced Research Methodology II (4 credit hours)
- PSY 6219C Advanced Research Methodology III (4 credit hours)
- PSY 6946 Research Practicum (1 credit hour)
- PSY 6971 Thesis (6 credit hours)
- PSY 7980 Doctoral Dissertation (15 credit hours)

#### Clinical Courses—38 Credit Hours

- CLP 6191 Cross-Cultural Psychotherapy (3 credit hours)
- CLP 6460C Introduction to Child/Adolescent/Family Therapy (3 credit hours)
- CLP 6441C Individual Psychological Assessment I (3 credit hours)
- CLP 6445C Individual Psychological Assessment II (3 credit hours)
- CLP 6195C Introduction to Psychotherapy (3 credit hours)
- PSB 6446 Advanced Abnormal and Clinical Psychopharmacology (3 credit hours)
- CLP 6932 Ethical and Professional Issues in Mental Health Practices (3 credit hours)
- CLP 6943C Clinical Practicum (taken 4 times @ 2 hours; 8 hours)
- CLP 6949 Predoctoral Internship (6 credit hours)
- Clinical Treatment Elective (3 credit hours)

#### Unique/Niche Courses—12 Credit Hours

- EXP 6938 Teaching Seminar (3 credit hours)
- CLP 6491C Treatment Development Seminar (3 credit hours)
- CLP 6944 Clinical Supervision Seminar/Practicum (3 credit hours)
- PSY 6933 Administration Seminar/Practicum (3 credit hours)

#### Electives—9 Credit Hours

- Non-Psychology Electives (2 @ 3 credit hours; 6 hours)
- Other Elective—Psychology or Non-Psychology (3 credit hours)

## M.S. Requirements

For students who wish to complete the master's degree in route to the Ph.D., the M.S. degree is granted after successful completion of the course work listed immediately below and after the student has successfully defended their thesis.

#### 49 Credit Hours Minimum

#### Psychology Foundation Courses—6 Credit Hours

Any two of the following 3 courses:

- DEP 5057 Developmental Psychology (3 credit hours)
- PSY 5605 History and Systems of Psychology (3 credit hours)
- PSB 5005 Physiological Psychology (3 credit hours)

#### Research Courses—19 Credit Hours

- PSY 6216 Advanced Research Methodology I (4 credit hours)
- PSY 6217 Advanced Research Methodology II (4 credit hours)
- PSY 6219C Advanced Research Methodology III (4 credit hours)
- PSY 6946 Research Practicum (1 credit hour)
- PSY 6971 Thesis (6 credit hours)

#### Clinical Courses—24 Credit Hours

- CLP 6191 Cross-Cultural Psychotherapy (3 credit hours)
- CLP 6441C Individual Psychological Assessment I (3 credit hours)

- CLP 6195C Introduction to Psychotherapy (3 credit hours)
- PSB 6446 Advanced Abnormal and Clinical Psychopharmacology (3 credit hours)
- CLP 6932 Ethical and Professional Issues in Mental Health Practices (2 credit hours)
- CLP 6943C Clinical Practicum (taken 2 times @ 2 hours; 4 credit hours)
- Clinical Treatment Elective (3 credit hours)

## Doctoral Examinations

Domain A: Research (required)

- Theoretical or Review Article, or
- Empirical Article

Domain B: Government Proposals/Policy

- Grant Proposal, or
- Mental Health Policy/Administration

Domain C: Teaching

- Undergraduate Instructor Experience, or
- Professional Presentation Experience

Domain D: Clinical Practice/Consultation

- Comprehensive Case Presentation, or
- Program Development (Rx/Prevention)

**Purpose**—The purpose of the qualifying and comprehensive examination is to develop and assess competency of professional behaviors in doctoral-level graduate students in the Clinical Psychology Program that are consistent with the program’s professional training goals. These goals include but are not limited to the development and demonstration of skills and abilities that enable graduating students to (a) conduct and publish independent empirical research; (b) competently serve as innovative teachers/instructors in colleges, universities, and medical schools, and as presenters at local, regional, national, and international professional conferences; (c) prepare/review grants and develop knowledge and expertise in the area of administration and policies/legislation relevant to mental health issues; and (d) be expertly trained, empirically oriented clinicians capable of designing, implementing, and assessing programs concerned with mental health and mental health delivery broadly defined.

**Requirements, Rationale, and Objectives**—Successful completion of qualifying and comprehensive examination requirements reflect the program’s desire to ensure overall breadth of training in the field of clinical psychology that are complemented by individually tailored professional training experiences and competencies consistent with a student’s professional career goals. The four professional domains outlined above are consistent with this intent. All students are required to complete the Research domain owing to the importance and centrality of research competency to the Ph.D. degree in Clinical Psychology. Two of the other three professional competency domains must be fulfilled to complete qualifying/comprehensive examination requirements. Students are free to select any two of the three domains (Teaching, Government Proposals/Policy, Clinical Practice/Consultation) and are expected to discuss possible selections with their major professor/faculty adviser prior to formalizing their choices. Choice of domain is expected to reflect individual professional training goals and the desire for additional knowledge and expertise in a selected area. All competency domains contain two options, and students are free to select either option (see options “a” and “b” under each domain in above matrix) in consultation with their faculty adviser.

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.



# Electrical Engineering

## Description

College of Engineering and Computer Science School of Electrical Engineering and Computer Science Director of School: Dr. Erol Gelenbe  
Graduate Program Coordinator: Dr. Michael Georgiopoulos, ENGR I, Room 407, (407) 823-3027. E-mail: [michaelg@mail.ucf.edu](mailto:michaelg@mail.ucf.edu) Web address: [www.seecs.ucf.edu](http://www.seecs.ucf.edu)

The School of Electrical Engineering and Computer Science offers Master of Science and Doctor of Philosophy degrees in electrical engineering. Students in the Electrical Engineering Program receive a broad background in areas such as communications, controls/power, digital signal processing, electromagnetics, electronics/power electronics, electro-optics, solid state and microelectronics, and VLSI while specializing in a research area of their interest.

Research interests of the Electrical Engineering faculty include antennas, microwave and millimeter circuits and devices, communication systems, digital signal/image processing, electronic circuits, IFF devices, electromagnetic theory, radar and microwave remote sensing, 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 conjunction, infrared detectors, fourier optics, lens design, and nonlinear optics.

## Degrees Offered

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

- Communications Track
- Controls/Power Track
- Digital Signal Processing Track
- Electromagnetics Track
- Electronics/Power Electronics Track
- Electro-optics Track
- Solid State and Microelectronics Track

### Doctor of Philosophy in Electrical Engineering (Ph.D.)

## Faculty

Professors: I. Batarseh, Ph.D., P.E., Assistant Dean of the College of Engineering and Computer Science; M. Georgiopoulos, Ph.D.; W. L. Jones, Ph.D.; J. J. Liou, Ph.D.; D. C. Malocha, Ph.D., P.E.; W. B. Mikhael, Ph.D.; R. L. Phillips, Ph.D.; Z. Qu, Ph.D.; N. S. Tzannes, Ph.D.; P. F. Wahid, Ph.D.; J. S. Yuan, Ph.D.

Associate Professors: T. Kasparis, Ph.D.; S. M. Richie, Ph.D., K. B. Sundaram, Ph.D.; L. Wei, Ph.D.

Assistant Professors: M. G. Haralambous, D. Sc., P.E.; T. Wu, Ph.D.

Joint Appointees: See [www.seecs.ucf.edu](http://www.seecs.ucf.edu)

## Master of Science in Electrical Engineering

Graduate Program Coordinator: Dr. Michael Georgiopoulos, ENGR I, Room 407, (407) 823-3027. E-mail: [michaelg@mail.ucf.edu](mailto:michaelg@mail.ucf.edu) Web address: [www.seecs.ucf.edu](http://www.seecs.ucf.edu)

The Master of Science in Electrical Engineering degree offers tracks in Communications, Controls/Power, Digital Signal Processing,

degree in electrical engineering or a related field. Detailed information on the tracks and research activities is available in the department or on the school website.

## Admission Requirements

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 a regionally accredited institution. Admission requirements include a minimum grade point average of 3.0 (A = 4.0) on the last 60 attempted credit hours of the bachelor's degree, and a minimum combined score of 1000 on the verbal-quantitative sections of the Graduate Record Examination (GRE). Students must submit an application for graduate admission, including a resume, goals statement, and two letters of recommendation.

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 220 (computer-based test; or equivalent score on the paper-based test) on the Test of English as a Foreign Language (TOEFL).

Students with a grade point average of less than 3.0 may be admitted on a trial program basis in some circumstances. Additional courses may also be required to correct any course deficiencies. Students should contact the graduate program coordinator for further information.

[Application Deadlines](#)

## Articulation

Undergraduate articulation courses may be required for students with BS and/or MS degrees in fields other than electrical engineering. The articulation courses will be determined by the graduate program coordinator in consultation with student's research adviser on a case-by-case basis. In general, students with a non-electrical 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.

## Degree Requirements

The master's program offers a thesis option (30 credit hours, including 6 credit hours of thesis) and a non-thesis option (36 credit hours) for all tracks. Students must have an adviser appointed and an official program of study submitted before completing 9 credit hours of course work.

### Thesis Option

This option requires a minimum of thirty credit hours of approved course work, of which 6 credit hours is thesis work. The course requirements are as follows:

- Required courses from one of the following tracks: Communications, Controls/Power, Digital Signal Processing, Electromagnetics, Electronics/Power Electronics, Electro-optics, or Solid State and Microelectronics
- One course from any other two areas listed above (6 credit hours total).
- No more than 6 credits of thesis will count toward the degree requirement.
- The remainder of the program courses is chosen in conjunction with an adviser in an approved program of study.
- At least 15 credit hours must be from 6000-level courses.
- Continuous enrollment in one hour of thesis is required once six hours of thesis credits have been completed and all course work has been satisfied, until the final thesis has been received by the Office of Graduate Studies.

## Non-Thesis Option

This option requires a minimum of 36 credit 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 credit hours of course work. Students are required to pass a final comprehensive examination or another appropriate culminating experience. Please see the graduate program coordinator for details.

## Transfer Credits

Graduate students (subject to approval from an adviser) with a bachelor's degree from Electrical Engineering at UCF may transfer up to 9 credit hours of 5000-level work toward an M.S. non-thesis option and up to 3 credit hours of 5000-level work toward an M.S. thesis option. Up to 9 credit hours may be transferred from graduate work conducted elsewhere or in nondegree status from a regionally accredited institution.

## Communications Track

### Required Courses—12 Credit Hours

- EEL 5542 Random Processes I (3 credit hours)
- EEL 6530 Communication Theory (3 credit hours)
- One course from two of the following tracks: Controls/Power, Digital Signal Processing, Electromagnetics, Electronics/Power Electronics, Electro-optics, Solid State and Microelectronics (6 credit hours)

### Electives

- EEL 6504 Communications Systems Design (3 credit hours)
- EEL 6543 Random Processes II (3 credit hours)
- EEL 6537 Detection and Estimation (3 credit hours)
- EEL 5555C RF and Microwave Communications (3 credit hours)
- EEL 5762 Performance Analysis of Computer and Communication Systems (3 credit hours)
- EEL 5547 Introduction to Radar Systems (3 credit hours)
- EEL 6785 Computer Network Design (3 credit hours)
- EEL 6590 Advanced Topics in Communications (3 credit hours)

### Thesis Option—18 Credit Hours

- EEL 6971 Thesis (6 credit hours)
- Electives (12 credit hours)

### Non-Thesis Option—24 Credit Hours

- Electives (24 credit hours)

Total Hours Required for M.S.E.E.—30 or 36 Credit Hours

## Controls/Power Track

### Required Courses—12 Credit Hours

- EEL 5630 Digital Control Systems (3 credit hours)
- EEL 5173 Linear Systems Theory (3 credit hours)
- One course from two of the following tracks: Communications, Digital Signal Processing, Electromagnetics, Electronics/Power Electronics, Electro-optics, Solid State and Microelectronics (6 credit hours)

## Electives in Controls

- EEL 6621 Nonlinear Control Systems (3 credit hours)
- EEL 6671 Modern and Optimal Control Systems (3 credit hours)
- EEL 6674 Optimal Estimation for Control (3 credit hours)
- EEL 6617 Fundamentals of Modern Multivariable Control (3 credit hours)
- EEL 6616 Adaptive Control (3 credit hours)
- EEL 6680 Advanced Topics in Modern Control Systems (3 credit hours)

## Electives in Power

- EEL 5245C Power Electronics - (3 credit hours)
- EEL 6208 Advanced Machines (3 credit hours)
- EEL 6255 Advanced Power Systems Analysis (3 credit hours)
- EEL 6269 Advanced Topics in Power Engineering (3 credit hours)
- EEL 6246 Power Electronics II (3 credit hours)

## Thesis Option—18 Credit Hours

- EEL 6971 Thesis (6 credit hours)
- Electives (12 credit hours)

## Non-Thesis Option—24 Credit Hours

- Electives (24 credit hours)

Total Hours Required for M.S.E.E.—30 or 36 Credit Hours

## Digital Signal Processing Track

### Required Courses—12 Credit Hours

- EEL 4750 Digital Signal Processing Fundamentals (3 credit hours)
- EEL 5513 Digital Signal Processing Applications (3 credit hours)
- One course from two of the following tracks: Communications, Controls/Power, Electromagnetics, Electronics/Power Electronics, Electro-optics, Solid State and Microelectronics (6 credit hours)

### Electives

- EEL 6502 Adaptive Digital Signal Processing (3 credit hours)
- EEL 6505 Multidimensional Digital Processing (3 credit hours)
- EEL 6558 Advanced Topics in Digital Signal Processing (3 credit hours)
- EEL 5820 Image Processing (3 credit hours)
- EEL 6823 Image Processing II (3 credit hours)
- EEL 5825 Pattern Recognition (3 credit hours)

## Thesis Option—18 Credit Hours

- EEL 6971 Thesis (6 credit hours)
- Electives (12 credit hours)

## Non-Thesis Option—24 Credit Hours

- Electives (24 credit hours)

Total Hours Required for M.S.E.E.—30 or 36 Credit Hours

## Electromagnetics Track

### Required Courses—12 Credit Hours

- EEL 6488 Electromagnetic Fields (3 credit hours)
- One course from two of the following tracks: Communications, Controls/Power, Digital Signal Processing, Electronics, Electro-optics, Solid State and Microelectronics (6 credit hours)

One of the following courses is required:

- EEL 4436C Microwave Engineering (3 credit hours)
- EEL 5462C Antenna Analysis and Design (3 credit hours)
- EEL 5434 Microwave Circuits and Devices (3 credit hours)

### Electives

- EEL 5432 Satellite Remote Sensing (3 credit hours)
- EEL 5555C RF and Microwave Communications (3 credit hours)
- EEL 6463 Antenna Analysis and Design II (3 credit hours)
- EEL 6492 Advanced Topics in Electromagnetics and Microwaves (3 credit hours)

### Thesis Option—18 Credit Hours

- EEL 6971 Thesis (6 credit hours)
- Electives (12 credit hours)

### Non-Thesis Option—24 Credit Hours

- Electives (24 credit hours)

Total Hours Required for M.S.E.E.—30 or 36 Credit Hours

## Electronics/Power Electronics Track

### Required Courses—12 Credit Hours

- EEL 6371 Advanced Electronics I (3 credit hours)
- One course from two of the following tracks: Communications, Controls/Power, Digital Signal Processing, Electromagnetics, Electro-optics, Solid State and Microelectronics (6 credit hours)

One of the following courses is required:

- EEL 5245C Power Electronics (3 credit hours)
- EEL 5357 CMOS Analog and Digital IC Design (3 credit hours)

### Electives

- EEL 5353 Semiconductor Device Modeling and Simulation (3 credit hours)

- EEL 5370 Operational Amplifiers (3 credit hours)
- EEL 6354 Advanced Semiconductor Device I (3 credit hours)
- EEL 6372 Advanced Topics in Electronics (3 credit hours)
- EEL 6246 Power Electronics II (3 credit hours)

## Thesis Option—18 Credit Hours

- EEL 6971 Thesis (6 credit hours)
- Electives (12 credit hours)

## Non-Thesis Option—24 Credit Hours

- Electives (24 credit hours)

Total Hours Required for M.S.E.E.—30 or 36 Credit Hours

# Electro-optics Track

## Required Courses—9 Credit Hours

- OSE 5041 Introduction to Wave Optics (3 credit hours)
- OSE 6560 Laser Engineering (3 credit hours)
- OSE 6211 Fourier Optics (3 credit hours)

## Electives

Courses from the following tracks can serve as electives: Communications, Controls/Power, Digital Signal Processing, Electromagnetics, Electronics, Solid State and Microelectronics. The elective courses depend on the sub-option chosen in the Electro-optics track. The sub-options are: Photonics, Optical Communications, Electro-optics Systems, Imaging Systems, Remote Sensing, and Laser Engineering. More details of these sub-options can be obtained from the graduate office in the School of Electrical Engineering and Computer Science.

## Thesis Option—18 Credit Hours

- EEL 6971 Thesis (6 credit hours)
- Electives (12 credit hours)

## Non-Thesis Option—24 Credit Hours

- Electives (24 credit hours)

Total Hours Required for M.S.E.E.—30 or 36 Credit Hours

# Solid State and Microelectronics Track

## Required Courses—12 Credit Hours

- EEL 5355C Fabrication of Solid-State Devices (4 credit hours)
- EEL 6354 Advanced Semiconductor Device I (3 credit hours)
- One course from two of the following tracks: Communications, Controls/Power, Digital Signal Processing, Electromagnetics, Electronics/Power Electronics, Electro-optics (6 credit hours)

## Electives

- EEL 5332C Thin Film Technology (3 credit hours)
- EEL 5353 Semiconductor Device Modeling and Simulation (3 credit hours)
- EEL 5357 CMOS Analog and Digital IC Design (3 credit hours)
- EEL 5517 Surface Acoustic Wave Devices and Systems (3 credit hours)
- EEL 5352 Semiconductor Material and Device Characterization (3 credit hours)
- EEL 6354 Advanced Semiconductor Device I (3 credit hours)
- EEL 6338 Advanced Topics in Microelectronics (3 credit hours)

## Thesis Option—18 Credit Hours

- EEL 6971 Thesis (6 credit hours)
- Electives (12 credit hours)

## Non-Thesis Option—24 Credit Hours

- Electives (24 credit hours)

Total Hours Required for M.S.E.E.—30 or 36 Credit Hours

# Doctor of Philosophy in Electrical Engineering

The Doctor of Philosophy (Ph.D.) degree is primarily intended for students with a master's degree in electrical engineering or a closely related discipline who wish to pursue a career in research or academia. Specializations include communications, digital signal processing/image processing, controls, electro-optics, electromagnetics, electronics/power electronics, and solid-state/microelectronics.

## Admission Requirements

Students must satisfy university requirements and have completed either a master's degree in electrical engineering or a closely related discipline with a minimum grade point average of 3.5 (on a 4.0 scale) and a minimum of 1100 on the combined verbal-quantitative sections of the Graduate Record Examination (GRE), or a bachelor's degree in electrical engineering or a closely related discipline with a minimum grade point average of 3.5 (on a 4.0 scale) in the last 60 attempted credit hours of the bachelor's degree, and a minimum of 1100 on the combined verbal-quantitative portion of the GRE. Students must submit an application for graduate admission, including a resume, goal statement, and three letters of recommendation.

[Application Deadlines](#)

## Degree Requirements

The Ph.D. degree requires a minimum of 72 credit hours beyond the bachelor's degree. Of these 72 hours, a minimum of 36 credit hours should be regular course work and a minimum of 15 credit hours should be dissertation hours. The remaining 21 credit hours could be course work (including courses such as Independent Study or Directed Research) or dissertation hours.

The Ph.D. degree requires a minimum of 36 credit hours beyond the master's degree (depending on the number of transfer credits from the master's degree). Of these 36 hours, a minimum of 12 credit hours should be regular course work and a minimum of 15 credit hours should be dissertation hours. The remaining 9 credit hours could be course work (including courses such as Independent Study or Directed Research) or dissertation hours.

At least 6 credit hours must be taken outside the student's program while at UCF. There is a residency requirement of two contiguous semesters in full-time graduate student status (minimum of 9 credit hours) after acceptance to the graduate program at UCF. The program of study must be developed in consultation with an adviser within the first 9 credit hours of course work and must meet with departmental approval, at which time transfer credit will be evaluated on a course-by-course basis. Students are required to pass a Qualifying Examination, after which the

student must form a dissertation committee. The degree must be completed within seven years from the entry date to the doctoral program.

Up to 6 credit hours of 4000 level course work are acceptable if transferred from a master's degree program. At least 6 credit hours must be taken outside the student's program while at UCF. The remaining 21 hours of credits could be Dissertation hours, or graduate course work, or Independent Study, or Doctoral Research, etc. There is a residency requirement of two contiguous semesters in full-time graduate student status (minimum of 9 credit 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 up to 36 credit hours may be transferred from a master's degree toward these requirements, including a maximum of 6 credit hours of 4000-level courses; no 3000-level courses; and no courses with grades less than "B" grades.

## Qualifying 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 Qualifying Examination consists of a written four-hour test, given on the first Friday of April and first Friday of November of each year. It is open books and open notes, but published solution manuals for texts are not allowed. It is the policy of the Electrical Engineering Program that any calculator used during the Qualifying Examination may not be used to store user-defined programs.

## Exam Format

The student declares a major area prior to taking the exam by notifying the Electrical Engineering Graduate Secretary, or during the exam time. During the exam the student has to solve three problems in the declared major area and six other problems that can be selected from any four other chosen areas. The areas from which the student can select problems from are the following:

- Communications
- Digital Signal Processing
- Controls/Power
- Digital Systems and Computer Architecture
- Electro-optics
- Electromagnetics
- Physical Electronics
- Electronics

## Candidacy Examination

The Candidacy Examination evaluates the student's preparation to undertake research in the student's dissertation topic area. 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 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 by the student to the dissertation committee.
- 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 Dean, through the Chairs, is responsible for committee formation, additions, and deletions. The doctoral committee must consist of a minimum of five members: three must be faculty members from within the student's department, and one must be at large from outside the School of Electrical Engineering and Computer Science. The committee Chair must be a member of the department graduate faculty approved to direct dissertations. Joint faculty members serve as department-faculty committee members. Adjunct faculty and off-campus experts may serve as the outside-the-college person in the committee. Program areas may further specify additional committee membership. The Office of Graduate Studies reserves the right to review appointments to advisory committees, place a representative on any advisory committee, or appoint a co-adviser.
- In unusual cases, with approval from the program Chair, two professors may chair the committee jointly. Joint faculty members may serve as committee chairs, but off-campus experts and adjunct faculty may not serve as committee chairs. Particular programs may have more stringent requirements.
- 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.

# Computer Engineering

## Description

College of Engineering and Computer Science School of Electrical Engineering and Computer Science Director of School: Dr. Erol Gelenbe  
Graduate Program Coordinator: Dr. Taskin Kocak, ENGR I , Room 407, (407) 823-4758. E-mail: [tkocak@mail.ucf.edu](mailto:tkocak@mail.ucf.edu) Web address:  
[www.seecs.ucf.edu](http://www.seecs.ucf.edu)

The School of Electrical Engineering and Computer Science offers Master of Science and Doctor of Philosophy degrees in Computer Engineering. Students in the Computer Engineering program receive a broad background in the areas of software engineering, digital systems, computer architectures and knowledge-based systems while specializing in a research area of their interest. Research interests of the Computer Engineering faculty include digital systems, computer architecture, software engineering, artificial intelligence, expert systems, simulation, computer communications, and computer vision, and VLSI.

## Degrees Offered

### Master of Science in Computer Engineering (M.S.Cp.E.)

- o Computer Architecture Track
- o Digital Systems Track
- o Knowledge-based Systems Track
- o Software Engineering Track

### Doctor of Philosophy in Computer Engineering (Ph.D.)

## Faculty

Professors: C. S. Bauer, Ph.D.; A. J. Gonzalez, Ph.D.

Associate Professors: R. DeMara, Ph.D.; H. I. Klee, Ph.D.; B. E. Petrasko, D. Eng.; J. Zalewski, Ph.D.; G. Walton, Ph.D.

Assistant Professors: A. Ejnoui, Ph.D.; T. Kocak, Ph.D.; F. Gonzalez, Ph.D.

Lecturers: See <http://www.seecs.ucf.edu>

## Master of Science in Computer Engineering

The Master of Science in Computer Engineering Program is designed for students with a baccalaureate degree in Computer Engineering or a closely related discipline. The master's program offers four tracks: Computer Architecture, Digital Systems, Knowledge-based Systems, and Software Engineering. All tracks offer a thesis option and a non-thesis (course work only) option.

## Admission Requirements

The Master of Science in Computer Engineering (M.S.Cp.E.) degree requires a baccalaureate degree in Computer Engineering or a closely related discipline from an accredited 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). Students must submit an application for graduate admission, including a resume, goals statement, and two letters of recommendation.

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 U.S. college or university, are required to submit a score of at least 220 (computer-based test; or equivalent score on the paper-based test) on the Test of English as a Foreign Language (TOEFL).

Students with a grade point average of less than 3.0 may be admitted on a trial program basis in some circumstances. Additional courses may also be required to correct any course deficiencies. Students should contact the Computer and Electrical Engineering graduate coordinator for further information.

[Application Deadlines](#)

## 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 program coordinator in consultation with the student's adviser on a case-by-case basis.

In general, all students must have had the following undergraduate program or equivalent before admission to graduate study. Students without this background must take the appropriate course work. Courses taken to correct deficiencies cannot be used to satisfy minimum degree requirements.

- 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)

## Degree Requirements

Each of the four tracks (Computer Architecture, Digital Systems, Knowledge-based Systems, and Software Engineering) in the master's program in computer engineering has a thesis option and a non-thesis (course work only) option. The thesis option requires a minimum of 30 credit hours, including 6 credit hours of thesis. The non-thesis option requires a minimum of 36 credit hours of course work. Each option requires a minimum of 15 credit hours at the 6000 level. The actual program of study must be approved by an adviser prior to completing 9 credit hours of course work. A maximum of 9 credit hours of graduate course work taken prior to admission to the program can be used in a graduate degree program.

### Thesis Option

The thesis option requires 30 credit hours, at least 15 credit hours of which must be at the 6000 level and will include 6 credit hours of thesis. The prerequisites for the program are shown below. The Core requirements for all students will be met by taking the Required Courses. A program adviser and committee must be selected prior to completing 9 credit hours of course work. Non-Core courses taken before a student is in regular status and has a chair may not be accepted toward the M.S.Cp.E. The entire graduate committee must be appointed and a thesis abstract provided to them prior to registering for thesis credit.

### Non-Thesis Option

The non-thesis option requires a minimum of 36 credit 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 credit hours of course work. Students are required to pass a final comprehensive examination or another appropriate culminating experience. Please see the graduate program coordinator for details.

### Transfer Credits

Graduate students (subject to approval from an adviser) with a bachelor's degree from Computer Engineering at UCF may transfer up to 9 credit hours of 5000-level work toward a non-thesis M.S. option, and up to 3 credit hours of 5000-level work toward a thesis M.S. option. Up to 9 credit hours may be transferred from graduate work conducted elsewhere or in non-degree status from a regional accredited institution.

## Required Courses (Core)—9 Credit Hours

- EEL 5708 High Performance Computer Architecture (3 credit hours)
- EEL 5874 Expert Systems and Knowledge Engineering (3 credit hours)
- EEL 5881 Software Engineering I (3 credit hours)

## Computer Architecture Track

### THESIS OPTION

Minimum Hours Required for M.S.Cp.E.—30 Credit Hours

- Core (9 credit hours)
- EEL 6707 Parallel Processing (3 credit hours)
- EEL 6763 Current Topics in Parallel Processing (3 credit hours)
- EEL 6769 Parallel Knowledge Processing Systems (3 credit hours)
- Electives (Selected in consultation with adviser) (6 credit hours)
- Thesis (6 credit hours)

### NON-THESIS OPTION

Minimum Hours Required for M.S.Cp.E.—36 Credit Hours

- Core (9 credit hours)
- EEL 6707 Parallel Processing (3 credit hours)
- EEL 6763 Current Topics in Parallel Processing (3 credit hours)
- EEL 6769 Parallel Knowledge Processing Systems (3 credit hours)
- EEL 6883 Software Engineering II (3 credit hours)
- Electives (selected in consultation with adviser) (15 credit hours)

## Digital Systems Track

### THESIS OPTION

Minimum Hours Required for M.S.Cp.E.—30 Credit Hours

- Core (9 credit hours)
- EEL 6707 Parallel Processing (3 credit hours)
- EEL 6763 Current Topics in Parallel Processing (3 credit hours)
- Two courses in one of the following areas: Controls, Digital Signal Processing, or Microelectronics (6 credit hours)
- Electives (Selected in consultation with adviser) (3 credit hours)
- Thesis (6 credit hours)

### NON-THESIS OPTION

Minimum Hours Required for M.S.Cp.E.—36 Credit Hours

- Core (9 credit hours)
- EEL 6707 Parallel Processing (3 credit hours)
- EEL 6763 Current Topics in Parallel Processing (3 credit hours)
- EEL 6883 Software Engineering II (3 credit hours)
- Three courses in one of the following areas: Controls, Digital Signal Processing, or Microelectronics (9 credit hours)
- Electives (Selected in consultation with adviser) (9 credit hours)

## Knowledge-based Systems Track

## THESIS OPTION

Minimum Hours Required for M.S.Cp.E.—30 Credit Hours

- Core (9 credit hours)
- EEL 4872 Engineering Applications of Intelligent Systems (3 credit hours)\*
- EEL 6875 Engineering of Artificial Intelligence Systems (3 credit hours)
- At least one of the following courses (3 credit hours):
  - EEL 6876 Current Topics in Artificial Intelligence in Engineering Systems
  - EEL 6878 Modeling and Artificial Intelligence
- Electives (Selected in consultation with adviser) (6 credit hours)
- Thesis (6 credit hours)

## NON-THESIS OPTION

Minimum Hours Required for M.S.Cp.E.—36 Credit Hours

- Core (9 credit hours)
- EEL 4872 Engineering Applications of Intelligent Systems (3 credit hours)\*
- EEL 6875 Engineering of Artificial Intelligence Systems (3 credit hours)
- EEL 6876 Current Topics in Artificial Intelligence in Engineering Systems (3 credit hours)
- EEL 6878 Modeling and Artificial Intelligence (3 credit hours)
- EEL 6883 Software Engineering II (3 credit hours)
- Electives (selected in consultation with adviser) (12 credit hours)

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

# Software Engineering Track

## THESIS OPTION

Minimum Hours Required for M.S.Cp.E.—30 Credit Hours

- Core (9 credit hours)
- EEL 6883 Software Engineering II (3 credit hours)
- At least one of the following courses:
  - EEL 6885 Software Engineering Quality Assurance Methods (3 credit hours)
  - EEL 6887 Software Engineering Life-Cycle Control (3 credit hours)
  - EEL 6897 Software Development for Real-Time Engineering Systems (3 credit hours)
- Electives (selected in consultation with adviser) (9 credit hours)
- Thesis (6 credit hours)

## NON-THESIS OPTION

Minimum Hours Required for M.S.Cp.E.—36 Credit Hours

- Core (9 credit hours)
- EEL 6883 Software Engineering II (3 credit hours)
- At least two of the following courses (6 credit hours):
  - EEL 6885 Software Engineering Quality Assurance Methods
  - EEL 6887 Software Engineering Life-Cycle Control
  - EEL 6897 Software Development for Real-Time Engineering Systems
- Electives (selected in consultation with adviser) (18 credit hours)

# Doctor of Philosophy in Computer Engineering

The Doctor of Philosophy (Ph.D.) degree is primarily intended for students with a master's degree in Computer Engineering or a closely related discipline wishing 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 Requirements

Students must satisfy university requirements and have completed either a master's degree in computer engineering or a closely related discipline with a minimum grade point average of 3.5 (on a 4.0 scale) and a minimum of 1100 on the combined verbal-quantitative sections of the Graduate Record Examination (GRE) or a bachelor's degree in computer engineering or a closely related discipline with a minimum grade point average of 3.5 (on a 4.0 scale) in the last 60 attempted semester hours of the bachelor's degree, and a minimum of 1100 on the combined verbal-quantitative sections of the GRE. Students must submit an application for graduate admission, including a resume, goals statement, and three letters of recommendation. Admissions decisions using these results and supplemental information are made by the graduate program coordinator.

[Application Deadlines](#)

## Degree Requirements

The Ph.D. degree requires a minimum of 72 credit hours beyond the bachelor's degree. Of these 72 hours, a minimum of 36 credit hours should be regular course work and a minimum of 15 credit hours should be dissertation hours. The remaining 21 credit hours could be course work (including courses such as Independent Study or Directed Research) or dissertation hours.

The Ph.D. degree requires a minimum of 36 credit hours beyond the master's degree (depending on the number of transfer credits from the master's degree). Of these 36 hours, a minimum of 12 credit hours should be regular course work and a minimum of 15 hours should be dissertation hours. The remaining 9 credit hours could be course work (including courses such as Independent Study or Directed Research) or dissertation hours.

At least 6 credit hours must be taken outside the student's program while at UCF. There is a residency requirement of two contiguous semesters in full-time graduate student status (minimum of 9 credit hours) after acceptance to the graduate program at UCF. The program of study must be developed in consultation with an adviser within the first 9 credit hours of course work and must meet with departmental approval, at which time transfer credit will be evaluated on a course-by-course basis. Students are required to pass a Qualifying Examination, after which the student must form a dissertation committee. The degree must be completed within seven years from the entry date to the doctoral program.

## Transfer Credits

A limited number of up to 36 credit hours may be transferred from a master's degree toward thesis requirements, including a maximum of 6 credit hours of 4000-level courses; no 3000-level courses, and no courses with grades less than "B" (3.0) grades.

## Qualifying Examination

The prospective doctoral student must take a written Qualifying Examination. 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. It is expected that a Ph.D. student will pass the Qualifying Examination within the first year of graduate studies.

The Qualifying Examination consists of a four-hour written examination, held twice a year on the first Friday of November and April of each year. The written examination may be followed by an oral examination, to be held approximately within two weeks from the evaluation of the written examination. The oral examination is required at the discretion of the Computer Engineering examination committee. The qualifying exam is open books and open notes, but published solution manuals for texts are not allowed. It is the policy of the Computer Engineering Program that any calculator used during the Qualifying examination may not be used to store user-defined programs.

## Written Exam Format

The exam is comprised of problems in at most four areas. The student must respond to a total of nine questions. The student must respond to four questions in their primary area and two questions in their secondary area. The primary area will be chosen prior to the exam date by

the following list of areas.

- Software Engineering
- Digital Systems and Computer Architecture

The student must also respond to three questions in no more than two of the areas listed below.

- Knowledge-Based Systems
- Communications
- Digital Signal Processing
- Controls
- Electro-optics
- Electromagnetics
- Physical Electronics
- Analog Electronics

## 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 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 major professor determines the format 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 Dean, through the Chairs, is responsible for committee formation, additions, and deletions. The doctoral committee must consist of a minimum of five members: three must be faculty members from within the student's department, and one must be at large from outside the School of Electrical Engineering and Computer Science. The committee Chair must be a member of the department graduate faculty approved to direct dissertations. Joint faculty members serve as department-faculty committee members. Adjunct faculty and off-campus experts may serve as the outside-the-college person in the committee. Program areas may further specify additional committee membership. The Office of Graduate Studies reserves the right to review appointments to advisory committees, place a representative on any advisory committee, or appoint a co-adviser.
- In unusual cases, with approval from the program Chair, two professors may chair the committee jointly. Joint faculty members may serve as committee chairs, but off-campus experts and adjunct faculty may not serve as committee chairs, although they may serve as co-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.

# Mechanical Engineering

## Description

College of Engineering and Computer Science Department of Mechanical, Materials and Aerospace Engineering Interim Chair of the Department: Dr. D. W. Nicholson Associate Chair of the Department: Dr. H. Hagedoorn Graduate Program Coordinator: Dr. Alain J. Kassab, ENGR 381, (407) 823-5778. E-mail: [kassab@mail.ucf.edu](mailto:kassab@mail.ucf.edu) Web address: <http://www-mmae.engr.ucf.edu>

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 obtained from a recognized accredited institution. The master's program offers the following tracks: Computer-Aided Mechanical Engineering, Mechanical Systems, Miniature Engineering Systems, Professional, and Thermofluids.

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 doctoral 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 Thermofluids.

## Degrees Offered

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

- Computer-Aided Mechanical Engineering Track
- Mechanical Systems Track
- Miniature Engineering Systems Track
- Professional Track
- Thermofluids Track

Doctor of Philosophy in Mechanical Engineering (Ph.D.)

## Faculty

Professors: P. J. Bishop, Ph.D., P.E., Vice Provost and Dean of Graduate Studies; L. C. Chow, Ph.D.; V. H. Desai, Ph.D., P.E.; B. E. Eno, Ph.D., P.E.; A. J. Kassab, Ph.D.; F. A. Moslehy, Ph.D., P.E.; D. W. Nicholson, Ph.D.

Associate Professors: R. H. Chen, Ph.D.; L. Chew, Ph.D.; T. Conway, Ph.D.; S. T. Durrance, Ph.D.; L. A. Giannuzzi, Ph.D.; A. H. Hagedoorn, Ph.D., P.E.; R. W. Johnson, Ph.D., P.E.; J. Kapat, Sc.D.; K. C. Lin, Ph.D., P.E.; A. Minardi, Ph.D.; J. Nayfeh, Ph.D.; C. E. Nuckolls, Ph.D., P.E.; C. Suryanarayana, Ph.D.; G. G. Ventre, Ph.D., P.E.

Assistant Professors: Linan An, Ph.D.; Quanfang Chen, Ph.D.; Yong-ho Sohn, Ph.D.; Raj Vaidyanathan, Ph.D.; D. Zhou, Ph.D.

Emeritus Professors: E. R. Hosler, Ph.D., P.E.; J. D. McBrayer, Sc.D., P.E.; W. F. Smith, Sc.D., P.E.

Visiting Assistant Professors: C. Ham, Ph.D.; E. Divo, Ph.D.

Joint Appointees: K.D. Belfield, Ph.D., Department of Chemistry; K. A. Cerqua-Richardson, Ph.D., School of Optics; M. B. Chopra, Ph.D., Department of Civil and Environmental Engineering; N. S. Dhere, Ph.D., Florida Solar Energy Center; A. Kar, Ph.D., School of Optics; W. Luo, Physics, D.C. Malocha, Ph.D., School of Electrical Engineering and Computer Science; N. Misconi, Engineering Technology; K. V. Sundaram, School of Electrical Engineering and Computer Science; R. Y. Ting, Ph.D., AMPAC; K. Vajravelu, Ph.D., Department of Mathematics

Research Faculty: J. Bindell, Ph.D., Cirent Semiconductor; R. Irwin, Ph.D., Cirent Semiconductor; F. Stevie, M.S., Cirent Semiconductor; R. Zarda, Ph.D., Lockheed-Martin Missiles and Fire Control

## Master of Science in Mechanical Engineering



# (M.S.M.E.)

## Admission Requirements

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 obtained from a recognized institution. Minimum requirements for admission to regular status are a 3.0 grade point average (A=4.0) in the last 60 attempted hours of undergraduate study from an accredited institution, 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 U.S. college or university), a score of 220 (computer-based test; or equivalent score on the paper-based test) on the Test of English as a Foreign Language (TOEFL).

In certain circumstances a trial program may be extended to students who have a grade point average 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.

[Application Deadlines](#)

## Degree Requirements

All students are expected to identify an adviser and file an official degree program of study prior to the completion of 9 credit hours of study. Students should consult with the MMAE graduate program coordinator for assistance in filling out a program of study. The M.S.M.E. degree is offered as a thesis or a non-thesis program in each of the five departmental tracks: Computer-Aided Mechanical Engineering, Mechanical Systems, Miniature Engineering Systems, Professional, and Thermofluids. A program of study, satisfying track requirements, must be developed prior to the completion of 9 credit hours and meet with departmental approval.

The thesis option requires 30 credit hours, at least half of which must be at the 6000 level and will include 6 credit hours of thesis credit. 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.

The non-thesis option is primarily designed to meet the needs of part-time students and requires 36 credit hours of course work, at least 15 of which must be at the 6000 level. In addition, students pursuing the non-thesis option are required to pass a final comprehensive exam and to take EML 6085 Research Methods in MMAE as part of their 36-credit-hour course requirement.

A student with an undergraduate degree outside of the selected departmental discipline may be required to satisfy an articulation program. Substitutions to the program of study must meet with the approval of the adviser and the department. Further information is available in the Master's Degree General Procedures manual available from the MMAE Department (<http://www-mmae.engr.ucf.edu>).

## Computer-Aided Mechanical Engineering Track

### Prerequisites (or equivalent)

- Mathematics through Differential Equations (MAP 2302)
- Modeling Methods in Mechanical and Aerospace Engineering (EML 3034)
- Thermodynamics of Mechanical Systems (EML 3101)
- Structure and Properties of Materials (EGN 3365)
- Machine Design and Analysis (EML 3500)

### Required Courses—6 Credit Hours

All students must take the following two required courses.

- EML 5060 Mathematical Methods in Mechanical, Materials and Aerospace Engineering (3 credit hours)
- EML 5211 Continuum Mechanics (3 credit hours)

Students must take at least four courses from the track specialty courses below. Additional courses to satisfy total credit hour requirements (30 credit hours thesis option, 36 credit hours non-thesis option) may be taken from the list of representative electives below or from the remaining MMAE course offerings. Students should consult with their faculty adviser (or graduate program coordinator if they do not have a faculty adviser) prior to registering for classes. Note that thesis option students must take 6 credit hours of thesis and non-thesis option students must take Research Methods in MMAE. Thesis students must continue to enroll in one credit hour of thesis course work (XXX 6971) until the thesis requirement is satisfied, beyond the minimum of 6 credit hours of thesis.

## Track Specialty Courses—12 Credit Hours Minimum

- EGN 5858C Introduction to Rapid Prototyping (3 credit hours)
- EML 5025C Engineering Design Practice (3 credit hours)
- EML 5532C Computer-Aided Design for Manufacture (3 credit hours)
- EML 6062 Boundary Elements Methods in Engineering (3 credit hours)
- EML 6067 Finite Elements in Mechanical, Materials and Aerospace Engineering I (3 credit hours)
- EML 6068 Finite Elements in Mechanical, Materials, and Aerospace Engineering II (3 credit hours)
- EML 6725 Computational Fluid Dynamics and Heat Transfer I (3 credit hours)
- EML 6726 Computational Fluid Dynamics and Heat Transfer II (3 credit hours)

## Representative Electives—12-18 Credit Hours

- EAS 6138 Advanced Gas Dynamics (3 credit hours)
- EAS 6185 Turbulent Flow (3 credit hours)
- EML 5105 Gas Kinetics and Statistical Thermodynamics (3 credit hours)
- EML 5402 Turbomachinery (3 credit hours)
- EML 6155 Convection Heat Transfer (3 credit hours)
- EML 6712 Mechanics of Viscous Flow (3 credit hours)
- EML 5066 Computational Methods in Mechanical, Materials and Aerospace Engineering (3 credit hours)
- EML 5131 Combustion Phenomena (3 credit hours)
- EML 5152 Intermediate Heat Transfer (3 credit hours)
- EML 5713 Intermediate Fluid Mechanics (3 credit hours)
- EML 5532C Computer-Aided Design for Manufacture (3 credit hours)
- EML 6154 Conduction Heat Transfer (3 credit hours)
- EML 5237 Intermediate Mechanics of Materials (3 credit hours)
- EML 5546 Engineering Design with Composite Materials (3 credit hours)
- EMA 5106 Metallurgical Thermodynamics (3 credit hours)
- EMA 5108 Surface Science (3 credit hours)
- EMA 5326 Corrosion Science and Engineering (3 credit hours)
- EMA 6628 Materials Failure Analysis (3 credit hours)
- EML 6971 Thesis (6 credit hours)
- EML 6085 Research Methods in MMAE (required for non-thesis option) (3 credit hours)

Comprehensive Examination

Minimum Hours Required for M.S.M.E.—30 or 36 Credit Hours

## Mechanical Systems Track

### Prerequisites (or equivalent)

- Mathematics through Differential Equations (MAP 2302)
- Modeling Methods in Mechanical and Aerospace Engineering (EML 3034)
- Machine Design and Analysis (EML 3500)
- Vibration Analysis (EML 4220)
- Experimental Techniques in Mechanics and Materials (EMA 3012C)
- Feedback Control (EML 3312C)

## Required Courses—6 Credit Hours

All students must take the following two required courses.

- EML 5060 Mathematical Methods in Mechanical, Materials, and Aerospace Engineering (3 credit hours)
- EML 5211 Continuum Mechanics (3 credit hours)

Students must take at least four courses from the track specialty courses below. Additional courses to satisfy total semester hour requirements (30 credit hours thesis option, 36 credit hours non-thesis option) may be taken from the list of representative electives below or from the remaining MMAE course offering. Students should consult with their faculty adviser (or graduate program coordinator if they do not have a faculty adviser) prior to registering for classes. Note that thesis option students must take 6 credit hours of thesis and non-thesis option students must take Research Methods in MMAE. Thesis students must continue to enroll in one credit hour of thesis course work (EML 6971) until the thesis requirement is satisfied, beyond the minimum of 6 credit hours of thesis.

### Track Specialty Courses—12 Credit Hours (Minimum)

- EML 5311 System Control (3 credit hours)
- EML 5271 Intermediate Dynamics (3 credit hours)
- EML 5546 Engineering Design with Composite Materials (3 credit hours)
- EML 6067 Finite Elements in Mechanical, Materials and Aerospace Engineering I (3 credit hours)
- EML 6068 Finite Elements in Mechanical, Materials and Aerospace Engineering II (3 credit hours)
- EML 6062 Boundary Element Methods in Engineering (3 credit hours)
- EML 6227 Nonlinear Vibration (3 credit hours)
- EML 6305C Experimental Mechanics (3 credit hours)
- EML 6547 Engineering Fracture Mechanics in Design (3 credit hours)

## Representative Electives—12-18 Credit Hours

- EMA 5104 Intermediate Structure and Properties of Materials (3 credit hours)
- EMA 5504 Modern Characterization of Materials (3 credit hours)
- EMA 6628 Materials Failure Analysis (3 credit hours)
- EML 5025C Engineering Design Practice (3 credit hours)
- EML 5066 Computational Methods in Mechanical, Materials and Aerospace Engineering (3 credit hours)
- EML 5224 Acoustics (3 credit hours)
- EML 5228C Modal Analysis (3 credit hours)
- EML 5245 Tribology (3 credit hours)
- EML 5237 Intermediate Mechanics of Materials (3 credit hours)
- EML 5532C Computer-Aided Design for Manufacture (3 credit hours)
- EML 5572 Probabilistic Methods in Design (3 credit hours)
- EML 6808 Analysis and Control of Robot Manipulators (3 credit hours)
- EML 6223 Advanced Vibrational Systems (3 credit hours)
- EML 6226 Analytical Dynamics (3 credit hours)
- EML 6653 Theory of Elasticity (3 credit hours)
- EML 6971 Thesis (6 credit hours)
- EML 6085 Research Methods in MMAE (required for non-thesis option) (3 credit hours)

Comprehensive Examination

Minimum Hours Required for M.S.M.E.—30 or 36 Credit Hours

## Miniature Engineering Systems Track

### Required Courses

- EML 5060 Math Methods in MMAE (3 credit hours)
- EML 5XXX Introduction of MEMS and Micromachining (3 credit hours)

## Track Specialty Courses (3 courses from the following list)

- EML 6XXX MEMS Mechanism and Design (3 credit hours)
- EML 5XXX Fundamental Phenomena and Scaling Laws in Miniature Engineering Systems (3 credit hours)
- EEL 6XXX MEMS Fabrication Laboratory (3 credit hours)
- EML 5211 Continuum Mechanics (3 credit hours)
- EML 6XXX Advanced Topics on Miniaturization (3 credit hours)
- EML 6XXX MEMS Characterization (3 credit hours)
- EMA 5104 Intermediate Structure and Properties of Materials (3 credit hours)
- EML 6XXX Sensors and Actuators for Micro Mechanical Systems (3 credit hours)
- EML 5XXX MEMS Materials (3 credit hours)

## Elective Courses (3 courses from the following list or from Specialty List)

- EML 5025C Engineering Design Practice (3 credit hours)
- EGN 5858C Rapid Prototyping (3 credit hours)
- EML 5271 Intermediate Dynamics (3 credit hours)
- EML 5152 Intermediate Heat Transfer (3 credit hours)
- EML 6712 Mechanics of Viscous Flow (3 credit hours)
- EML 6155 Convection Heat Transfer (3 credit hours)
- EML 5713 Intermediate Fluid Mechanics (3 credit hours)
- EML 6725 Computational Fluid Dynamics and Heat Transfer I (3 credit hours)
- EML 6104 Classical Thermodynamics (3 credit hours)
- EML 5402 Turbomachinery (3 credit hours)
- EML 6157 Radiation Heat Transfer (3 credit hours)
- EML 5245 Tribology (3 credit hours)
- EMA 5108 Surface Science (3 credit hours)
- EMA 5504 Modern Characterization of Materials (3 credit hours)
- EMA 5584 Biomaterials (3 credit hours)
- EML 5311 System Control (3 credit hours)
- EML 5105 Gas Kinetics and Statistical Thermodynamics (3 credit hours)
- EEL 5XXX Applied Control Systems (3 credit hours)
- EML 5546 Engineering Design with Composite Materials (3 credit hours)

Students on the thesis option will take at least 6 credit hours of thesis. Students with non-thesis option need to (1) take three more courses from the Track Specialty or Elective lists, (2) take EML 6085 (Research Methods), and (3) pass the MS Comprehensive Examination.

Comprehensive Examination

Minimum Hours Required for M.S.M.E.—30 or 36 Credit Hours

## Professional Track

### Prerequisites (or equivalent)

- Mathematics through Differential Equations (MAP 2302)
- Modeling Methods in Mechanical and Aerospace Engineering (EML 3034)
- Thermodynamics of Mechanical Systems (EML 3101)
- Structure and Properties of Materials (EGN 3365)
- Mechanics of Materials (EGN 3331)

### Required Courses—6 Credit Hours

All students must take the following two required courses.

- EML 5060 Mathematical Methods in Mechanical Materials and Aerospace Engineering (3 credit hours)

- EML 5211 Continuum Mechanics (3 credit hours)

Students must take at least four courses from the track specialty courses below. Additional courses to satisfy total semester hour requirements (30 credit hours thesis option, 36 credit hours non-thesis option) may be taken from the list of representative electives below or from the remaining MMAE course offering. Students should consult with their faculty adviser (or graduate program coordinator if they do not have a faculty adviser) prior to registering for classes. This track is intended mainly for part-time students and may be taken under non-thesis or thesis options. Thesis option students must take 6 credit hours of thesis and non-thesis option students must take Research Methods in MMAE. Thesis students must continue to enroll in one credit hour of thesis course work (EML 6971) until the thesis requirement is satisfied, beyond the minimum of 6 credit hours of thesis.

## Track Specialty Courses—12 Credit Hours Minimum

- EMA 6628 Materials Failure Analysis (3 credit hours)
- EML 5131 Combustion Phenomena (3 credit hours)
- EML 5402 Turbomachinery (3 credit hours)
- EML 5532C Computer-Aided Design for Manufacture (3 credit hours)
- EML 6062 Boundary Elements Methods in Engineering (3 credit hours)
- EML 6155 Convection Heat Transfer (3 credit hours)
- EML 6226 Analytical Dynamics (3 credit hours)
- EML 6067 Finite Elements in Mechanical, Materials and Aerospace Engineering I (3 credit hours)
- EML 6305C Experimental Mechanics (3 credit hours)
- EML 6547 Engineering Fracture Mechanics in Design (3 credit hours)
- EML 6712 Mechanics of Viscous Flow (3 credit hours)
- EML 6725 Computational Fluid Dynamics and Heat Transfer I (3 credit hours)

## Representative Electives—12-18 Credit Hours

- EML 5025C Engineering Design Practice (3 credit hours)
- EML 5105 Gas Kinetics and Statistical Thermodynamics (3 credit hours)
- EAS 6138 Advanced Gas Dynamics (3 credit hours)
- EAS 6185 Turbulent Flow (3 credit hours)
- EML 5066 Computational Methods in Mechanical, Materials and Aerospace Engineering (3 credit hours)
- EML 5131 Combustion Phenomena (3 credit hours)
- EML 5152 Intermediate Heat Transfer (3 credit hours)
- EML 5713 Intermediate Fluid Mechanics (3 credit hours)
- EML 6068 Finite Elements in Mechanical, Materials, and Aerospace Engineering II (3 credit hours)
- EML 6726 Computational Fluid Dynamics and Heat Transfer II (3 credit hours)
- EML 5237 Intermediate Mechanics of Materials (3 credit hours)
- EML 5546 Engineering Design with Composite Materials (3 credit hours)
- EMA 5106 Metallurgical Thermodynamics (3 credit hours)
- EMA 5108 Surface Science (3 credit hours)
- EMA 5326 Corrosion Science and Engineering (3 credit hours)
- EML 6971 Thesis (6 credit hours)
- EML 6085 Research Methods in MMAE (required for non-thesis option) (3 credit hours)

Comprehensive Examination

Minimum Hours Required for M.S.M.E.—30 or 36 Credit Hours

## Thermofluids Track

### Prerequisites (or equivalent)

- Mathematics through Differential Equations (MAP 2302)
- Modeling Methods in Mechanical and Aerospace Engineering (EML 3034)
- Thermodynamics of Mechanical Systems (EML 3101)

- Fluid Mechanics II (EML 4703)
- Heat Transfer (EML 4142)

## Required Courses—6 Credit Hours

All students must take the following two required courses.

- EML 5060 Mathematical Methods in Mechanical, Materials and Aerospace Engineering (3 credit hours)
- EML 5211 Continuum Mechanics (3 credit hours)

Students must take at least four courses from the track specialty courses below. Additional courses to satisfy total semester hour requirements (30 credit hours thesis option, 36 credit hours non-thesis option) may be taken from the list of representative electives below or from the remaining MMAE course offering. Students should consult with their faculty adviser (or graduate program coordinator if they do not have a faculty adviser) prior to registering for classes. Note that thesis option students must take 6 credit hours of thesis and non-thesis option students must take Research Methods in MMAE. Thesis students must continue to enroll in one credit hour of thesis course work (EML 6971) until the thesis requirement is satisfied, beyond the minimum of 6 credit hours of thesis.

## Track Specialty Courses—12 Credit Hours Minimum

- EML 5105 Gas Kinetics and Statistical Thermodynamics (3 credit hours)
- EML 5402 Turbomachinery (3 credit hours)
- EML 6062 Boundary Element Methods in Engineering (3 credit hours)
- EML 6155 Convection Heat Transfer (3 credit hours)
- EML 6157 Radiation Heat Transfer (3 credit hours)
- EML 6712 Mechanics of Viscous Flow (3 credit hours)
- EML 6725 Computational Fluid Dynamics and Heat Transfer I (3 credit hours)
- EML 6726 Computational Fluid Dynamics and Heat Transfer II (3 credit hours)

## Representative Electives—12-18 Credit Hours

- EAS 5302 Direct Energy Conversion (3 credit hours)
- EAS 5315 Rocket Propulsion (3 credit hours)
- EAS 6138 Advanced Gas Dynamics (3 credit hours)
- EAS 6185 Turbulent Flow (3 credit hours)
- EML 5025C Engineering Design Practice (3 credit hours)
- EML 5066 Computational Methods in Mechanical, Materials and Aerospace Engineering (3 credit hours)
- EML 5131 Combustion Phenomena (3 credit hours)
- EML 5152 Intermediate Heat Transfer (3 credit hours)
- EML 5713 Intermediate Fluid Mechanics (3 credit hours)
- EML 5532C Computer-Aided Design for Manufacture (3 credit hours)
- EML 6104 Classical Thermodynamics (3 credit hours)
- EML 6124 Two-Phase Flow (3 credit hours)
- EML 6154 Conduction Heat Transfer (3 credit hours)
- EML 6158 Gaseous Radiation Heat Transfer (3 credit hours)
- EML 6726 Computational Fluid Dynamics and Heat Transfer II (3 credit hours)
- EML 6971 Thesis (6 credit hours)
- EML 6085 Research Methods in MMAE (required for non-thesis option) (3 credit hours)

Comprehensive Examination

Minimum Hours Required for M.S.M.E.—30 or 36 Credit Hours

# Doctor of Philosophy (Ph.D.) in Mechanical Engineering

The Doctor of Philosophy (Ph.D.) degree is intended for students with a master's degree in mechanical or aerospace engineering or a closely related discipline. The program is designed to allow students to study in depth, with emphasis on research in Aerospace Systems, Materials Science and Engineering, Mechanical Systems, or Thermofluids.

## Admission Requirements

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 an accredited institution. Students must submit an application for graduate admission, including a resume, goals statement, and three letters of recommendation.

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 Thermofluids; (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.

[Application Deadlines](#)

## Degree Requirements

### Graduate Student Entering the Ph.D. Program with a B.S.

For a graduate student with a B.S. degree, the following are the minimum Mechanical Engineering Ph.D. program requirements: 72 credit hours of graduate course work, of which 57 credit hours are the minimum hours of course work (may include up to 12 credit hours of directed research with approved Program of Study) and 15 credit hours are the minimum hours of dissertation. The rest of the hours in the Ph.D. program can be chosen by the student in consultation with the adviser and the dissertation committee and with the approval of the graduate program coordinator. These may include doctoral directed research hours or doctoral dissertation hours.

Minimum Course Work (may include up to 12 credit hours of directed research)—57 Credit Hours

Doctoral Dissertation—15 Credit Hours

Minimum Hours Required for Ph.D.—72 Credit Hours

### Graduate Student Entering the Ph.D. Program with an M.S.:

For a graduate student with an M.S. degree the following are the minimum Mechanical Engineering Ph.D. program requirements: 36 credit hours of graduate course work beyond the master's degree, of which 21 credit hours are the minimum number of hours of course work and 15 credit hours are the minimum hours of doctoral dissertation hours. The rest of the hours in the Ph.D. program can be chosen by the student in consultation with the adviser and the dissertation committee and with the approval of the graduate program coordinator. These credit hours may include doctoral directed research hours or doctoral dissertation hours. Non-thesis M.S. degree students may take up to 9 credit hours of directed research, while M.S. thesis option students may take up to 12 credit hours of directed research toward fulfillment of additional minimum course work beyond the M.S.

Minimum Course Work (may include up to 12 credit hours of directed research)—21 (27) Credit Hours\*

Doctoral Dissertation—15 Credit Hours

Minimum Hours Required for Ph.D.—36 (42) Credit Hours\*

\* For students who have completed a thesis option at the master's level with no additional course work, the minimum requirement for course work will be 27 hours.

NOTES:

- UCF requires that a full-time Ph.D. student be registered for 9 hours Fall and Spring semesters and 6 credit hours Summer semester.
- The University of Central Florida requires that a Ph.D. student be registered for 3 hours of doctoral dissertation hours upon completion of the candidacy exam and every semester thereafter until graduation.
- The MMAE department requires that a Ph.D. student submit his/her candidacy exam the academic semester immediately following

his/her successfully passing the Ph.D. Qualifying Exam.

- No more than 12 credit hours of directed doctoral research may be taken toward fulfilling degree program of study course work requirements.
- Unless a completed (signed) program of study (POS) itemizing the study plan is approved prior to the end of the first semester of studies, the graduate program coordinator of the MMAE department may choose not to accept any part of the course work (including independent studies and/or directed research) taken by the student on a program of study subsequently submitted by the student.

## 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 (<http://www-mmae.engr.ucf.edu>).

## Dissertation Committee

- The Dean, through the Chairs, is responsible for committee formation, additions, and deletions. The doctoral committee must consist of a minimum of five members: three must be faculty members from within the student's department, and one must be at large from outside the Mechanical, Materials, and Aerospace Engineering Department. The committee Chair must be a member of the department graduate faculty approved to direct dissertations. Joint faculty members serve as department-faculty committee members as well as chairs of dissertation committees. Adjunct faculty and off-campus experts may serve as the outside-the-college person in the committee. Program areas may further specify additional committee membership. The Office of Graduate Studies reserves the right to review appointments to advisory committees, place a representative on any advisory committee, or appoint a co-adviser.
- In unusual cases, with approval from the program Chair, two professors may chair the committee jointly. Joint faculty members may serve as committee chairs, but off-campus experts and adjunct faculty may not serve as committee chairs.
- 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.



# Education - Ph.D.

## Description

College of Education The Doctor of Philosophy in Education Program is a college-wide program. Graduate Program Coordinator: Dr. E. H. Robinson, (407) UCF-3819. E-mail: [edphd@mail.ucf.edu](mailto:edphd@mail.ucf.edu) Web Address: <http://edcollege.ucf.edu>

The Ph.D. in Education is a research-oriented degree appropriate for educators from school districts, businesses, industry, educational agencies, and other educational settings who need a strong research base in their careers. It is the intent of this program to be interdisciplinary, allowing flexibility for students who will work in research clusters and learning communities with faculty on education-related research. Programs of study can be designed for those educators who seek faculty positions in a research university or research-oriented education positions in business and industry. The doctoral program offers six tracks: Counselor Education, Elementary Education, Exceptional Education, Exercise Physiology, Instructional Technology, and Mathematics Education.

## Degrees Offered

### Doctor of Philosophy in Education (Ph.D.)

- o Counselor Education Track
- o Elementary Education Track
- o Exceptional Education Track
- o Exercise Physiology Track
- o Instructional Technology Track
- o Mathematics Education Track

## Admission Requirements

[Doctoral Programs in the College of Education](#)

[Application Deadlines](#)

## Degree Requirements

Minimum Hours Required for Ph.D.—99 Credit Hours

## Prerequisites

Master's degree in education with an emphasis related to one of the six tracks in the Ph.D. program: Counselor Education, Elementary Education, Exceptional Education, Exercise Physiology, Instructional Technology, and Mathematics Education, including master's level competency in educational research and statistics.

## Core Courses—24 Credit Hours

- IDS 7501 Issues and Research in Education (3 credit hours)
- IDS 7XXX Research Cluster Seminar (3 credit hours)
- IDS 7500 Seminar in Educational Research (variable credit and repeatable, 6 credit hours)
- EDF 7475 Qualitative Research Methods in Education (3 credit hours)
- EDF 7403 Quantitative Foundations of Educational Research (3 credit hours)
- EDF 7463 Analysis of Survey, Record and other Qualitative Data (3 credit hours)
- IDS 7502 Case Studies in Educational Research (3 credit hours)

## Counselor Education Track— 51 Credit Hours Minimum

- MHS 7406 Advanced Theories in Counseling (3 credit hours)
- MHS 7901 Advanced Practicum in Counselor Education (3 credit hours)
- MHS 6510 Advanced Group Counseling (3 credit hours)
- MHS 7700 Professional Issues in Counselor Education (3 credit hours)
- MHS 7311 Technology Issues in Counselor Education (3 credit hours)
- MHS 7611 Supervision in Counselor Education (3 credit hours)
- MHS 7808 Practicum in Counseling Supervision (3 credit hours)
- MHS 7840 Internship in Counselor Education (repeatable) (6 credit hours)
- MHS 7340 Advanced Career Development (3 credit hours)
- MHS 6221 Individual Psychoeducational Testing II (3 credit hours)
- MHS 7730 Research Seminar in Counselor Education (3 credit hours)

## Elementary Education Track—51 Credit Hours Minimum

- Philosophical Foundations for Studies in Education (3 credit hours)
- Writing for Professional Publication in Education (3 credit hours)
- Elementary Education Internship (variable credit) (3-6 credit hours)
- Area/s of emphases: four (4) additional courses in one or more areas including: Science Education, Literacy Education., Technology Education, or Arts Education with one course from outside the college in a related field of study (12 credit hours)

## Exceptional Education Track—51 Credit Hours Minimum

- MHS 7901 Advanced Practicum (3 credit hours)
- MHS 7406 Advanced Theory of Counseling (3 credit hours)
- MHS 6510 Advanced Group Counseling (3 credit hours)
- MHS 7700 Professional Issues in Counselor Education (3 credit hours)
- MHS 7311 Technology Issues in Counselor Education (3 credit hours)
- MHS 7340 Advanced Career Development (3 credit hours)
- MHS 7611 Supervision in Counselor Education (3 credit hours)
- MHS 7808 Practicum in Counseling Supervision (3 credit hours)
- MHS 6221 Individual Psychoeducational Testing II (3 credit hours)
- MHS 7840 Internship in Counselor Education (6 hours)
- MHS 7730 Research Seminar in Counselor Education (3 credit hours)
- EEX 7XXX Program Evaluation and Planning in Special Education (3 credit hours)

## Instructional Technology Track—51 Credit Hours Minimum

- Previous master's in related area (up to 30 credit hours)
- Cognate or elective; approved by adviser (3 credit hours)
- EME 7XXX Theories of Adult Learning (3 credit hours)
- EME 7XXX International Issues in Technology (3 credit hours)
- EME 7XXX Instructional Technology Internship (3 credit hours)
- EME 7634 Advanced Instructional Systems Design (3 credit hours)
- IDS 7XXX Research Seminar in Instructional Technology (6 credit hours)

## Mathematics Education Track—51 Credit Hours Minimum

- MAE 7940 History of Mathematics Education (3 credit hours)
- MAE 7795 Seminar on Research in Mathematics Education (6 credit hours)
- MAE 6946 Mathematics Education Internship (6 credit hours)
- MAE 6XXX Technology in Mathematics Education (3 credit hours)
- MAE 6XXX Seminar in Mathematics Education (3 credit hours)
- MAE 6946 Practicum in Mathematics Education (3 credit hours)

## Internship—3 Credit Hours Minimum

Specialization in all tracks must include 3 credit hours of internship (minimum)

## Dissertation—24 Credit Hours Minimum

Doctoral students must present a prospectus for the dissertation to the doctoral adviser, prepare a proposal and present to the dissertation committee, and defend the final research submission with the dissertation committee.

## Candidacy

To enter candidacy for the Ph.D., students must have an overall 3.0 grade point average on all graduate work included in the planned program and pass all required examinations.

## Candidacy Examinations

- Examinations must be completed prior to admission to candidacy.
- Examinations will be scheduled by the student and major adviser. The Associate Dean for Graduate Studies and Research must be notified of the date and location of the exam 30 days in advance.
- All Ph.D. candidates will be required to complete two examinations. Students must be enrolled in the university during the semester an examination is taken.
- Research in the Specialization—8-hour written examination
- Specialization—3-hour oral examination

# English

## Description

College of Arts and Sciences Department of English Chair of the Department: Patrick Murphy Graduate Programs Coordinator: James Campbell, CNH 405B, (407) 823-5254. E-mail: [englgrad@pegasus.cc.ucf.edu](mailto:englgrad@pegasus.cc.ucf.edu) Web address: <http://www.cas.ucf.edu/english/> Texts and Technology Ph.D. Coordinator: Craig Saper, CNH 405A, (407) 823-5329 Texts and Technology web address: <http://www.textsandtech.org>

The Department of English offers a Master of Arts degree with tracks in Creative Writing, Literature, and Technical Writing, as well as the Ph.D. in Texts and Technology. It also offers a Graduate Certificate in Professional Writing. Each part of the graduate program emphasizes the enhancement of critical thinking and writing skills useful for career development in academic and professional settings. The program is designed for students interested in intellectual and practical questions of aesthetics, critique, culture, text, and interpretation.

## Degrees Offered

Master of Arts in English (M.A.)

- Creative Writing Track
- Literature Track
- Technical Writing Track

Doctor of Philosophy in Texts and Technology (Ph.D.)

## Faculty

Professors: D. R. Jones, Ph.D.; P. Murphy, Ph.D.; S. E. Omans, Ph.D.; C.J. Saper, Ph.D.; J. F. Schell, Ph.D.; G. J. Schiffhorst, Ph.D.; K. L. Seidel, Ph.D., Dean of the College of Arts and Sciences; D. L. Stap, Ph.D.; D. Trouard, Ph.D.

Associate Professors: B. Barnes, Ph.D.; J. Bartkevicius, Ph.D.; K. L. Bell, Ph.D.; J. Campbell, Ph.D.; P. Dombrowski, Ph.D.; J. J. Donnelly, Ph.D.; M. Flammia, Ph.D.; J. Hemschemeyer, M.A.; S. Hubbard, M.F.A.; I. Lamazares, Ed.D.; A. Lillios, Ph.D.; L. Logan, Ph.D.; K. Meehan, Ph.D.; C. Rodríguez Milanés, D.A.; P. J. Rushin, M.A.; E. Smith, Ph.D.; M. E. Sommer, Ed.D.; A D. Wallace, Ph.D.

Assistant Professors: J. D. Applen, Ph.D.; M. Bowdon, Ph.D.; L. Casmier-Paz, Ph.D.; A. Davidson, Ph.D.; A. Grajeda, Ph.D.; P. Hammons, Ph.D.; A. Jones, Ph.D.; M. Kamrath, Ph.D.; K. Kitalong, Ph.D.; J. Leiby, M.F.A.; M. Marinara, Ph.D.; B. Mauer, Ph.D.; T. Pugh, Ph.D.; B. Scott, Ph.D.; B. Young, Ph.D.

Visiting Instructors: L. Brodtkin, M.A.; D. Fox, Ph.D.

## Master of Arts in English

### Admission Requirements

Minimum requirements for admission are a baccalaureate degree, a grade point average (GPA) of 3.0 for the last 60 semester hours earned as an undergraduate, a score of 1000 or better on the combined verbal and quantitative sections of the Graduate Record Examination (GRE), two letters of recommendation, a writing sample with a statement of background and goals, resume, and approval by the Graduate Committee of the Department of English. Students must prove proficiency in a foreign language at the first-year level prior to completing the degree program. International students must score at least 233 (computer-based test; or equivalent score on the paper-based test) on the Test of English as a Foreign Language (TOEFL) and submit evaluated transcripts.

Creative writing students must submit (by January 15 for fall term) a portfolio of fiction, poetry, drama, or creative nonfiction and a statement of background and goals that are acceptable to the faculty. A student with a baccalaureate degree in a subject other than English will be required to take graduate survey courses in British and American literature.

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. A student with a baccalaureate degree in a subject other than English will be required to take graduate survey courses in British and American literature. Literature students must submit a writing sample (documented critical essay) and a statement of background and goals that are acceptable to the faculty.

Technical writing students are expected to have strong writing skills and must submit a piece of professional writing that is acceptable to the faculty and a statement of background and goals with their application. The faculty may require entering students to take ENC 3241 to improve their writing skills. Students must also have some minimum technical writing exposure, either from education or work; the faculty may require entering students to take ENC 4293 to prepare them for graduate work in technical writing.

[Application Deadlines](#)

## Degree Requirements

Students must select one of the tracks for their program of study: Creative Writing, Literature, or Technical Writing. The M.A. degree requires completion of 33 credit hours minimum.

## Creative Writing Track

Each student must complete at least 33 credit hours, including 6 credit hours of writing workshops. Near the end of the degree program, each candidate will write a creative thesis.

### Required Creative Writing Courses—6 Credit Hours

- CRW 5020 Graduate Writing Workshop (3 credit hours)
- CRW 6025 Advanced Graduate Writing Workshop (3 credit hours)

### Restricted Creative Writing Electives—6 Credit Hours

- CRW 5020 Graduate Writing Workshop (3 credit hours) May be repeated for credit
- CRW 5056 Form and Theory of Nonfiction (3 credit hours)
- CRW 5932 Teaching Creative Writing (3 credit hours)
- CRW 5937 Special Topics Seminar
- CRW 6025 Advanced Graduate Writing Workshop (3 credit hours) May be repeated for credit

### Required Literature Courses—6 Credit Hours

- LIT 5039 Studies in Contemporary Poetry (3 credit hours)
- LIT 5097 Studies in Contemporary Fiction (3 credit hours)
- LIT 5XXX Studies in Contemporary Memoirs (3 credit hours)

### Literature Electives—6 Credit Hours

- LIT 6009 Literary Genres (3 credit hours)
- LIT 6105 World Literature (3 credit hours)
- LIT 6246 Major Authors (3 credit hours)
- LIT 6365 Movements in Literature (3 credit hours)

### Electives—3 Credit Hours

### Thesis—6 Credit Hours

The candidate will complete a book-length manuscript (fiction, poetry, or other genre) of publishable quality, written and revised in CRW 6971, Thesis, that will meet both departmental and university requirements for the thesis. There is no non-thesis option in creative writing.

## Literature Track

Each student must complete at least 33 credit hours, including one course in linguistics and six 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 or (b) complete 6 additional credit hours in 6000-level literature courses.

### Required Courses—21 Credit Hours

- ENG 5009 Methods of Bibliography and Research (3 credit hours)
- ENG 5018 Literary Criticism (3 credit hours)
- LIN 5137 Linguistics (or an equivalent) (3 credit hours)\*
- LIT 6009 Literary Genres (3 credit hours)
- LIT 6105 World Literature (3 credit hours)
- LIT 6246 Major Authors (3 credit hours)
- LIT 6365 Movements in Literature (3 credit hours)

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

### Electives—6 Credit Hours

Comprehensive Examination—A written exam, based on a 50-book list, consisting of short answers and essay questions. More information available in the English Department's "Graduate Student Handbook," available for download at <http://www.cas.ucf.edu/english/>.

### Specialization—Choose A or B—6 Credit Hours

A. Thesis Option—The candidate will complete a formal thesis on a topic selected in consultation with an advisory committee and will meet both departmental and university requirements for the thesis. The student will also enroll in LIT 6971 Thesis.

B. Course Option—The candidate will also complete 6 additional hours in 6000-level literature courses.

## Technical Writing Track

Each student must complete at least 33 credit 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 6918 (3 credit hours), completing a formal thesis or project approved by the faculty.

### Required Courses—15 Credit Hours

- ENC 5214 Production and Publication Methods (3 credit hours)
- ENC 5337 Modern Rhetorical Theory (3 credit hours)
- ENC 6217 Technical Writing (3 credit hours)
- ENC 6261 Technical Writing: Theory and Practice (3 credit hours)
- ENG 5009 Methods of Bibliography and Research (3 credit hours)

### Restricted Electives—9 Credit Hours

- ENC 5219 Graphics in Technical Writing (3 credit hours)
- ENC 5306 Persuasive Writing (3 credit hours)
- ENC 5344 Proposal Writing (3 credit hours)
- ENC 6244 Teaching Technical Writing (3 credit hours)
- ENC 6292 Project Management for Technical Writers (3 credit hours)
- ENC 6296 Computer Documentation (3 credit hours)

Advised Electives—6 Credit Hours

Two courses from outside the Department of English or other graduate-level English courses.

Comprehensive Examination—A written exam based on four of the core courses (excluding ENG 5009) and two concentration areas designed by the student. More information available in the English Department's "Graduate Student Handbook," available for download at <http://www.cas.ucf.edu/english/>.

## Specialization—Choose A or B—3 Credit Hours

A. Thesis Option—The candidate will complete a formal thesis selected in consultation with an advisory committee and will meet both departmental and university requirements for the thesis. The student will enroll in ENC 6971 Thesis for 3 credit hours of credit.

B. Special Project—The candidate will enroll in ENC 6918 Directed Research for 3 credit hours of credit 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.

# Doctor of Philosophy in Texts and Technology

The Texts and Technology Ph.D. program extrapolates traditional English textual studies in various media into the digital future. Texts include visual, audio, multimedia, hypertexts, and other digital material as well as printed and spoken words. The curriculum emphasizes theory and practice in new media, as well as historical grounding in pre-digital media studies. Both a teaching practicum and professional internship experience are required of all students to familiarize them with textual technologies from both academic and professional perspectives.

Graduates will be prepared for academic research, teaching, and leadership in program development, or for research in Web design, multimedia production, distributed education, entertainment, publishing or information architecture and visualization in the private sector.

[Go to Texts and Technology's degree webpage](#)

# Applied Sociology

## Description

College of Arts and Sciences Department of Sociology and Anthropology Chair of the Department: Dr. Jay Corzine Graduate Program Coordinator: Dr. John Lynxwiler, PH 409F, (407) 823-2227. E-mail: [jlynxwil@mail.ucf.edu](mailto:jlynxwil@mail.ucf.edu) Web address: [http://www.cas.ucf.edu/soc\\_anthro](http://www.cas.ucf.edu/soc_anthro)

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 track 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.

## Degrees Offered

Master of Arts in Applied Sociology (M.A.)

- Domestic Violence Track

## Faculty

Professor: J. Corzine, Ph.D.; J. Wright, Ph.D.

Associate Professors: I. J. Cook, Ph.D.; D. R. Dees, Ph.D.; D. A. Gay, Ph.D.; L. Huff-Corzine, Ph.D.; J. P. Lynxwiler, Ph.D.; J. Morris, Ph.D.; E. Mustaine, Ph.D.

Assistant Professors: S. Boeringer, Ph.D.; T. Dietz, Ph.D.; J. Ford, Ph.D.; W. Goldstein, Ph.D.; J. Jasinski, Ph.D.; S. Keeton, Ph.D.; B. Marshall, Ph.D.; J. Wesely, Ph.D.; E. Wright II, Ph.D.

## Master of Arts in Applied Sociology

### Admission Requirements

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 undergraduate GPA of 3.0 or better in the last 60 attempted semester hours of their undergraduate degree and demonstrate the potential for academic success through their performance on the quantitative and verbal sections of the Graduate Record Examination. The minimum GPA requirement will be waived for applicants whose combined GRE score (quantitative and verbal) exceeds 1000. 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 five years old. International students and students whose native language is not English must score at least 220 (computer-based test; or equivalent score on the paper-based test) on the Test of English as a Foreign Language (TOEFL).

The applicant's records will be reviewed on an individual basis for academic deficiencies. Supplemental course work may be recommended.



program. Consult the graduate program coordinator whenever questions arise.

[Application Deadlines](#)

## 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.

Requirements for MA—30 Credit Hours Minimum

### Required Courses—12 Credit Hours

- SYA 5625 Proseminar (3 credit hours)
- SYA 6126 Social Theory (3 credit hours)
- SYA 6305 Social Research (3 credit hours)
- SYA 6455 Research Analysis (3 credit hours)

### Electives—12 Credit Hours

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

### Thesis Option—6 Credit Hours

A minimum of 6 credit hours of thesis credit and a successful defense of a thesis is required. The thesis option is highly recommended for students interested in community college teaching and/or graduate work beyond the Master of Arts degree.

### Non-Thesis Option—6 Credit Hours

All of the department's graduate courses are research-oriented seminars; however, in lieu of the thesis, students must take additional courses (6 hours) in a chosen area of specialization. Non-thesis students may substitute up to 6 hours of their elective course work by completing a graduate practicum/internship (SYA 6946). The practicum must be approved by the student's advisory committee.

### Examination Requirements—Thesis Option

Mandatory requirements include the successful completion of a two-part written comprehensive examination and a final oral defense of thesis.

### Examination Requirements—Non-Thesis Option

Mandatory requirements include the successful completion of a two-part comprehensive written examination and an additional specialty project in the selected area of specialization.

Minimum Hours Required for M.A.—30 Semester Hours

## Domestic Violence Track

The specialty track in Domestic Violence is compatible with the Master of Arts in Applied Sociology Program's thesis and non-thesis options. The requirements of the track include a minimum of 30 credit hours, at least 15 of which must be at the 6000-level or above. Course work includes the following:

## Required Courses

- SYA 5625 Proseminar (3 credit hours)
- SYA 6126 Social Theory (3 credit hours)
- SYA 6305 Social Research (3 credit hours)
- SYA 6455 Research Analysis (3 credit hours)

The following two required electives:

- SYP 5562 Seminar on Domestic Violence: Theory, Research and Social Policy (3 credit hours)
- SYP 6563 Reactions to Domestic Violence (3 credit hours)

Two of the following restricted electives:

- SYA 6657 Program Design and Evaluation (3 credit hours)
- SYP 6561 Child Abuse in Society (3 credit hours)
- SYP 6565 Elder Abuse and Neglect (3 credit hours)

**Six additional hours selected with adviser's approval.**

Thesis Option—Minimum thesis hours (6 credit hours) and thesis defense

Non-Thesis Option—Two courses (6 credit hours) of graduate-level work and specialty project in an area selected by the student and approved by their Advisory Committee.

# Instructional Technology

## Description

College of Education Web Address: <http://edcollege.ucf.edu>

The College of Education offers master's programs in Instructional Technology, leading to a Master of Education degree or a Master of Arts degree. Three tracks are available and are designed to meet the needs of specific areas of instructional technology.

## Degrees Offered

### Master of Education in Instructional Technology (M.Ed.)

- o Educational Media Track (Online)

### Master of Arts in Instructional Technology (M.A.)

- o Educational Technology Track
- o Instructional Systems Track

NOTE: The tracks listed above are accredited by both NCATE (The National Council for the Accreditation of Teacher Education) and AECT (The Association for Educational Communications and Technology). The online Educational Media Track is also approved by the Florida Department of Education.

## Master of Education in Instructional Technology

Department of Teaching, Learning, and Principles Interim Chair of Department: Dr. Robert D. Williams Graduate Program Coordinator: Dr. J. R. Lee, (407) UCF-6139. E-mail: [jlee@pegasus.ucf.edu](mailto:jlee@pegasus.ucf.edu) Web address: <http://pegasus.cc.ucf.edu/~edmedia>

This Web-based, online (the Internet and e-mail) program leads to a Master of Education degree and certification as a school media specialist. The Educational Media Track is designed to offer skills in administration, production, instructional design, organization, selection, evaluation and research that relate to school library media programs. It stresses knowledge and applications of both present and future innovations and technologies for education.

The online 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.

[Master's Programs in the College of Education](#)

## Admission Requirements

To be considered for admission to the Educational Media Track, you must submit the university online application (available at <http://www.graduate.ucf.edu>) by the designated deadline. The online application will include several essay statements and three references (names/phone numbers) required for admission into the Educational Media Track. The essay statements to be included in the online graduate application can be found at the Educational Media website ((available at <http://pegasus.cc.ucf.edu/~edmedia> within Admissions Procedures: Online Educational Media Masters Program. An interview with the Educational Media Program Coordinator may be required. All required materials as well as acceptance by the UCF Office of Graduate Studies and the College of Education are required before a student can be accepted into the online Educational Media Track.

[Application Deadlines](#)

## Educational Media Track

#### Area A: Core—12 or 15 Credit Hours

- EDF 6155 Lifespan Human Development and Learning (3 credit hours)
- EDF 6481 Fundamentals of Graduate Research in Education (3 credit hours)
- EDF 6401 Statistics for Educational Data (3 credit hours) (currently not offered online) OR
- EDF 6432 Measurement and Evaluation in Education (3 credit hours)

#### Option A—Research Report

- EME 6909 Research Report (2,1 credit hours)

#### Option B—Non-Thesis Option

- EME 6062 Research in Instructional Technology (3 credit hours)
- EME Elective (approval of Ed Media faculty) (3 credit hours)

#### Area B: Specialization—24 Credit Hours

- EME 5051 Technologies of Instruction and Information Management (3 credit hours)
- EME 5208 Production Techniques for Instructional Settings (3 credit hours)
- EME 5225 Media for Children and Young Adults (3 credit hours)
- EME 6105 Collection Development Policies and Procedures (3 credit hours)
- EME 6605 Role of the Media Specialist in Curriculum and Instruction (3 credit hours)
- EME 6706 Administrative Principles in Media Centers (3 credit hours)
- EME 6805 Organization of Media and Information (3 credit hours)
- EME 6807 Information Sources and Services (3 credit hours)

#### Area C: Elective—3 Credit Hours

- EME 6209 Multimedia Instructional Systems II (3 credit hours)
- EME 6058 Current Trends in Educational Media (3 credit hours)
- EME 5408 Computer Applications in Instructional Technology (3 credit hours)
- LAE 4464 Survey of Adolescent Literature (3 credit hours)
- LAE 5415 Children's Literature in Elementary Education (3 credit hours)
- EME/other Elective with approval of Ed Media faculty

#### Area D: Internship

- EME 6946 Graduate Internship (Only required if the student has no media center experience) (3 credit hours)

# Master of Arts in Instructional Technology

Department of Educational Research, Technology and Leadership Chair of Department: Dr. Jeff Cornett

The Master of Arts in Instructional Technology Program offers two tracks: Educational Technology and Instructional Systems. Each track has its own graduate program coordinator and specific admission and degree requirements. For more information about these track, see below.

[Master's Programs in the College of Education](#)

## Educational Technology Track

Graduate Program Coordinator: G. Gunter, (407) UCF-3502. E-mail: [ggunter@pegasus.cc.ucf.edu](mailto:ggunter@pegasus.cc.ucf.edu)

Web address: <http://pegasus.cc.ucf.edu/~edtech>

This program leads to a Master of Arts degree and is designed for classroom teachers looking for ways to increase their technological skills and become highly skilled at successfully integrating technology into the curriculum. The skills and knowledge gained through this program allow

technology coordinators, technology instructors at the community college and university level, online instructors, computer teachers, instructional designers, and more. The Educational Technology program is exciting and applicable to your current K-12 situation. The program provides an opportunity for study, research, and professional training. It requires a great deal of independent thinking and emphasis is placed on the cultivation of scholarly attitudes and methods.

## Admission Requirements

To be considered for admission to the Educational Technology Track, you must submit a completed graduate application, including three letters of recommendation. In addition, you will need to submit a student information form, which can be obtained from the track website (<http://pegasus.cc.ucf.edu/~edtech>). An interview may be necessary. Acceptance by UCF Graduate Studies and the College of Education, in addition to the abovementioned materials, are required for acceptance into the Educational Technology Track.

### [Application Deadlines](#)

## Degree Requirements

### Minimum Hours Required for M.A.—36-39 Credit Hours

#### Area A: Core—9-12 Credit Hours

- EDF 6432 Measurement and Evaluation in Education (3 credit hours)
- EDF 6481 Fundamentals of Graduate Research in Education (3 credit hours)

#### Option A—Research Report

- EME 6909 Research Report (2,1 credit hours)

#### Option B—Non-thesis Option

- EME 6062 Research in Instructional Technology (3 credit hours)
- Elective (3 credit hours)

#### Area B: Specialization—18 Credit Hours

- EME 5050 Fundamentals of Technology for Educators (3 credit hours)
- EME 5052 Electronic Resources for Education (3 credit hours)
- EME 6405 Application Software for Educational Settings (3 credit hours)
- EME 6507 Multimedia in the Classroom (3 credit hours)
- EME 6602 Integrating Technology into the Curriculum (3 credit hours)
- EME 6707 Technology Coordinator in the Schools (3 credit hours)

#### Area C: Extension—6 Credit Hours

Electives in current certification area, technology, or other as approved by adviser. Courses not listed below require adviser approval.

- EME 5208 Production Techniques for Instructional Settings (3 credit hours)
- EME 6053 Current Trends in Instructional Technology (3 credit hours)
- EME 6207 Multimedia Instructional Systems I (3 credit hours)
- EME 6209 Multimedia Instructional Systems II (3 credit hours)
- EME 6457 Distance Education: Technology Process Product (3 credit hours)
- EME 6607 Planned Change in Instructional Technology (3 credit hours)
- EME 6613 Instructional System Design (3 credit hours)

#### Area D: Practicum—3 Credit Hours

- EME 6940 Theory into Practice in Educational Technology (3 credit hours)

# Instructional Systems Track

Graduate Program Coordinator: Gary Orwig, (407)823-5179. E-mail: [orwig@mail.ucf.edu](mailto:orwig@mail.ucf.edu) Web address: <http://pegasus.cc.ucf.edu/~instsys/>

The Instructional Systems Track 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.

[Master's Programs in the College of Education](#)

## Admission Requirements

To be considered for admission to the Instructional Systems Track, you must submit the university online graduate application (available at <http://www.graduate.ucf.edu>) by the designated deadline. Additionally, the Instructional Systems program requires three letters of recommendation from those familiar with your professional competencies and/or academic record, a goal statement, resume, and where deemed necessary, a personal interview. For further information, see <http://pegasus.cc.ucf.edu/~instsys>. All required materials as well as acceptance by the UCF Office of Graduate Studies and College of Education are required before a student can be accepted into the Instructional Systems Track. International students should pay particular attention to information for them found in the "Admission and Registration" section of the Graduate Catalog.

[Application Deadlines](#)

## Degree Requirements

Minimum Hours Required for M.A.—39-42 Credit Hours

Area A: Core—6 or 9 Credit Hours

- EDF 6481 Fundamentals of Graduate Research in Education (3 credit hours)

Select Option A, B, or C:

Option A

- EME 6909 Research Report (2,1 credit hours)

Option B

- EME 6971 Thesis (3 credit hours)

Option C

- EME 6062 Research in Instructional Technology (3 credit hours)
- Elective approved by adviser (3 credit hours)

Area B: Specialization—24 Credit Hours

- EME 5054 Instructional Systems Technology: A Survey of Applications (3 credit hours)
- EME 5056 Communication for Instructional Systems — Process (3 credit hours)
- EME 5057 Communication for Instructional Systems — Application (3 credit hours)
- EME 5408 Computer Applications in Instructional Systems (3 credit hours)
- EME 6313 Media Systems Design (3 credit hours)
- EME 6613 Instructional System Design (3 credit hours)
- EME 6705 Administration of Instructional Systems (3 credit hours)
- EME 6946 Graduate Internship in Instructional Systems (3 credit hours) OR COE 6946 Cooperative Education (3 credit hours)

Area C: Elective—9 Credit Hours

NOTE: Courses not listed below require adviser approval.

- EIN 5255 Interactive Simulation (3 credit hours)
- EME 6053 Current Trends in Instructional Technology (3 credit hours)
- EME 6207 Multimedia Instructional Systems I (3 credit hours)
- EME 6209 Multimedia Instructional Systems II (3 credit hours)
- EME 6457 Distance Education: Technology Process Product (3 credit hours)
- EME 6607 Planned Change in Instructional Technology (3 credit hours)
- INP 6317 Organizational Psychology and Motivation (3 credit hours)

# Industrial Engineering and Management Systems

## Description

College of Engineering and Computer Science Department of Industrial Engineering and Management Systems Chair of the Department: Dr. Lesia Crumpton-Young Graduate Program Coordinator: Dr. Linda C. Malone, EN2 312K, (407) 823-2204. E-mail: [lmalone@mail.ucf.edu](mailto:lmalone@mail.ucf.edu)  
Web address: [www.iems.ucf.edu](http://www.iems.ucf.edu)

The Department of Industrial Engineering and Management Systems offers a Master of Science in Engineering degree in Industrial Engineering (M.S.I.E.); a Master of Science (M.S.) degree with tracks in Engineering Management, Human Engineering/Ergonomics, Operations Research, Manufacturing Engineering, Quality Engineering, Interactive Simulation and Training Systems, and Simulation Modeling and Analysis; and a Doctor of Philosophy (Ph.D.) degree in Industrial Engineering.

## Degrees Offered

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

- Engineering Management Track
- Human Engineering/Ergonomics Track
- Operations Research Track
- Manufacturing Engineering Track
- Quality Engineering Track
- Interactive Simulation and Training Systems Track
- Simulation Modeling and Analysis Track

### Doctor of Philosophy in Industrial Engineering (Ph.D.)

## Faculty

Professors: John E. Biegel, Ph.D., P.E., Professor Emeritus; Lesia Crumpton-Young, Ph.D.; Yasser A. Hosni, Ph.D., P.E.; Linda C. Malone, Ph.D.; Charles H. Reilly, Ph.D.; George F. Schrader, Ph.D., P.E., Professor Emeritus; Gary E. Whitehouse, Ph.D., P.E., Provost and Academic Vice President

Associate Professors: Robert L. Armacost, D.Sc.; Ahmad K. Elshennawy, Ph.D., C.Q.E., C.R.E.; Robert L. Hoekstra, Ph.D.; Timothy G. Kotnour, Ph.D.; Dennis Kulonda, Ph.D.; Gene C.H. Lee, Ph.D., P.E.; Pamela R. McCauley-Bell, Ph.D.; Mansooreh Mollaghasemi, Ph.D.; Michael A. Mullens, Ph.D.; Julia J.A. Pet-Edwards, Ph.D.; Michael D. Proctor, Ph.D.; Luis Rabelo, Ph.D.; James M. Ragusa, D.B.A.; José A. Sepúlveda, Ph.D., P.E.; Kay M. Stanney, Ph.D.; Kent E. Williams, Ph.D.

Assistant Professors: William J. Thompson, Ph.D.

Instructor: Edward Hampton, M.S.

## Master's Program Admission Requirements

Students must satisfy the following criteria: Minimum score of 220 (computer-based test; or equivalent score on the paper-based test) on the Test of English as a Foreign Language (TOEFL) (only applicants whose native language is not English, except for those completing a Bachelor's degree where the course of study was presented in English); and a minimum GPA of 3.0 in the last 60 attempted semester hours of undergraduate studies or a minimum GRE score of 1000 combined verbal-quantitative portion along with a minimum GPA of 2.8 in the last 60 attempted semester hours of undergraduate studies. All students must complete the GRE regardless of GPA. Students who have previous GMAT scores may use them in place of the GRE. The minimum acceptable GMAT score is 550. Students who have submitted all admission materials but do not have a 3.0 GPA or 1000 GRE or 220 TOEFL (if applicable) may be admitted on a provisional basis and be required to



support MUST have submitted a complete application by the PRIORITY deadline.

[Application Deadlines](#)

## Master's Degree Requirements

The Master of Science in Industrial Engineering (M.S.I.E.) degree requires either an undergraduate degree in Industrial Engineering or another engineering discipline. It is offered as a 36-credit-hour program without a thesis; however, BSIE graduates may elect a 30-credit-hour program that includes a thesis. The Master of Science (M.S.) tracks require an undergraduate degree in engineering (or a closely related discipline) and are available with thesis (30 credit hours) or without thesis (36 credit hours).

A program of study must be developed with the graduate coordinator and meet with departmental approval. Required courses vary from 15 to 24 credit hours depending on the program and are supplemented by electives that may include courses offered by other departments. A student with an undergraduate degree outside of the selected departmental discipline may be required to satisfy an articulation program.

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.

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.

Most students working full time take six credit hours per semester, and students on assistantships are required to take nine credit hours per semester to satisfy the university's requirement for full-time status. At that rate, the program can be completed in six semesters or less. However, students with more time available and an early start on a thesis can finish the program in one year (three semesters).

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

Industrial Engineering focuses on a total systems approach to optimize operations in manufacturing and service industries. Industrial engineers use many different analytical approaches to improve productivity and quality of working life while reducing operating costs. UCF awards the Master of Science in Industrial Engineering degree. This degree requires a Bachelor of Science in Engineering as a prerequisite. The MSIE curriculum builds on the undergraduate engineering degree to develop a stronger systems focus and analytical capability.

### For students with a B.S.I.E.

The following two options are available for students with a B.S.I.E.

#### Option 1 - Generalist

- EIN 5117 Management Information Systems I (3 credit hours)
- EIN 5140 Project Engineering (3 credit hours)
- EIN 6357 Advanced Engineering Economic Analysis OR ESI 6358 Decision Analysis (3 credit hours)
- ESI 5219 Engineering Statistics (3 credit hours)
- ESI 5236 Reliability Engineering (3 credit hours)
- ESI 6247 Experimental Design and Taguchi Methods (3 credit hours)
- Three 6000-level electives and three other electives OR one 6000-level elective, thesis, and one additional elective

#### Option 2 – Any M.S. track

### For students with any other engineering B.S. degree

The following courses are required for students with any other engineering B.S. degree.

- Any higher level computer language
- EIN 3314C Work Measurement and Design (3 credit hours)
- EIN 4333C Industrial Control Systems (3 credit hours)
- EIN 4391C Manufacturing Engineering (3 credit hours)

#### Program of Study

- EIN 4364C Industrial Facilities Planning and Design (3 credit hours)
- EIN 5117 Management Information Systems I (3 credit hours)
- EIN 5140 Project Engineering (3 credit hours)
- EIN 5248C Ergonomics (3 credit hours)
- EIN 6357 Advanced Engineering Economic Analysis (3 credit hours)
- ESI 5219 Engineering Statistics (3 credit hours)
- ESI 5316 Operations Research (3 credit hours)
- ESI 5531 Discrete Systems Simulation (3 credit hours)
- ESI 6225 Quality Design and Control (3 credit hours)
- ESI 6247 Experimental Design and Taguchi Methods (3 credit hours)
- Two 6000-level electives

## Master of Science

The Master of Science (M.S.) degree offers tracks in Engineering Management, Human Engineering/Ergonomics, Operations Research, Manufacturing Engineering, Quality Engineering, Interactive Simulation and Training Systems, and Simulation Modeling and Analysis.

### Engineering Management Track

Engineering Management focuses on effective decision-making in engineering and technological organizations. Addressing the needs of engineers and scientists moving into management positions, Engineering Management complements their technical backgrounds with the human aspects, organizational and financial issues, project considerations, resource allocation, and extended analytical tools required for effective decision making and program management. This program is designed for technically qualified individuals who plan to assume a management role in project or program-oriented environments in industry or government. It provides the analytical, organizational, and managerial skills to bridge the gap between a technical specialty and technical management.

#### Prerequisites

- Mathematics through Calculus III (MAC 2313)
- High-level computer language and microcomputer familiarity

#### Required Courses—24 Credit Hours

- EIN 5108 The Environment of Technical Organizations (3 credit hours)
- EIN 5117 Management Information Systems I (3 credit hours)
- EIN 5140 Project Engineering (3 credit hours)
- EIN 6322 Engineering Management (3 credit hours)
- EIN 6339 Operations Engineering (3 credit hours)
- EIN 6357 Advanced Engineering Economic Analysis (3 credit hours)
- ESI 5219 Engineering Statistics (3 credit hours)
- ESI 5316 Operations Research (3 credit hours)

#### Thesis Option—6 Credit Hours

- EIN 6971 Thesis (6 credit hours)

## Non-Thesis Option—12 Credit Hours

- Electives (12 credit hours), including two 6000-level courses

Minimum Hours Required for M.S.—30-36 Credit Hours

## Human Engineering/Ergonomics Track

As technology has become more sophisticated, the need for designing for the human user has become more difficult and even more important. Human Engineering and Ergonomics assists in ensuring that as technology advances, the abilities, limitations, and needs of humans are considered in the system design. This not only supports the needs of the user, it also optimizes the efficiency and usability of the system designed. Traditionally, ergonomics has been associated with biomechanical issues and work measurement and performance issues in physical system design, as well as occupational and industrial safety. The broader focus of human engineering encompasses those issues as well as incorporating the reaction and effectiveness of human interaction with systems, both physical systems and virtual systems such as computer based models. This option is designed for students who have an undergraduate degree in engineering or a closely related discipline. The program is designed to provide the student with the necessary knowledge in Human Engineering and Ergonomics to effectively design tasks, industrial systems and work environments, which maximize human performance, safety, and overall productivity.

### Prerequisites

- Mathematics through Calculus III (MAC 2313)
- Work Measurement and Design (EIN 3314C)
- Human Engineering (EIN 4243C or equivalent)\*

\* Undergraduate course may be included in program of study as an elective.

### Required Courses—21 Credit Hours

- EIN 5248C Ergonomics (3 credit hours)
- EIN 6215 System Safety Engineering and Management (3 credit hours)
- EIN 6249C Biomechanics (3 credit hours)
- EIN 6258 Human Computer Interaction (3 credit hours)
- EIN 6270C Work Physiology (3 credit hours)
- ESI 5219 Engineering Statistics (3 credit hours)
- ESI 6247 Experimental Design and Taguchi Methods (3 credit hours)

### Human Performance/Perception Restricted Elective—3 Credit Hours

Select one of the following courses.

- EXP 5208 Sensation and Perception (3 credit hours)
- EXP 5256 Human Factors I (3 credit hours)
- EXP 6255 Human Performance (3 credit hours)
- EXP 6506 Human Cognition and Learning (3 credit hours)

### Thesis Option—6 Credit Hours

- EIN 6971 Thesis (6 credit hours)

### Non-Thesis Option—12 Credit Hours

- Electives (12 credit hours)

## Interactive Simulation and Training Systems Track

The Interactive Simulation and Training Systems track focuses on providing a fundamental understanding of significant topics relative to systems, requirements, design, development and use of such systems for knowledge transfer in the technical environment. Additionally, the Interactive Simulation and Training Systems track addresses the evolving and multiple discipline application of interactive simulation by providing a wealth of electives to support development of individual student interests and talents. In conjunction with industrial organizations involved in simulation in the Central Florida region, military organizations, UCF's Institute for Simulation and Training and other governmental organizations, the program provides exposure to both military and commercial interactive simulation and training systems.

The track emphasis is on the application and development of interactive simulation and training systems to meet various requirements to include but are 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)

### Required Courses—18 Credit Hours

- EIN 5255 Interactive Simulation (3 credit hours)
- EIN 5317 Training System Design (3 credit hours)
- EIN 6645 Modeling and Simulation of Real-Time Processes (3 credit hours)
- EIN 6647 Intelligent Simulation (3 credit hours)
- EIN 6649C Intelligent Tutoring Training System Design (3 credit hours)
- ESI 5219 Engineering Statistics (3 credit hours)

### Restricted Elective—3 Credit Hours

Select one of the following courses.

- EIN 6524 Simulation Modeling Paradigms (3 credit hours)
- ESI 5531 Discrete Systems Simulation (3 credit hours)
- ESI 6532 Object-Oriented Simulation (3 credit hours)
- ESI 6546 Process Simulation (3 credit hours)

### Thesis Option—9 Credit Hours

- EIN 6971 Thesis (6 credit hours)
- Elective (3 credit hours)

### Non-Thesis Option—15 Credit Hours

- Electives (15 credit hours; at least 6 hours at 6000 level)

## Manufacturing Engineering Track

The design and operation of manufacturing systems requires a broad knowledge of manufacturing processes and systems, an understanding of the information base required for effective system operation, and the integration of information with those processes and systems to improve productivity. The Manufacturing Engineering 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 Engineering curriculum builds on an undergraduate degree in engineering, mathematics, computer science, or an allied field to develop a strong understanding of manufacturing engineering, manufacturing systems, and the tools required to design, improve, and manage those systems.

The Manufacturing Engineering track has four areas of specialization: manufacturing management, manufacturing processes and systems, computer-integrated manufacturing, and high performance internal combustion engine optimization. Required courses and elective sequences vary for each specialization. Up to nine hours of transfer credit may be used in the program of study.

## Prerequisites

- BS in engineering, computer science, mathematics, or allied field
- Mathematics through Differential Equations (MAP 2302)
- Manufacturing Engineering\*
- Engineering Economic Analysis\*\*

\* May be satisfied by graduate electives or by an undergraduate course taken as a graduate elective.

\*\* May be satisfied by graduate electives.

## Degree Requirements

All students seeking an MS degree with specialization area in manufacturing engineering must complete advanced course work in each of the following areas:

- Manufacturing processes: understanding behavior and properties of materials processing
- Process and product engineering: understanding design of products and processes and their associated variables or equipment and tooling necessary for products manufacture
- Understanding the management of manufacturing enterprises through topics such as project management, cost, quality, human resources, safety, environmental issues, and product life cycle
- Manufacturing integration methods and systems design: understanding the design, development, and operation of manufacturing systems through techniques including simulation, modeling, control, and information systems

To satisfy the above knowledge and to receive the degree of Master of Science with emphasis on Manufacturing Engineering, there are two options:

- Option I—Students must complete 36 credit hours beyond the bachelor's degree.
- Option II—Students must complete 30 credit hours and a research paper (3 credit hours). See "Research Paper Requirements" below under each specialization.

## Manufacturing Management Focus

Students selecting to pursue the M.S. in Manufacturing Engineering with a focus on Manufacturing Management must take the following course work.

## Required Courses

- EIN 5108 The Environment of Technical Organizations (3 credit hours)
- EIN 5140 Project Engineering (3 credit hours)
- EIN 5368C Integrated Factory Automation Systems (3 credit hours)
- EIN 6357 Advanced Engineering Economic Analysis (3 credit hours)
- EIN 6339 Operations Engineering (3 credit hours)
- ESI 5219 Engineering Statistics\* (3 credit hours)
- ESI 6224 Quality Management (3 credit hours)

- ESI 6247 Experimental Design and Taguchi Methods (3 credit hours)

\* May be substituted with an elective at the discretion of adviser or graduate program coordinator

The remainder of the course work will consist of the following provided that one choice is at the 6000 level.

- Any other courses (A, B, C, D) below
- Any courses from an approved course list
- Courses approved by the adviser or the graduate program coordinator

## Research Paper Requirements—Applies only to Option II above.

For the Research Paper option, the student will prepare and submit a scholarly report in the form of a journal paper. The paper must follow the format requirements of a manufacturing journal (as chosen by the student). The topic and content of the paper will be developed as part of the student's degree requirements. The student will register for EIN 6918 (3 credit hours) to meet this requirement. The student's adviser and an "outside reviewer" will review the paper. This outside reviewer can be an industry or academic person familiar with the research topic.

## Manufacturing Processes and Systems Focus

Students selecting to pursue the M.S. in Manufacturing Engineering with a focus in Manufacturing Processes and Systems must take the following course work.

### Required Courses

- EIN 5140 Project Engineering (3 credit hours)
- EIN 5368C Integrated Factory Automation Systems (3 credit hours)
- ESI 5219 Engineering Statistics (3 credit hours)\*
- ESI 6225 Quality Design and Control (3 credit hours)

\* May be substituted with an elective at the discretion of adviser or graduate program coordinator

At least one course from each of the following groups must be completed. At least 4 of the total number of electives must be at the 6000 level.

#### A. Manufacturing Processes and Technologies

- EIN 4391C Manufacturing Engineering (3 credit hours)
- EIN 5415C Tool Engineering and Manufacturing Analysis (3 credit hours)
- EIN 6418C Electronics Manufacturing (3 credit hours)
- EIN 6398 Advanced and Nontraditional Manufacturing Processes (3 credit hours)
- EGN 5858C Introduction to Rapid Prototyping (3 credit hours)

#### B. Process and Product Engineering

- EIN 4411C Computer-Aided Manufacturing (3 credit hours)
- ESI 5236 Reliability Engineering (3 credit hours)
- EIN 6930 Manufacturing Engineering Seminar (3 credit hours)
- EIN 6399 Concurrent Engineering (3 credit hours)
- ESI 5227 Total Quality Improvement (3 credit hours)
- EIN 5392C Manufacturing Systems Engineering (3 credit hours)

#### C. Manufacturing Productivity and Quality

- EIN 6357 Advanced Engineering Economic Analysis (3 credit hours)
- EGN 5855C Metrology (3 credit hours)
- ESI 5316 Operations Research (3 credit hours)
- ESI 6224 Quality Management (3 credit hours)
- ESI 6247 Experimental Design and Taguchi Methods (3 credit hours)

#### D. Manufacturing Integration Methods for Systems Design

- EIN 6336 Production and Inventory Control (3 credit hours)
- EIN 6425 Scheduling and Sequencing (3 credit hours)
- ESI 5531 Discrete Systems Simulation (3 credit hours)
- EIN 5607C Computer Control of Manufacturing Systems (3 credit hours)

- EIN 6215 System Safety Engineering and Management (3 credit hours)
- EIN 6330 Quality Control in Automation (3 credit hours)

## Research Paper Requirements—Applies only to Option II above

For the Research Paper option, the student will prepare and submit a scholarly report in the form of a journal paper. The paper must follow the format requirements of a manufacturing journal (as chosen by the student). The topic and content of the paper will be developed as part of the student's degree requirements. The student will register for EIN 6918 (3 credit hours) to meet this requirement. The student's adviser and an "outside reviewer" will review the paper. This outside reviewer can be an industry or academic person familiar with the research topic.

## Computer-Integrated Manufacturing Focus

Students selecting to pursue the M.S. in Manufacturing Engineering with a focus on Computer-Integrated Manufacturing must take the following course work.

### Required Courses

- EGN 5858C Introduction to Rapid Prototyping (3 credit hours)
- EIN 5140 Project Engineering (3 credit hours)
- EIN 5368C Integrated Factory Automation Systems (3 credit hours)
- EIN 5607C Computer Control of Manufacturing Systems (3 credit hours)
- EIN 6357 Advanced Engineering Economic Analysis (3 credit hours)
- ESI 5219 Engineering Statistics (3 credit hours)\*
- ESI 5531 Discrete Systems Simulation (3 credit hours)
- ESI 6225 Quality Design and Control (3 credit hours)

\* May be substituted with an elective at the discretion of adviser or graduate program coordinator

Four additional electives of course work, at least 3 of which are at the 6000 level, will consist of:

- Any other courses from A, B, C, or D above
- Any courses from an approved course list
- Courses approved by the adviser or the graduate program coordinator

## Research Paper Requirements—Applies only to Option II above

For the Research Paper option, the student will prepare and submit a scholarly report in the form of a journal paper. The paper must follow the format requirements of a manufacturing journal (as chosen by the student). The topic and content of the paper will be developed as part of the student's degree requirements. The student will register for EIN 6918 (3 credit hours) to meet this requirement. The student's adviser and an "outside reviewer" will review the paper. This outside reviewer can be an industry or academic person familiar with the research topic.

## High Performance Internal Combustion Engine Optimization Focus

Students selecting to pursue the M.S. in Manufacturing Engineering with a focus on High Performance Internal Combustion Engine Optimization must take the following course work.

### Required Courses

- EGN 5720 Internal Combustion Engine Analysis and Optimization (3 credit hours)
- EGN 6721C Experimental Methods for High Performance Engine Manufacturing (3 credit hours)
- EIN 5607C Computer Control of Manufacturing Systems (3 credit hours)
- EIN 6417 Precision Engineering (3 credit hours)

- EIN 6918 Directed Research Project (3 credit hours)
- EIN 6946 Internship/Practicum (3 credit hours)
- ESI 5219 Engineering Statistics (3 credit hours)\*
- ESI 6247 Experimental Design and Taguchi Methods (3 credit hours)

\* May be substituted with an elective at the discretion of adviser or graduate program coordinator.

Three additional electives of course work will consist of:

- Any other courses from A, B, C, or D above
- Any courses from an approved course list
- Courses approved by the adviser or the graduate program coordinator

## Operations Research Track

Operations Research uses mathematics and computer-based systems to model operational processes and decisions in order to develop and evaluate alternatives that will lead to gains in efficiency and effectiveness. Drawing on probability, statistics, simulation, optimization, and stochastic processes, Operations Research provides many of the analytic tools used by industrial engineers as well as by other analysts to improve processes, decision-making, and management by individuals and organizations. This track is designed for students who have an undergraduate degree in engineering, mathematics, or science. The Operations Research curriculum builds on an undergraduate engineering, mathematics, or science degree to develop a strong modeling and analytical capability to improve processes and decision-making.

### Prerequisites

- Mathematics through Differential Equations (MAP 2302)
- Operations Research (ESI 4312)
- Higher level computer programming and microcomputer familiarity

### Required Courses—21 Credit Hours

- ESI 5219 Engineering Statistics (3 credit hours)
- ESI 5531 Discrete Systems Simulation (3 credit hours)
- ESI 6427 Linear Programming and Extensions (3 credit hours)
- ESI 6437 Nonlinear Programming and Dynamic Programming (3 credit hours) or ESI 6448 Network Analysis and Integer Programming (3 credit hours)
- ESI 6358 Decision Analysis (3 credit hours)
- ESI 6247 Experimental Design and Taguchi Methods (3 credit hours) or STA 6236 Regression Analysis (3 credit hours)
- STA 5825 Stochastic Processes and Applied Probability Theory (3 credit hours) or ESI 6336 Queuing Systems (3 credit hours)

### Thesis Option—9 Credit Hours

- EIN 6971 Thesis (6 credit hours)
- Electives (3 credit hours)

### Non-Thesis Option—15 Credit Hours

- Electives (15 hours; at least 3 credit hours at the 6000 level)

Minimum Hours Required for M.S.—30-36 Credit Hours

## Quality Engineering Track

Quality Engineering focuses on improving product and process quality in manufacturing and service industries. Quality Engineering provides the quantitative tools for measuring quality and the managerial framework and organizational insight required to implement effective quality...



improvement programs and incorporate the voice of the customer. The Quality Engineering curriculum builds on an undergraduate degree in engineering, science, mathematics, or a closely related discipline to provide the necessary knowledge to plan, control, and improve the product assurance function in government, military, service, or manufacturing organizations. Up to nine hours of transfer credit may be used in the program of study.

## Prerequisites

- BS in engineering, science, mathematics, or allied field
- Mathematics through Differential Equations (MAP 2302)

## Required Courses—18 Credit Hours

- EIN 6330 Quality Control in Automation (3 credit hours)
- ESI 5219 Engineering Statistics (3 credit hours)
- ESI 5236 Reliability Engineering (3 credit hours)
- ESI 6224 Quality Management (3 credit hours)
- ESI 6225 Quality Design and Control (3 credit hours)
- ESI 6247 Experimental Design and Taguchi Methods (3 credit hours)

## Thesis Option—12 Credit Hours

- EIN 6971 Thesis (6 credit hours)
- Two electives (6 credit hours) approved by the adviser

## Non-Thesis Option—18 Credit Hours (at least 3 credit hours at the 6000 level)

- Three restricted electives (9 credit hours) selected from the list below
- Three additional electives (9 credit hours)

## Restricted Electives

- EGN 5855C Metrology (3 credit hours)
- EIN 5117 Manufacturing Information Systems I (3 credit hours)
- EIN 5140 Project Engineering (3 credit hours)
- EIN 5368C Integrated Factory Automation Systems (3 credit hours)
- EIN 5392C Manufacturing Systems Engineering (3 credit hours)
- EIN 6930 Manufacturing Engineering Seminar (3 credit hours)
- ESI 5227 Total Quality Improvement (3 credit hours)

Minimum Hours Required for M.S.—30-36 Credit Hours

## Simulation Modeling and Analysis Track

Simulation Modeling and Analysis focuses on providing a fundamental understanding of the functional and technical design requirements for simulation in manufacturing and service industries. The track is based on a systems modeling paradigm and provides coding and development capability in the context of a broader systems framework. Significant exposure to design and analysis aspects is a core element of the track. The Simulation Modeling and Analysis curriculum prepares individuals with an undergraduate degree in engineering, science, mathematics, or a closely related discipline for careers in simulation, focusing particularly on using simulation as an analysis and design tool for the manufacturing and service industries.

## Prerequisites

- Computer programming capability in FORTRAN, C, or C++

- Mathematics through Differential Equations (MAP 2302)
- Operations Research (ESI 4312)\*

\* This requirement may be met by taking ESI 5316 as part of the program of study.

## Required Courses—18 Credit Hours

Simulation Language Foundation—6 credit hours

- ESI 5531 Discrete Systems Simulation (3 credit hours)
- ESI 6532 Object-Oriented Simulation (3 credit hours)

Simulation Modeling Foundation—3 credit hours

- EIN 6524 Simulation Modeling Paradigms (3 credit hours)

Evaluation Foundation—9 credit hours

- ESI 5219 Engineering Statistics (3 credit hours)
- ESI 6217 Statistical Aspects of Digital Simulation (3 credit hours)
- ESI 6247 Experimental Design and Taguchi Methods (3 credit hours)

## Thesis Option—12 Credit Hours

- EIN 6971 Thesis (6 credit hours)
- Electives (6 credit hours)

## Non-Thesis Option—18 Credit Hours

- Electives (18 credit hours) including three hours at the 6000-level

Minimum Hours Required for M.S.—30-36 Credit Hours

# Doctor of Philosophy in Industrial Engineering

The Ph.D. is primarily intended for a student with a Master's degree in Industrial Engineering or a closely related discipline. The program is intended to allow a student to study in depth, with emphasis on some aspect of industrial engineering, such as manufacturing, engineering management, operations research, simulation modeling, interactive simulation, quality, or human engineering/ergonomics.

## Admission Requirements

Students must satisfy regular university admissions criteria, have a Master's degree in Industrial Engineering or a closely related discipline from a recognized institution, and have demonstrated above average performance at the Master's level. Students must submit an application for graduate admission, including a resume, goals statement, and three letters of recommendation. Minimum admission requirements are a score of at least 1000 on the GRE and a TOEFL score of at least 220 for international students who have not completed a BS degree at an English speaking institution.

In addition, selected outstanding applicants who have a GPA of at least 3.4 in the last 60 attempted semester hours of their undergraduate degrees and have very high GRE scores will be considered for direct entrance as Pre-Doctoral students from their Bachelor's degrees. Students meeting these criteria and the approval of the Doctoral Committee will be admitted as Pre-Doctoral students. Scholarships are awarded based on the student's GPA and GRE scores and resume.

Students must complete any needed articulation course work and pass a Ph.D. Qualifying Examination in order to be admitted as a regular Doctoral Student. This examination is normally taken within the first year after all articulation work is completed. The Department makes

decisions about continuing support in the program based in part on Qualifying Examination results.

## Degree Requirements

The Ph.D. degree requires a minimum of 81 credit hours of graduate course work, 24 of which will be dissertation hours. For students entering with an MS degree, the minimum required additional hours (including dissertation) will be 45 (if the student's MS degree had 36 hours of study) or 51 hours (if the student's MS degree had 30 hours). Graduate course work includes 5000 or higher level courses, with a maximum of 12 credit hours of independent study or directed research. A total of 30 to 33 credit hours are specified in required Industrial Engineering subjects. Additional course work is usually taken in the student's research area. Up to 6 credit hours of 4000-level work are acceptable if transferred from a master's degree program. While at UCF, at least 6 credit hours must be taken outside of the student's area of specialization. There is a residency requirement of two continuous semesters in full-time graduate student status (minimum of 9 credit hours) after acceptance into the Doctoral Program at UCF.

As a Pre-Doctoral student at the beginning of the Ph.D. program, a preliminary program of study must be developed with the graduate program coordinator and meet with departmental approval. At this time transfer credit will be evaluated on a course-by-course basis. After completion of the Qualifying Examination and admission as a Doctoral Student, the official program of study is developed with an adviser and must meet with departmental approval. The student's Dissertation Committee approves the final program of study after passing the Candidacy Examination. The degree must be completed within seven years from the date of admission as a Pre-Doctoral student and within four years of passing the Candidacy Examination.

## Transfer Credits

A maximum of 36 semester credit hours, including up to 6 thesis credit hours, may be transferred from a master's degree and other graduate course work toward these requirements. Limitations: a maximum of 6 credit hours of 4000-level courses from a master's degree; no 3000-level courses; and no courses with grades less than "B".

## Examinations

In addition to the Qualifying Examination, the student must pass a Candidacy Examination, a Dissertation Proposal Examination, and a Dissertation Defense Examination. The Candidacy Examination is normally taken near the end of the course work and typically consists of a written and oral presentation of a research area to the Dissertation Committee followed by a written examination to determine if the student has the breadth and depth of knowledge required to conduct research in the proposed area. The Dissertation Proposal Examination consists of a written and oral presentation of a detailed dissertation proposal. The Dissertation Defense Examination is an oral examination taken in defense of the written dissertation.

## Prerequisites/Corequisites

Students must have background in the following areas.

- A high level structured programming language
- Calculus through Differential Equations
- Manufacturing Engineering (EIN 4391)
- Quality Engineering (ESI 4234)
- Work Measurement (EIN 3314)
- Industrial Facilities Planning (EIN 4364)
- Human Engineering (EIN 4243C)

## Required Courses—21 Credit Hours

- EIN 5140 Project Engineering (3 credit hours)
- EIN 6336 Production and Inventory Control (3 credit hours)
- EIN 6357 Advanced Engineering Economic Analysis (3 credit hours)
- ESI 5219 Engineering Statistics (3 credit hours)
- ESI 5316 Operations Research (3 credit hours)

- ESI 5531 Discrete Systems Simulation (3 credit hours)
- ESI 6247 Experimental Design and Taguchi Methods (3 credit hours)

## Required Specialization Core—9-12 Credit Hours

Select one of the following areas of specialization.

### Industrial Engineering

- EIN 5117 Management Information Systems I (3 credit hours)
- ESI 6225 Quality Design and Control (3 credit hours)
- ESI 6427 Linear Programming and Extensions (3 credit hours)

### Interactive Simulation

- EIN 5255 Interactive Simulation (3 credit hours)
- EIN 5317 Training System - Design (3 credit hours)
- EIN 6645 Modeling and Simulation of Real-Time Processes (3 credit hours)
- EIN 6649C Intelligent Tutoring Training System Design (3 credit hours)

### Simulation Modeling and Analysis

- ESI 6217 Statistical Aspects of Digital Simulation (3 credit hours)
- ESI 6532 Object-Oriented Simulation (3 credit hours)
- ESI 6247 Experimental Design and Taguchi Methods (3 credit hours)

### Operations Research

- ESI 6336 Queuing Systems (or STA 5825 Stochastic Processes and Applied Probability Theory) (3 credit hours)
- ESI 6427 Linear Programming and Extensions (3 credit hours)
- STA 6236 Regression Analysis (3 credit hours)

### Quality

- EIN 5392C Manufacturing Systems Engineering (3 credit hours)
- ESI 5227 Total Quality Improvement (3 credit hours)
- ESI 5236 Reliability Engineering (3 credit hours)
- ESI 6225 Quality Design and Control (3 credit hours)

### Human Engineering/Ergonomics

- EIN 5248C Ergonomics (3 credit hours)
- EIN 6249C Biomechanics (3 credit hours)
- EIN 6258 Human Computer Interaction (3 credit hours)

### Manufacturing

- EIN 5368C Integrated Factory Automation Systems (3 credit hours)
- EIN 5392C Manufacturing Systems Engineering (3 credit hours)
- EIN 6399 Concurrent Engineering (3 credit hours)

### Management Systems

- EIN 5108 The Environment of Technical Organizations (3 credit hours)
- EIN 5117 Management Information Systems I (3 credit hours)
- EIN 6322 Engineering Management (3 credit hours)
- EIN 6339 Operations Engineering (3 credit hours)

Electives—24-30 Credit Hours

Dissertation—24 Credit Hours

## Dissertation Committee

- The Dean, through the Chairs, is responsible for committee formation, additions, and deletions. The doctoral committee must consist of a minimum of five members: three must be faculty members from within the student's department, and one must be at large from outside the Industrial Engineering Management Systems Department. The committee Chair must be a member of the department graduate faculty approved to direct dissertations. 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 as well as serve as co-chairs of the committee, with the approval of the program coordinator. Program areas may further specify additional committee membership. The Office of Graduate Studies reserves the right to review appointments to advisory committees, place a representative on any advisory committee, or appoint a co-adviser.
- In unusual cases, with approval from the program Chair, two professors may chair the committee jointly. Joint faculty members may serve as committee chairs, but off-campus experts and adjunct faculty may not serve as committee chairs.
- 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.

## IEMS Graduate Courses by Areas of Study

### Engineering Management

- EIN 5108 The Environment of Technical Organizations (3 credit hours)
- EIN 5117 Management Information Systems I (3 credit hours)
- EIN 5140 Project Engineering (3 credit hours)
- EIN 5356 Cost Engineering (3 credit hours)
- EIN 5381 Engineering Logistics (3 credit hours)
- EIN 6322 Engineering Management (3 credit hours)
- EIN 6339 Operations Engineering (3 credit hours)
- EIN 6357 Advanced Engineering Economic Analysis (3 credit hours)
- EIN 6933 Systems Acquisition (3 credit hours)
- ESI 5451 Network Based Project Planning, Scheduling, and Control (3 credit hours)

### Ergonomics

- EIN 5248C Ergonomics (3 credit hours)
- EIN 5251 Human Computer Interaction: Usability Evaluation (3 credit hours)
- EIN 6215 System Safety Engineering and Management (3 credit hours)
- EIN 6249C Biomechanics (3 credit hours)
- EIN 6258 Human Computer Interaction (3 credit hours)
- EIN 6264C Industrial Hygiene (3 credit hours)
- EIN 6270C Work Physiology (3 credit hours)
- EIN 6935 Advanced Ergonomics Topics (3 credit hours)

### Expert Systems

- EIN 5602C Expert Systems in Industrial Engineering (3 credit hours)
- EIN 6603 Readings in Expert Systems/AI in Industrial Engineering (3 credit hours)

### Manufacturing/Operations Management

- EGN 5720 Internal Combustion Engine Analysis and Optimization (3 credit hours)

- EGN 5855C Metrology (3 credit hours)
- EGN 6721C Experimental Methods for High Performance Engine Manufacturing (3 credit hours)
- EIN 5368C Integrated Factory Automation Systems (3 credit hours)
- EIN 5388 Forecasting (3 credit hours)
- EIN 5392C Manufacturing Systems Engineering (3 credit hours)
- EIN 5415C Tool Engineering and Manufacturing Analysis (3 credit hours)
- EIN 5607C Computer Control of Manufacturing Systems (3 credit hours)
- EIN 6336 Production and Inventory Control (3 credit hours)
- EIN 6398 Advanced and Nontraditional Manufacturing Processes (3 credit hours)
- EIN 6399 Concurrent Engineering (3 credit hours)
- EIN 6417 Precision Engineering (3 credit hours)
- EIN 6418C Electronics Manufacturing (3 credit hours)
- EIN 6425 Scheduling and Sequencing (3 credit hours)
- EIN 6930 Manufacturing Engineering Seminar (3 credit hours)
- EIN 6936 Seminar in Advanced Industrial Engineering (3 credit hours)

## Operations Research

- ESI 5315 Research Foundations for IE and OR Modeling (3 credit hours)
- ESI 5316 Operations Research (3 credit hours)
- ESI 5359 Risk Assessment and Management (3 credit hours)
- ESI 5419C Engineering Applications of Linear and Nonlinear Optimization (3 credit hours)
- ESI 6336 Queuing Systems (3 credit hours)
- ESI 6358 Decision Analysis (3 credit hours)
- ESI 6427 Linear Programming and Extensions (3 credit hours)
- ESI 6437 Nonlinear Mathematical Programming and Dynamic Programming (3 credit hours)
- ESI 6448 Network Analysis and Integer Programming (3 credit hours)
- ESI 6551C Systems Engineering (3 credit hours)
- ESI 6921 Seminar in Advanced Operations Research (3 credit hours)
- ESI 6941 Operations Research Practicum (6 credit hours)

## Simulation

- EIN 5255 Interactive Simulation (3 credit hours)
- EIN 5317 Training System Design (3 credit hours)
- EIN 6524 Simulation Modeling Paradigms (3 credit hours)
- EIN 6529 Simulation Design and Analysis (3 credit hours)
- EIN 6645 Modeling and Simulation of Real-Time Processes (3 credit hours)
- EIN 6647 Intelligent Simulation (3 credit hours)
- EIN 6649C Intelligent Tutoring Training System Design (3 credit hours)
- ESI 5531 Discrete Systems Simulation (3 credit hours)
- ESI 6217 Statistical Aspects of Digital Simulation (3 credit hours)
- ESI 6529 Advanced Systems Simulation (3 credit hours)
- ESI 6532 Object-Oriented Simulation (3 credit hours)
- ESI 6546 Process Simulation (3 credit hours)

## Statistics and Quality Control

- EIN 6330 Quality Control in Automation (3 credit hours)
- ESI 5227 Total Quality Improvement (3 credit hours)
- ESI 5236 Reliability Engineering (3 credit hours)
- ESI 6224 Quality Management (3 credit hours)
- ESI 6225 Quality Design and Control (3 credit hours)
- ESI 6247 Experimental Design and Taguchi Methods (3 credit hours)
- ESI 5219 Engineering Statistics (3 credit hours)

## Other

- EIN 5936 Seminar in Industrial Engineering: Doctoral Research (1 credit hour)

# Environmental Engineering

## Description

College of Engineering and Computer Science Department of Civil and Environmental Engineering Chair of the Department: Dr. A. E. Radwan Assistant Chair of the Department: Dr. M. B. Chopra Graduate Program Coordinator: Dr. R. L. Wayson, ENGR II 211, (407) 823-2841. E-mail: [go\\_ucf@mail.ucf.edu](mailto:go_ucf@mail.ucf.edu) Web address: [www-cee.engr.ucf.edu](http://www-cee.engr.ucf.edu)

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 can pursue a variety of research areas and levels of interest. Those completing the program find job opportunities in federal, state, and local governments, consulting, and industry.

The Civil and Environmental Engineering Department offers a Master of Science degree in Environmental Engineering (M.S.Env.E.). In addition, a more specialized Master of Science (M.S.) degree is offered in Environmental Engineering Sciences. The department also offers a Doctor of Philosophy (Ph.D.) degree in Environmental Engineering.

## Degrees Offered

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

o Environmental Engineering Sciences Track

Doctor of Philosophy in Environmental Engineering (Ph.D.)

## Faculty

Professors: C. D. Cooper, Ph.D., P.E.; S. S. Kuo, Ph.D., P.E.; A. E. Radwan Ph.D., P.E.; D. R. Reinhart, Ph.D., P.E., Associate Dean; J. S. Taylor, Ph.D., P.E.; M. P. Wanielista, Ph.D., P.E., Dean; R. L. Wayson, Ph.D., P.E.; G. Yeh, Ph.D.

Associate Professors: H. M. Al-Deek, Ph.D., P.E.; M. A. Aty, Ph.D., P.E.; M. B. Chopra, Ph.D., P.E.; J. D. Dietz, Ph.D., P.E.; S. M. El-Tawil, Ph.D., P.E.; C. M. Head, Ph.D., P.E.; S. K. Kunnath, Ph.D., P.E.; F. N. Nnadi, Ph.D., P.E.; A. Oloufa, Ph.D., P.E.; U. O. Onyemelukwe, Ph.D., P.E.; A. A. Randall, Ph.D., P.E.; Assistant Professors: S.C. Hagen, Ph.D.; S. K. Hong, Ph.D.

## Master of Science in Environmental Engineering

The department offers a Master of Science degree in Environmental Engineering (M.S.Env.E.) for students who have an undergraduate degree in Environmental Engineering or any other closely related degree in engineering. Students who enter the graduate program in Environmental Engineering are expected to be knowledgeable in the topics required in the undergraduate program at UCF, including chemistry, process design, water resources, air pollution, and solid waste. This requirement is satisfied ideally by completion of university course work at UCF or elsewhere.

Preliminary articulation requirements are noted below as general guidelines for prospective students, depending on undergraduate degree. Final articulation requirements will be determined by the department after students have been admitted and after discussions with their advisers.

The degree requires either (a) 30 credit hours of acceptable graduate work, which includes a thesis (6 credit hours), or (b) 36 credit hours of acceptable graduate work, which includes a comprehensive final examination. The student develops an individualized program of study with a faculty adviser.

## Admission Requirements



For admission to the advanced degree programs in Environmental Engineering, students must have completed a bachelor of science degree. Applicants who are applying to the programs without a directly related undergraduate degree should closely check the prerequisites.

Admittance to the programs requires a combined verbal and quantitative score of 1000 on the Graduate Record Examination (or 450 on the GMAT) or a grade point average of 3.0 or greater in the last 60 attempted semester hours of undergraduate studies.

International applicants must be in the top one-half of their graduating class. Alternatively, international applicants may have their transcript evaluated by the World Education Services (WES) to meet the minimum grade point average.

[Application Deadlines](#)

## Degree Requirements

The degree requires either (a) 30 credit hours of acceptable graduate work, which includes a thesis (6 credit hours), or (b) 36 credit hours of acceptable graduate work, which includes a comprehensive final examination. The student develops an individualized program of study with a faculty adviser.

There are two options for the master's degree programs: the thesis option and the non-thesis option. The thesis option is available in all master's degree programs and requires a thesis that is equivalent to 6 credit hours out of a total of 30 credit hours. It is the required option for students supported on contracts and grants as well as any student receiving department financial support.

The non-thesis option is also available for all master's degree programs and requires 36 credit hours of course work and a comprehensive final oral and written examination as a requirement for graduation. This option is recommended only for part-time students on a limited access basis.

Prerequisites for all students:

- Calculus through Differential Equations

Prerequisites for students with engineering undergraduate degrees in civil, environmental, mechanical, chemical engineering:

- CWR 4101C Hydrology
- EES 4111C Biological Process Control
- EES 4202C Chemical Process Control
- ENV 4120 Air Pollution Control
- ENV 4561 Environmental Engineering—Process Design
- Or equivalent courses

Prerequisites for students with undergraduate degrees in other engineering disciplines:

- CWR 3201 Engineering Fluid Mechanics
- CWR 4101C Hydrology
- CWR 4203C Hydraulics
- EES 4111C Biological Process Control
- EES 4202C Chemical Process Control
- ENV 4120 Air Pollution Control
- ENV 4561 Environmental Engineering—Process Design
- Or equivalent courses

Prerequisites for students with appropriate science or math undergraduate degrees:

- CHM 2046 Chemistry Fundamentals II
- CWR 3201 Engineering Fluid Mechanics
- CWR 4101C Hydrology
- CWR 4203C Hydraulics
- EES 4111C Biological Process Control
- EES 4202C Chemical Process Control
- EGN 3613 Engineering Economic Analysis
- ENV 4120 Air Pollution Control
- ENV 4561 Environmental Engineering—Process Design
- Or equivalent courses

Prerequisites for students with nontechnical undergraduate degrees:

- Articulation is quite extensive and in such cases and it is recommended that a second undergraduate degree in Environmental Engineering be completed before applying to graduate school.

Minimum Hours Required for M.S.Env.E.—30 or 36 Credit Hours

Required Courses—15 Credit Hours

- CWR 5545 Water Resources Engineering (3 credit hours) or CWR 6125 Groundwater Hydrology (3 credit hours) or CWR 6235 Open Channel Hydraulics (3 credit hours)
- ENV 6015 Physical/Chemical Treatment Systems in Environmental Engineering (3 credit hours)
- ENV 6016 Biological Treatment Systems in Environmental Engineering (3 credit hours)
- ENV 6347 Hazardous Waste Incineration (3 credit hours) or ENV 6558 Industrial Waste Treatment (3 credit hours)
- ENV 6106 Theory and Practice of Atmospheric Dispersion Modeling (3 credit hours) or ENV 6126 Design of Air Pollution Controls (3 credit hours)

Elective Courses—9 or 21 Credit Hours

Courses that comprise the elective part of the program are selected in accordance with the general requirements of the College of Engineering and Computer Science and often include courses taken from the following two sub-discipline areas:

- Environmental Specialization—Any of the appropriate ENV graduate-level courses (5000 or 6000) with the consent of the student's adviser
- Water Resources Specialization—Any of the appropriate CWR graduate-level courses (5000 or 6000) with the consent of the student's adviser

Thesis—6 Credit Hours

# Master of Science

The Master of Science (M.S.) degree is offered with a track in Environmental Engineering Sciences.

## Admission Requirements

For admission to the advanced degree programs in Environmental Engineering, students must have completed a bachelor of science degree. Applicants who are applying to the programs without a directly related undergraduate degree should closely check the prerequisites.

Admittance to the programs requires a combined verbal and quantitative score of 1000 on the Graduate Record Examination (or 450 on the GMAT) or a grade point average of 3.0 or greater in the last 60 attempted semester hours of undergraduate studies.

International applicants must be in the top one-half of their graduating class. Alternatively, international applicants may have their transcript evaluated by the World Education Services (WES) to meet the minimum grade point average.

[Application Deadlines](#)

## Environmental Engineering Sciences Track

Students who enter the graduate program in Environmental Engineering are expected to be knowledgeable in the topics required in the undergraduate program at UCF, including chemistry, process design, water resources, air pollution, and solid waste. This requirement is satisfied ideally by completion of university course work at UCF or elsewhere.

Preliminary articulation requirements are noted below as general guidelines for prospective students, depending on undergraduate degree. Final articulation requirements will be determined by the department after students have been admitted and after discussions with their advisers.

# Degree Requirements

The degree requires (a) 30 semester hours of acceptable graduate work, which includes a thesis (6 semester hours), or (b) 36 semester hours of acceptable graduate work with a comprehensive final examination. The student develops an individualized program of study with a faculty adviser.

There are two options for the master's degree programs: the thesis option and the non-thesis option. The thesis option is available in all master's degree programs and requires a thesis that is equivalent to 6 credit hours out of a total of 30 credit hours. It is the required option for students supported on contracts and grants as well as any student receiving department financial support.

The non-thesis option is also available for all master's degree programs and requires 36 credit hours of course work and a comprehensive final oral and written examination as a requirement for graduation. This option is recommended only for part-time students on a limited access basis.

Prerequisites for all students:

- Calculus through Differential Equations

Prerequisites for students with engineering undergraduate degrees in civil, environmental, mechanical, chemical engineering:

- CWR 4101C Hydrology
- EES 4111C Biological Process Control
- EES 4202C Chemical Process Control
- ENV 4120 Air Pollution Control
- ENV 4561 Environmental Engineering—Process Design
- Or equivalent courses

Prerequisites for students with undergraduate degrees in other engineering disciplines:

- CWR 3201 Engineering Fluid Mechanics
- CWR 4101C Hydrology
- CWR 4203C Hydraulics
- EES 4111C Biological Process Control
- EES 4202C Chemical Process Control
- ENV 4120 Air Pollution Control
- ENV 4561 Environmental Engineering—Process Design
- Or equivalent courses

Prerequisites for students with appropriate science or math undergraduate degrees:

- CHM 2046 Chemistry Fundamentals II
- CWR 3201 Engineering Fluid Mechanics
- CWR 4101C Hydrology
- CWR 4203C Hydraulics
- EES 4111C Biological Process Control
- EES 4202C Chemical Process Control
- EGN 3613 Engineering Economic Analysis
- ENV 4120 Air Pollution Control
- ENV 4561 Environmental Engineering—Process Design
- Or equivalent courses

Prerequisites for students with nontechnical undergraduate degrees:

- Articulation is quite extensive and in such cases and it is recommended that a second undergraduate degree in Environmental Engineering be completed before applying to graduate school.

## Minimum Hours Required for M.S.—30 or 36 Credit Hours

Required Courses—12 Credit Hours

- CWR 5545 Water Resources Engineering (3 credit hours) or CWR 6125 Groundwater Hydrology (3 credit hours) or CWR 6235 Open Channel Hydraulics (3 credit hours)
- ENV 6015 Physical/Chemical Treatment Systems in Environmental Engineering (3 credit hours) or ENV 6016 Biological Treatment Systems in Environmental Engineering (3 credit hours) or ENV 6558 Industrial Waste Treatment (3 credit hours)
- ENV 6106 Theory and Practice of Atmospheric Dispersion Modeling (3 credit hours) or ENV 6126 Design of Air Pollution Controls (3 credit hours) or ENV 6347 Hazardous Waste Incineration (3 credit hours)
- ENV 5071 Environmental Analysis of Transportation Systems (3 credit hours) or ENV 6519 Aquatic Chemical Processes (3 credit hours) or ENV 6616 Receiving Water Impacts (3 credit hours)

Elective Courses—12 or 24 Credit Hours

- Any of the appropriate ENV or CWR or appropriate graduate-level courses (5000 or 6000) with the consent of the student's adviser (3 credit hours each)

Thesis—6 Credit Hours

# Doctor of Philosophy in Environmental Engineering

The Doctor of Philosophy (Ph.D.) degree requires a student to have completed a master's degree in Environmental Engineering or a closely related discipline. 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.

## Admission Requirements

In addition to satisfying regular university admissions criteria, the student must have a master's degree in Environmental Engineering or a closely related discipline from a recognized accredited institution and achieve a combined verbal and quantitative score of 1100 on the Graduate Record Examination (or equivalent GMAT score). Prospective applicants should forward a detailed resume and a letter with research interests and three letters of recommendation for department review with the application.

[Application Deadlines](#)

## Degree Requirements

The Ph.D. degree requires a minimum of 36 to 42 credit hours beyond the master's degree, 18 of which will be dissertation credits, and 6 credit hours of which must be from courses taken outside the student's program while at UCF. In addition, a minimum of 12 credit hours of formal classroom work is required at UCF. For those who completed a thesis as part of the master's degree with a minimum of course work, 12 credit hours of electives are required. 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.

- Hours that must be taken in formal courses at UCF—12 credit hours
- Hours taken at the discretion of the adviser—6 credit hours or 12 credit hours\*
- Dissertation—18 credit hours
- Minimum hours required for Ph.D.—36-42 credit hours beyond the master's degree

\* The student must take 12 credit hours if the student completes the thesis with no additional course work past the minimum. Hours taken at the discretion of the adviser include research hours, special topics, directed studies, as well as additional formal courses.

## Examinations

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. 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.

# Political Science

## Description

College of Arts and Sciences Department of Political Science Chair of the Department: Dr. Roger Handberg Graduate Program Coordinator: Dr. Philip Pollock, CNH 408E, (407) 823-2608. E-mail: [psgrad@pegasus.cc.ucf.edu](mailto:psgrad@pegasus.cc.ucf.edu) Web address: <http://pegasus.cc.ucf.edu/~politics/>

The University of Central Florida offers a Master of Arts in Political Science degree program that 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.

## Degrees Offered

### Master of Arts in Political Science (M.A.)

- o Political Analysis Track
- o Public Policy Track
- o Environmental Politics Track

## Faculty

Professors: R. Bledsoe, Ph.D.; R. Handberg, Ph.D.; P. H. Pollock, Ph.D.; W. Q. Morales, Ph.D.

Associate Professors: T. S. Fine, Ph.D.; D. Kiel, Ph.D.; J. R. Lilie, Ph.D.; S. A. Lilie, Ph.D.; M. E. Vittes, Ph.D.; K. Hamann, Ph.D.; A. Jewett, Ph.D.; H. Sadri, Ph.D.

Assistant Professors: H. Bartling, Ph.D.; C. Dolan, Ph.D.; B. Jungblut, Ph.D.; B. Kinsey, Ph.D.; J. Knuckey, Ph.D.; D. Lanier, Ph.D., J.D.; S. Reichert; S. Schraufnagel; B. Wilson, Ph.D.

## Master of Arts in Political Science

The Department of Political Science offers students three tracks toward the master's degree: the political analysis track, the public policy track, and the environmental politics 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 several key areas of government activity: Issues in science and technology, social welfare policy, 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.

The environmental politics track gives students the necessary analytic and substantive tools for understanding the evolving environmental debate in the United States, with particular emphasis on the ecologically sensitive state of Florida. The environmental politics track is recommended for students with a special interest in the science and politics of environmental policy.

## Admission Requirements

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 credit hours of undergraduate course work in political science, including Scope and Methods of Political Science (POS 3703) or its equivalent. Students must have a grade of “B” or better in this course work. AND
- Three letters of recommendation from individuals who can attest to the applicant’s potential for graduate work. These letters should address the applicant’s ability to think analytically and to communicate clearly. These letters should be sent directly to the graduate program coordinator. AND
- An undergraduate grade point average of at least 3.0 overall. OR
- A combined (quantitative and verbal) GRE score of at least 1000.

International students and students whose native language is not English must score at least 220 (computer-based test; or equivalent score on the paper-based test) on the Test of English as a Foreign Language (TOEFL).

[Application Deadlines](#)

## 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

After being admitted (either as regular or conditional), students must meet with one of the graduate advisers to discuss their plans for graduate study and to obtain permission to enroll in graduate courses in the department. After completing nine hours of course work, all students must determine a preliminary program of study, either in the political analysis track, the public policy track, or the environmental politics track. Two tracks require 30 credit hours of credit (24 hours of course work plus 6 hours of thesis), and all share the same core requirements. The environmental politics track requires 33 credit hours (27 hours of course work plus 6 hours of thesis).

Core Requirements—12 Credit Hours

- POS 6746 Quantitative Methods in Political Research (3 credit hours)
- POS 6045 Seminar in American National Politics (3 credit hours)
- POT 6007 Seminar in Political Theory (3 credit hours) AND
- INR 6007 Seminar in International Politics (3 credit hours) OR
- CPO 6091 Seminar in Comparative Politics (3 credit hours)

## Political Analysis Track

Requirements for M.A., Political Analysis Track—30 Credit Hours

A program of study in the political analysis track consists of the following course work.

Core Requirements—12 Credit Hours

Three special topics courses—9 Credit Hours

- POS 6938 American Politics (3 credit hours)
- POT 6007 Seminar in Political Theory Political Theory (3 credit hours)
- INR 6XXX International Relations (3 credit hours)

- PUP 6938 Political Analysis (3 credit hours)

Elective—3 Credit Hours

Thesis—6 Credit Hours

## Public Policy Track

Requirements for M.A., Public Policy Track—30 Credit Hours

A program of study in the political analysis track consists of the following course work.

Core Requirements—12 Credit Hours

- PUP 6007 Public Policy Analysis (3 credit hours)

Two special topics courses—6 Credit Hours

- INR 6086 International Public Policy (3 credit hours)
- POS 6324 Women and Public Policy (3 credit hours)
- PUP 6938 Science Policy (3 credit hours)
- PUP 6938 Social Policy (3 credit hours)
- INR 6107 Seminar in Foreign and Defense Policy (3 credit hours)

Elective—3 Credit Hours

Thesis—6 Credit Hours

## Environmental Politics Track

Requirements for M.A., Environmental Politics Track—33 Credit Hours

A program of study in the political analysis track consists of the following course work.

Core Requirements—12 Credit Hours

- POS 6208 Environmental Politics (3 credit hours)

Three specialized and special topics courses—9 Credit Hours

- INR 6XXX International Environmental Law (3 credit hours)
- PUP 6XXX Politics of Sustainability (3 credit hours)
- PUP 6XXX Global Information Systems for Environmental Politics (3 credit hours)
- PUP 6XXX Urban Environmental Policy (3 credit hours)
- PUP 6208 Environmental Politics (3 credit hours)

Cognate Elective—3 Credit Hours

- BOT 5623C Plant Geography and Ecology (3 credit hours)
- ECO 6XXX Benefit/Cost Analysis in Economic Policy (3 credit hours)
- ECO 6XXX Resources and Environmental Management Policy (3 credit hours)
- ECO 6XXX Advanced Resources and Environmental Economics (3 credit hours)
- ECP 6605 Economics of Urban and Regional Problems (3 credit hours)
- ECS 6006 Seminar in Comparative Economic Systems (3 credit hours)
- ECS 6015 Economic Development (3 credit hours)
- PAD 5336 Introduction to Urban Planning (3 credit hours)
- PAD 5337 Urban Design (3 credit hours)
- PAD 5338 Land Use and Planning Law (3 credit hours)
- PAD 5356 Managing Community and Economic Development (3 credit hours)



- PAD 6353 Environmental Program Management Research (3 credit hours)
- PCB 5045C Conservation Biology (3 credit hours)
- PCB 5326C Ecosystems of Florida (3 credit hours)

Thesis—6 Credit Hours

## Other Program Requirements

The political science seminars provide the common core of knowledge for students in all three tracks. The specific subject matter of the special 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 special courses may be repeated for credit.

Unless otherwise required, 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. Students are responsible for meeting any prerequisites for elective courses.

After completion of the 24 hours of course work in the chosen track, the student will form a committee of three advisers and submit a written thesis prospectus which, upon acceptance by the committee, will become a part of the student's permanent File name. Guidelines for the prospectus are available from the graduate program coordinator. The completed thesis must be submitted to the thesis committee at least eight weeks prior to the date on which the degree is to be awarded. The student will then orally defend the thesis.

## Comprehensive 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 credit hours. The examination will be based on the political science course work contained in the student's program of study. In addition, all students will be tested in the area of quantitative methods. The examination will be offered two times each academic year, during the final examination period for the fall and spring semesters. Students must inform the graduate program coordinator of their intention to take the examination at least six weeks prior to its scheduled date. A committee, consisting of all political science faculty from whom the student has taken courses, will develop questions for the comprehensive examination. Students not passing the examination may take it a second time within one calendar year, but no student will be allowed to take the examination more than twice.

# Industrial Chemistry

## Description

College of Arts and Sciences Department of Chemistry Chair of the Department: Dr. Glenn N. Cunningham Web address:

<http://www.cas.ucf.edu/chemistry/>

Industrial Chemistry Graduate Program Coordinator: Dr. Kevin D. Belfield, CH 222, (407) 823-1028. E-mail: [kbelfiel@mail.ucf.edu](mailto:kbelfiel@mail.ucf.edu) Web address: <http://www.cas.ucf.edu/chemistry/> Forensic Science Graduate Track Coordinator: Dr. Jack Ballantyne, CH 223, (407) 823-0163. E-mail: [jballant@pegasus.cc.ucf.edu](mailto:jballant@pegasus.cc.ucf.edu) Web address: <http://reach.ucf.edu/~forensic>

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.

A track in Forensic Science is provided to practicing professionals and full-time students who desire an advanced program of study in the forensic analysis of biological materials. The Forensic Science Track has a strong biochemistry-DNA focus to serve the needs of supervisory personnel in DNA sections of crime laboratories. The DNA Advisory Board has mandated that such personnel have advanced degrees. The university also offers a graduate certificate in Computer Forensics.

## Degrees Offered

Master of Science in Industrial Chemistry (M.S.)

- Forensic Science Track

## Faculty

Professors: C. A. Clausen, Ph.D.; G. N. Cunningham, Ph.D.; B. G. Fookes, Ph.D.; F. E. Juge, Ph.D., Associate Vice President; B. C. Madsen, Ph.D.; W. W. McGee, Ph.D.; D. H. Miles, Ph.D.; W. J. Tilstone, Ph.D.; R. Y. Ting, Ph.D.

Associate Professors: J. Ballantyne, Ph.D.; K. D. Belfield, Ph.D.; K. A. Cerqua-Richardson, Ph.D.; S. R. Elsheimer, Ph.D.; M. D. Hampton, Ph.D.; O. Phanstiel, IV, Ph.D.

Assistant Professors: C. L. Geiger, Ph.D.; O. Phanstiel IV, Ph.D.; A.F. Slaterbeck

## 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 Requirements

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 and 220 (computer-based test; or equivalent score on the paper-based test) on the Test of English as a Foreign Language (TOEFL), for those who are international or whose native language is not English. The departmental evaluation requires two letters of recommendation for both Industrial Chemistry and Forensic Science applicants. In addition, Forensic Science applicants must provide a resume with employment history. 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.

[Application Deadlines](#)

# 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

Requirements for M.S.—30 Credit Hours

Required Core Courses—12 Credit Hours

- CHM 6440 Kinetics and Catalysis (2 credit hours)
- CHM 6710 Applied Analytical Chemistry (2 credit hours)
- CHM 6938 Graduate Chemistry Seminar (2 credit hours)
- CHS 6240 Chemical Thermodynamics (2 credit hours)
- CHS 6251 Applied Organic Synthesis (2 credit hours)
- CHS 6260 Chemical Unit Operations and Separations (2 credit hours)

Electives for Industrial Chemistry—12 Credit Hours

At least 9 of the total 12 credit hours must be taken from the following list. (All elective courses must be approved by the student's advisory committee.)

- CHM 5225 Advanced Organic Chemistry (3 credit hours)
- CHM 5235 Applied Molecular Spectroscopy (3 credit hours)
- CHM 5305 Applied Biological Chemistry (3 credit hours)
- CHM 5450 Polymer Chemistry (3 credit hours)
- CHM 5451C Techniques in Polymer Chemistry Science (3 credit hours)
- CHM 5580 Advanced Physical Chemistry (3 credit hours)
- CHM 6711 Chemistry of Materials (3 credit hours)
- CHS 6261 Chemical Process and Product Development (2 credit hours)
- CHM/CHS Special topics courses

Thesis (CHM 6971)—6 Credit Hours

## Examination Requirements

Satisfactory completion of a final examination (oral defense of thesis) is required.

## Forensic Science Track

A track in Forensic Science is provided to practicing professionals and full-time students who desire an advanced program of study in the forensic analysis of biological materials. The Forensic Science Track has a strong biochemistry-DNA focus to serve the needs of supervisory personnel in DNA sections of crime laboratories. The DNA Advisory Board has mandated that such personnel have advanced degrees.

The forensic science core courses are unique and were designed by practicing professionals for presentation as distributed learning courses using the World Wide Web. For more information, visit the Forensic Science Track website at: <http://www.cas.ucf.edu/chemistry>.

## Degree Requirements for Forensic Science Track

Requirements for M.S.—30 Credit Hours

Required Core Courses—12 Credit Hours

These courses are web-based.

- CHS 6513 Quality Assurance and Bioinformation (3 credit hours)
- CHS 6535 Forensic Analysis of Biological Materials (2 credit hours)
- CHS 6535L Forensic Analysis of Biological Materials Lab (3 credit hours)
- CHS 6536 Forensic Analysis of DNA Data (2 credit hours)
- CHM 6938 Graduate Chemistry Seminar (2 credit hours)

#### Required Foundation Core Courses—12 Credit Hours Minimum

These courses are offered at UCF. Category 1 courses can be web-based. Working professionals taking the program part-time may, after checking with a program adviser, take courses from categories 2 through 4 at a nearby university. For all categories, students must satisfy prerequisite course requirements before taking foundation core courses. Consultation with an assigned faculty adviser should occur before registering for foundation core courses.

The minimum credit hours of foundation courses needed to satisfy the degree requirement is 12 credit hours. 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.

Category 1—Crime - Criminal Justice Courses (3 credit hours)

Category 2—Forensic Data Analysis - Statistics/Experimental Design (3 credit hours)

Category 3—Biological Chemistry - Biochemistry/Laboratory/Biochemistry I (3 credit hours)

Category 4—Chemistry - Molecular Spectroscopy/Applied Biological Chemistry/Polymer Chemistry/Biochemistry II (3 credit hours)

Thesis (CHS 6971)—6 Credit Hours

A research project will be selected in conjunction with the student's advisory committee.

# Management

## Description

College of Business Administration Department of Management Interim Department Chair: Dr. Foard Jones Graduate Program Coordinator: Dr. Foard Jones, BA 335B, (407) 823-3725. E-mail: [foard.jones@bus.ucf.edu](mailto:foard.jones@bus.ucf.edu)

Web Address: <http://www.bus.ucf.edu/management/cgi-bin/site/sitew.cgi?page=/programs/mshr/index.htm>

The College of Business Administration offers a Master of Science in Management degree that provides an alternative to the MBA degree for students who desire specialized study and the development of a high level of professional proficiency in a functional area of business. The primary track in the Management program is human resources and change management. Students completing the master's program in human resources and change management will be prepared to work in organizations in such areas as human resources, strategic planning, organizational effectiveness, staffing, compensation, and employee relations.

In addition, the College offers a doctoral (Ph.D.) program in Business Administration that includes a Management Track.

## Degrees Offered

### Master of Science in Management (M.S.M.)

- o Human Resources and Change Management Track

## Master of Science in Management

The MSM program offers an alternative to students who want to pursue graduate study in business, but who also desire a focus on management. The program is designed to appeal to those currently in management positions who want to develop additional expertise, as well as those who seek to move into the management track as a vehicle for career advancement.

The program is based on the belief that successful change involves aligning a firm's people and process with an ever-changing environment. As a result, the goals of our program are to provide you with the knowledge required to successfully anticipate, plan, and carry out changes. One main component of the program will be a focus on developing practices and methods that align human resources activities with organizational strategies. The second component will help you develop skills in recognizing the need for change, the factors that improve a firm's ability to absorb change, along with effective and appropriate responses to those changes.

Students with a wide variety of backgrounds, including those with degrees in economics, education, hospitality, nursing, psychology, and business, are encouraged to apply to this program. Students without an undergraduate degree in business must take a series of background courses by completing the MBA foundation core. Those who have these background courses may begin immediately in the core courses and elective courses listed below.

[Academic Standards in the College of Business Administration](#)

## Admission Requirements

[Admission to Master's Programs in the College of Business Administration](#)

- GPA of 3.0 and GMAT of 500
- TOEFL of 233 (computer test)
- 3 letters of recommendation
- essay; for details, see the [college website](#)
- resume

Both GPA and Test Scores must be officially reported to the Office of Graduate Studies.

## [Application Deadlines](#)

For consideration for college financial assistance, apply at least one month before the application deadline.

# Human Resources and Change Management Track

Minimum Hours Required for the MSM—30 Credit Hours

## Required Courses—18 Credit Hours

- MAN 6285 Change Management (3 credit hours)
- MAN 6305 Human Resources Management (3 credit hours)
- MAN 6311 Advanced Topics in Human Resources Management (3 credit hours)
- MAN 6325 Applied Research Tools (3 credit hours)
- MAN 6395 Management Development and Coaching (3 credit hours)
- MAN 6385 Strategic Human Resources Management (3 credit hours)

## Elective Courses—12 Credit Hours

- MAN 6116 Managing a Diverse Workforce (3 credit hours)
- MAN 6286 Advanced Change Management (3 credit hours)
- MAN 6323 Human Resources Information Systems (3 credit hours)
- MAN 6448 Conflict Resolution and Negotiation (3 credit hours)
- MAN 6915 Applied Field Project (3 credit hours)
- MBA Core Class
- Other 6000-level Approved Electives (e.g., Industrial and Organizational Psychology)

# Mathematics

## Description

College of Arts and Sciences Department of Mathematics Interim Chair of the Department: Dr. Piotr Mikusinski Graduate Program Coordinator: Dr. Ram Mohapatra, MAP 212, (407) 823-5080. E-mail: [ramm@pegasus.cc.ucf.edu](mailto:ramm@pegasus.cc.ucf.edu) Web address: <http://www.math.ucf.edu/>

The University of Central Florida 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, nonlinear waves, probability and mathematical statistics, functional analysis, numerical analysis, approximation theory, nonlinear dynamics, fluid mechanics, wave propagation, algebra, number theory, combinatorics and graph theory, and medical imaging.

## Degrees Offered

Master of Science in Mathematical Science (M.S.)

- Industrial Mathematics Track

Doctor of Philosophy in Mathematics (Ph.D.)

## Faculty

Professors: L. C. Andrews, Ph.D.; L. H. Armstrong, Ph.D.; R. C. Brigham, Ph.D.; J. R. Cannon, Ph.D.; P. Hilton, Ph.D., Distinguished Professor; D. Kaup, Ph.D., Provost's Distinguished Research Professor; X. Li, Ph.D.; P. Mikusinski, Ph.D.; R. N. Mohapatra, Ph.D.; G. D. Richardson, Ph.D.; B. K. Shivamoggi, Ph.D.; M. D. Taylor, Ph.D.; K. Vajravelu, Ph.D.

Associate Professors: J. M. Anthony, Ph.D.; R. M. Caron, Ph.D.; S. R. Choudhury, Ph.D.; M. N. Heinzer, Ph.D.; H. M. Martin, Ph.D.; M. Y. Pensky, Ph.D.; C. P. Rautenstrauch, Ph.D.; J. Ren, Ph.D.; R. S. Rodriguez, Ph.D.; D. K. Rollins, Ph.D.; A. Tovbis, Ph.D.

Assistant Professors: D. Han, Ph.D.; C. Young, Ph.D.; R. C. Jones, Ph.D.; A. Katesvich, Ph.D.; F. L. Salzmänn, Ph.D.; Y. Zhao, Ph.D.

Visiting Instructors: A. Danielyan, Ph.D.; L. Dunlop, M.S.; P. Higgins, M.S.; M. Langfield, M.S.; K. Muterspaugh, M.S.

Joint Appointees: T. Clarke, Ph.D., Associate Faculty; R. Dutton, Ph.D., Professor of Computer Science; L. Hoffman, Ph.D., Associate Professor of Statistics; 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

## Master of Science in Mathematical Science

The Master of Science degree in Mathematical Science is 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.

A track in Industrial Mathematics is offered to prepare graduate students to pursue careers in industry by providing them with a high quality of professional training in branches of mathematics that are valuable to high-technology industry. Graduates of the program will be able to pursue a wide variety of jobs at the local and national levels.

## Admission Requirements

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. The department requires international students and students whose native language is not English to have a minimum score of 220 (computer-based test; or equivalent score on the paper-based test) on the Test of English as a Foreign Language (TOEFL).

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 nondegree-seeking status, although only nine hours in this status can be transferred into a graduate program.

[Application Deadlines](#)

## Degree Requirements

There are two options for the master's degree, thesis and non-thesis. In either option, a student should find an adviser who participates in designing a program of study. A program of study is presented to either the Graduate Curriculum Committee or the graduate program coordinator for approval.

### Electives

Electives should be chosen in consultation with the graduate program coordinator or the student's thesis adviser and may be chosen from the suggested options: discrete mathematics, general applied mathematics, image processing and computer graphics, mathematical optics, mathematical physics, pure mathematics, rational mechanics, signal analysis, and statistics. A list of courses for these elective options can be obtained from the graduate program coordinator. Approved graduate courses outside the department may also be used. The student can take up to six credit hours of approved 4000-level mathematics courses. If a student takes MAP 4363 (Applied Boundary Value Problems I), then MAP 5435 (Advanced Mathematics for Engineers) cannot be applied toward the graduate program of study.

### 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. An oral defense of the thesis will be required. It is strongly recommended that the student select a thesis adviser by the completion of 18 semester hours of course work.

## Requirements for M.S. with Thesis Option—30 Credit Hours Minimum

A typical plan of study:

- MAA 5210 Topics in Advanced Calculus (4 credit hours)
- MAA 5405 Complex Variables (3 credit hours)
- MAP 5336 Ordinary Differential Equations and Applications (3 credit hours)
- MAP 5385 Applied Numerical Mathematics (3 credit hours)
- MAP 5407 Applied Mathematics I (3 credit hours)
- MAS 5145 Advanced Linear Algebra and Matrix Theory (3 credit hours)

Electives (9 credit hours)

- MAP 6971 Thesis (3 credit hours)

### Non-Thesis Option

In this option the student takes 36 credit hours of course work with at least 21 in the Department of Mathematics. The student must pass a comprehensive written examination given in the final semester of the student's program, based on the program of study. The examination will



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.

## Requirements for M.S. with Non-Thesis Option—36 Credit Hours

A typical plan of study:

- MAA 5210 Topics in Advanced Calculus (4 credit hours)
- MAA 5405 Complex Variables (3 credit hours)
- MAP 5336 Ordinary Differential Equations and Applications (3 credit hours)
- MAP 5385 Applied Numerical Mathematics (3 credit hours)
- MAP 5407 Applied Mathematics I (3 credit hours)
- MAS 5145 Advanced Linear Algebra and Matrix Theory (3 credit hours)

Electives (18 credit hours)

## Industrial Mathematics Track

A track in Industrial Mathematics is offered to prepare graduate students to pursue careers in industry by providing them with high quality professional training in branches of mathematics that are valuable to high-technology industry. Graduates of the program will be able to pursue a wide variety of jobs at the local and national levels.

This track offers a thesis or non-thesis option. In either option, a student will work with an adviser to design a program of study. A program of study is presented to either the Graduate Curriculum Committee or the program coordinator for approval. If a student has an industry sponsor, the student’s program of study will be developed in consultation with a representative from his sponsoring company. Students are expected to obtain hands-on experience by working at sponsoring companies during summer semesters.

There are several courses required as pre-requisites to this track. Those courses are as follows: Calculus with Analytic Geometry I, II, and III; Differential Equations; Elementary Linear and Matrix Algebra (or a course equivalent); Numerical Calculus (or a course equivalent); and Statistics.

## Required Courses

- MAP 5407 Applied Mathematics I (3 credit hours)
- MAP 5117 Mathematical Modeling (3 credit hours)
- MAP 5385 Applied Numerical Mathematics (3 credit hours)
- MAP 6111 Mathematical Statistics (3 credit hours)
- MAT 5711 Scientific Computing (3 credit hours)

## Electives

Electives should be chosen in consultation with the graduate program coordinator or the student’s adviser. A list of elective courses can be obtained from the graduate program coordinator. Approved graduate courses outside the department may also be used. The student can take up to six credit hours of approved 4000-level mathematics courses.

## Thesis Option

The thesis option requires 27 credit hours of courses, including the required courses and 3 credit hours of thesis. The student must take at least 15 credit hours from the Mathematics Department and at least 6 credit hours from outside the department (with the approval of the adviser or the graduate program coordinator). It is recommended that the thesis topics have potential for industrial applications. An oral defense of the thesis will be required.

Requirements for M.S. with Thesis Option—30 Credit Hours Minimum

## Non-Thesis Option

The non-thesis option requires 36 credit hours of courses, including the required courses and a written comprehensive examination. The student must take at least 21 credit hours from the Mathematics Department and at least 9 credit hours from outside the department (with the approval of the adviser or the graduate program coordinator). The comprehensive examination will be given in the final semester of the student's program of study, based on the program of study. The examination will be on the required courses with the exclusion of Scientific Computing. The examination will be supervised by a committee composed of the adviser and at least two other faculty members from the Department of Mathematics. A pass/fail grade is given on the examination; and it may be repeated twice if necessary.

Requirements for M.S. with Non-Thesis Option—36 Credit Hours

## Doctor of Philosophy in Mathematics

In 1992, the Department of Mathematics began its Ph.D. program with emphasis on Applied Mathematics. Students in this program specialize in many different aspects of mathematics, including propagation through random media, nonlinear waves, graph theory, operator algebra and frame theory, tomography, approximation theory, differential equations, nonlinear dynamics and mathematical physics, as well as abstract algebra, real and complex analysis, and probability theory. In response to this wide variety of interests, the program offers more flexibility in the composition of the core as well as the qualifying examination. The program is comprehensive with opportunities for prospective students to pursue research in a variety of discipline areas.

The goal of the program is to produce students with a broad base who will attain distinction in their fields of research. In order to achieve this, the program has a required core as well as a set of electives providing cross-disciplinary subjects. All Ph.D. students are required to take electives outside the department.

## Admission Requirements

Admission to the Ph.D. Program in Mathematics is formalized by the university upon the recommendation of the Department of Mathematics. Applicants must complete an application for graduate admission (available at [www.graduate.ucf.edu](http://www.graduate.ucf.edu)), including a resume, goal statement, and three letters of recommendation.

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. The department requires international students and students whose native language is not English to have a minimum score of 220 (computer-based test; or equivalent score on the paper-based test) on the Test of English as a Foreign Language (TOEFL).

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 non-degree-seeking status, although only nine hours in this status can be transferred into a graduate program.

[Application Deadlines](#)

## Degree Requirements

The Doctor of Philosophy (Ph.D.) program consists of at least 75 semester hours of course work, of which a minimum of 15 hours are required for the dissertation. In addition to the dissertation hours, the program requirements include 18 hours of core courses, 6-12 hours of course work at the graduate level outside the department, and the remainder made up of electives and independent study courses. No more than 12 semester hours of independent study may be credited toward the degree.

Electives should be chosen in consultation with the student's advisory committee and may be chosen from the suggested options: Discrete Mathematics, General Applied Mathematics, Image Processing and Computer Graphics, Mathematical Optics, Mathematical Physics, Pure Mathematics, Rational Mechanics, Signal Analysis, and Statistics. A list of courses for these elective options can be obtained from the graduate program coordinator. If a student takes MAP 4363 (Applied Boundary Value Problems I), then MAP 5435 (Advanced Mathematics for

Courses taken outside the department are to be in a single area of application of mathematics that is related to the student's doctoral work. These courses are to be selected in consultation with the student's advisory committee. Students are encouraged to include in their plan of study a maximum of 12 semester hours of course work outside the department. Students can take up to 6 semester hours of approved 4000-level mathematics courses. In addition to the 75 semester hours of the program, a minimum of 3 credit hours of an approved computer language are required. The language and computer courses may have been taken at any point in the student's post-secondary career.

#### Core Courses—18 Semester Hours

Students must take six of the following courses. The choices must be approved by the graduate coordinator.

- MAA 5405 Complex Variables (3 credit hours)
- MAA 5416 Foundations of Analysis (3 credit hours)
- MAA 6404 Complex Analysis (3 credit hours)
- MAP 5336 Ordinary Differential Equations and Applications (3 credit hours)
- MAP 5407 Applied Mathematics I (3 credit hours)
- MAP 6110 Measure and Probability (3 credit hours)
- MAP 6356 Partial Differential Equations (3 credit hours)
- MAP 6408 Applied Mathematics II (3 credit hours)
- MAP 6506 Functional Analysis (3 credit hours)
- MAS 5311 Abstract Algebra with Applications (3 credit hours)

#### Electives—42 Semester Hours

#### Dissertation—15 Semester Hours

#### Minimum Hours Required for Ph.D.—75 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 a written examination that will be administered twice a year. Students must obtain permission from the Graduate Program Coordinator to take the examination. 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. 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.

Depending on the choice of core courses, students may choose to complete qualifying exams in either of the following two groups of courses:

- MAA 5416 Foundations of Analysis
- MAA 6404 Complex Analysis
- MAP 6506 Functional Analysis
- MAS 5311 Abstract Algebra with Applications

Or

- MAA 5405 Complex Variables
- MAP 5336 Ordinary Differential Equations and Applications
- MAP 5407 Applied Mathematics I
- MAP 6356 Partial Differential Equations

After passing the qualifying exam, the student must select a dissertation adviser. Finding a dissertation adviser is the responsibility of the student and should be done as soon as possible. In consultation with the dissertation adviser, the student should form an advisory committee. The dissertation adviser 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.

# Industrial and Organizational Psychology

## Description

College of Arts and Sciences Department of Psychology Department Chair: Dr. John M. McGuire Web address: <http://pegasus.cc.ucf.edu/~psych/>

The University of Central Florida offers master's and doctoral degrees in Industrial and Organizational Psychology. The master's program in industrial and 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. The doctoral program in Industrial and Organizational Psychology provides students with training that is consistent with the scientist-practitioner model. A key assumption of the program is that every graduate must be a highly competent scientist who can contribute to both the science and practice of Industrial and Organizational Psychology.

## Degrees Offered

Master of Science in Industrial and Organizational Psychology (M.S.)

Doctor of Philosophy in Psychology, Industrial and Organizational Psychology Track

## Master of Science in Industrial and Organizational Psychology

Graduate Program Coordinator: Dr. William Wooten, PH 302H, (407) 823-3478. E-mail: [wwooten@pegasus.cc.ucf.edu](mailto:wwooten@pegasus.cc.ucf.edu)

Industrial and Organizational Psychology 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.

## Admission Requirements

The Graduate Record Examination (GRE) is required of all graduate students. Applicants must satisfy the university minimum admission criterion of a quantitative-verbal score of 1000 on the GRE or a GPA of 3.0 for the last 60 semester hours of attempted work for the baccalaureate degree. International students and students whose native language is not English must score at least 220 (computer-based test; or equivalent score on the paper-based test) on the Test of English as a Foreign Language (TOEFL).

To be considered for admission, applicants must provide:

- 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.

All requested material must be submitted by the application deadline. Applicants are encouraged to apply online. Acceptance decisions are made only in the spring semester for admission in the fall of each year.

[Application Deadlines](#)

# 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 credit hours) in the core content areas of psychology, for a minimum of 18 upper division hours in psychology.

## Degree Requirements

The M.S. degree program in Industrial and Organizational Psychology is a four-semester program for full-time students. Both thesis and non-thesis options are offered. Both options consist 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.

Requirements for M.S.—40 Credit Hours Minimum

### Academic Course Work—29 Credit Hours

- INP 6058 Job and Task Analysis (3 credit hours)
- INP 6215 Assessment Centers and Leadership (3 credit hours)
- INP 6317 Organizational Psychology and Motivation (3 credit hours)
- INP 6605 Training and Performance Appraisal (3 credit hours)
- INP 6094 Current Topics in Industrial/Organizational Psychology (3 credit hours)
- INP 6088 Applied Problems in Industrial/Organizational Psychology (3 credit hours)
- PSY 6216 Advanced Research Methodology I (4 credit hours)
- PSY 6308 Psychological Testing I (4 credit hours)
- PSY 6318 Applied Testing and Selection (3 credit hours)

### Practicum—3 Credit Hours

- INP 6946 Industrial Psychology Practicum I (3 credit hours)

### Thesis Option

- PSY 6971 Thesis (8 credit hours)

### Non-Thesis Option

6 hours of electives from approved list or other approved courses (see below)

### Approved Electives:

- EXP 5256 Human Factors I (3 credit hours)
- EXP 6255 Human Performance (3 credit hours)
- EXP 6506 Human Cognition and Learning (3 credit hours)
- MAN 6116 Managing a Diverse Workforce (3 credit hours)
- MAN 6245 Organizational Behavior and Development (3 credit hours)
- MAN 6285 Change Management (3 credit hours)
- MAN 6305 Human Resources Management (3 credit hours)
- MAN 6395 Management Development and Coaching (3 credit hours)
- SOP 5059 Advanced Social Psychology (3 credit hours)

### Research

- PSY 6908 Independent Research (2 credit hours)

Students are expected to materially participate in the conduct or research under the supervision of a faculty adviser and the preparation of a research report of sufficient quality to allow submission for publication or presentation at a national professional association conference. The research report will be evaluated jointly by the faculty adviser and the program director.

## Practicum

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

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

Practicum placements are initiated with a behavioral agreement between the graduate student and the organization. Behavioral agreements and performance objectives are jointly decided by the supervising faculty member, the organization representative, and the student. Full-time students are typically assigned practicum projects for the fall or spring terms of their second year.

# Doctor of Philosophy in Psychology, Industrial and Organizational Psychology Track

Graduate Program Coordinator: Dr. Eugene F. Stone-Romero, PH 309F, (407) 823-2544. E-mail: [estone@pegasus.cc.ucf.edu](mailto:estone@pegasus.cc.ucf.edu)

The Industrial and Organizational (I&O) doctoral program is restricted to individuals who have a baccalaureate or master's degree in Psychology or in a closely related field. Admission to the program is based upon an overall assessment of the applicant's potential for completing it and for making significant contributions to the science and/or practice of I&O Psychology.

The doctoral program in I&O Psychology provides students with training that is consistent with the scientist-practitioner model. As a result of this training the student will be prepared to pursue a rewarding career in either academia (university-based teaching and research) or industry (e.g., consulting). A key assumption of the program is that irrespective of an individual's career path (academic, applied, etc.), he or she must be a highly competent scientist who can contribute to both the science and practice of I&O Psychology.

I&O students receive training in the 21 areas of competence that are detailed in the Guidelines for Education and Training at the Doctoral Level in Industrial/Organizational Psychology, an official publication of the Society for Industrial and Organizational Psychology, Division 14 of the American Psychological Association. These areas include

- work motivation theory
- organization theory
- organizational development theory
- attitude theory
- career development theory
- decision making
- human performance/human factors
- assessment of individual differences
- small group theory
- performance appraisal and feedback
- criterion theory and development
- personnel selection, placement, and classification
- research methods
- statistical methods
- job and task analysis
- individual assessment
- training theory, program design and evaluation.

Primary training in these areas is accomplished through doctoral level study. Note, however, that training in selected areas may also take place

observational learning (modeling). It may also take place through either course work or other educational experiences associated with Master's level training in I&O Psychology or a closely related field.

Students in the program are required to complete a common set of courses in I&O Psychology and related areas (e.g., social, personality, and cognitive), but may develop a high level of expertise in a specific area through other courses, independent study, and research activities. In addition, students are expected to be actively involved in research with I&O area faculty throughout their period of study.

Some students who are admitted to the I&O doctoral program may have taken graduate-level courses at UCF or another university. The plan of study for such students may be modified to take such course work into account.

A dissertation is required of all students in the program. The research associated with the dissertation must be empirical in nature. Moreover, it must make an important contribution to the field of I&O Psychology. A student may earn a Master's degree in I&O Psychology in route to the Ph.D. However, in order to earn the M.S. degree the student must apply for admission to the M.S. program, be accepted to it, and meet its requirements. Interested students should seek advice from the Director of the M.S. Program regarding relevant policies, procedures, and degree requirements.

## Faculty Resources

The Department of Psychology has five I&O Psychologists and over 25 psychologists in other areas (e.g., Experimental, Human Factors, Clinical, Cognitive, and Social). In addition, there are several I&O psychologists in the Department of Management who can contribute to the education and training of I&O doctoral students. Moreover, there are other faculty members in the Department of Management who have expertise in such areas as human resource management, organizational theory, and business policy and strategy.

## Faculty in Industrial and Organizational Psychology Area

W. A. Burroughs, Ph.D., Professor

B. A. Fritzsche, Ph.D., Assistant Professor

Eduardo Salas, Ph.D., Professor

E. Stone-Romero, Ph.D., Professor and Ph.D. Program Coordinator

W. Wooten, Ph.D., Associate Professor and Associate Chair

## Admission Requirements

Students who seek admission to the I&O Program are expected to meet the following general requirements:

- An undergraduate degree in psychology or a closely-related field. Applicants must have taken a set of undergraduate or graduate-level courses in Psychology that are sufficiently broad to prepare them for doctoral-level study in I&O Psychology. The set must include courses in research methods and statistics.
- Admission to the Ph.D. program is competitive. Successful applicants are expected to have an outstanding academic record.
- The Graduate Record Examination must be completed by all applicants. In general, applicants should have a combined verbal and quantitative score of at least 1000. Exceptions to this general rule may be made for applicants who have an outstanding undergraduate grade point average.
- Students who have other than English as their native language must complete the Test of English As a Foreign Language (TOEFL) and achieve a sufficiently high score to demonstrate that they have the ability to complete all I&O Program requirements at a normal pace and without remediation. The minimum university requirement is at least 220 (computer-based test; or equivalent score on the paper-based test).

In order to be considered for admission, applicants must provide:

- A completed UCF Graduate Degree Program Application Form.
- Evidence of completion (or near completion) of an undergraduate degree in Psychology or a closely related field. The program of study must be such as to prepare the applicant for doctoral-level study in the I&O program.
- An official Graduate Record Examination score report showing scores on the Verbal and Quantitative portions of the examination. The examination must have been taken within five years of the date of the submission of the Application Form.



- Official transcripts showing grades for all undergraduate and graduate level courses taken by the applicant at all colleges and/or universities.
- A resume detailing the applicant's prior activities in the areas of education, work, and research.
- A written statement detailing (a) their reasons for pursuing a Ph.D. degree in I&O Psychology, (b) their career aspirations and how doctoral training in I&O Psychology will contribute to their career-related goals and aspirations, and (c) their reason for wanting to do doctoral studies at the University of Central Florida.
- Three letters of recommendation must be submitted. At least two of these must be from college or university professors who are familiar with the applicant. One may be from a non-academic professional who knows the applicant and has a valid basis for commenting on his or her capacity to complete a doctoral program in I&O Psychology.

All of the above materials must be submitted by the published application deadline for the term in which the applicant seeks admission to the program. Admissions decisions are generally made by the second week in March and applicants are notified of their status shortly thereafter. Note that admission to the program is restricted to the Fall semester of each academic year.

### [Application Deadlines](#)

## Degree Requirements

The doctoral program in I&O Psychology requires approximately four years of full-time study beyond the baccalaureate and 2-3 years beyond the master's. The first few years are devoted to course work and the final year to the doctoral dissertation.

After completing all required course work students are required to pass a Candidacy Examination. This examination may be taken a maximum of two times. Failure to pass the examination on both occasions will result in the student being dropped from the program.

Having passed the Candidacy Examination, the student may begin dissertation-related research. After the completion of this research the student must then pass an oral examination, i.e., a dissertation defense.

## Program-related Courses

The I&O Program requires a minimum of 73 credit hours of graduate study for students who enter the program with a baccalaureate degree. The nature of this study is determined by the I&O Area Program Committee. For the typical student, the 73 hours of study will be distributed as follows.

### Required I&O Area Courses—41 Credit Hours

- INP 7075 Current Theory and Research in Industrial and Organizational Psychology (2 hours per semester for a total of 12 credit hours)
- INP 7071 Research Methods in Industrial and Organizational Psychology (3 credit hours)
- INP 7214 Industrial Psychology I (3 credit hours)
- INP 7251 Industrial Psychology II (3 credit hours)
- INP 7310 Organizational Psychology I (3 credit hours)
- INP 7311 Organizational Psychology II (3 credit hours)
- INP 7XXX Psychometric Theory and Practice (3 credit hours)
- PSY 6216 Advanced Research Methodology I (4 credit hours)
- PSY 6217 Advanced Research Methodology II (4 credit hours)
- PSY 6219C Advanced Research Methods III (4 credit hours)

### Required Psychology Field Courses—3 Credit Hours

- SOP 5059 Advanced Social Psychology (3 credit hours)

### Elective Psychology Field Courses—6 Credit Hours

Two courses from the following set. The courses in this set are selected by the student in conjunction with his or her advisor. Note, however, that all courses in the set must be approved by the I&O Program Committee. The courses may include:

- EXP 5208 Sensation and Perception (3 credit hours)
- EXP 5445 Psychology of Learning and Motivation (3 credit hours)

- EXP 6506 Human Cognition and Learning (3 credit hours)
- PPE 5055 Personality Theories (3 credit hours)
- PSB 5005 Physiological Psychology (3 credit hours)
- PSY 5605 History and Systems of Psychology (3 credit hours)

#### Other Elective Courses—7 Credit Hours

Two courses from the following set. The courses in this set are selected by the student in conjunction with his or her adviser. Note, however, that all courses in the set must be approved by the I&O Program Committee. The courses may include:

- EXP 5256 Human Factors I (3 credit hours)
- EXP 6257 Human Factors II (3 credit hours)
- INP 6058 Job and Task Analysis (3 credit hours)
- INP 6215 Assessment Centers and Leadership (3 credit hours)
- INP 6605 Training and Performance Appraisal (3 credit hours)
- MAN 6285 Change Management (3 credit hours)
- MAN 6305 Human Resources Management (3 credit hours)
- MAN 6311 Advanced Topics in Human Resources Management (3 credit hours)
- MAN 6395 Management Development and Coaching (3 credit hours)
- PSY 6318 Applied Testing and Selection (3 credit hours)
- PSY 6908 Directed Independent Studies (3-6 credit hours)

#### Dissertation—15 Credit Hours

- PSY 7980 Doctoral Dissertation (15 credit hours)

# Communication

## Description

College of Arts and Sciences Nicholson School of Communication Director of the School: Dr. Milan D. Meeske Graduate Program Coordinator: Dr. Burt Pryor, COMM 248, (407) 823-5670 or (407) 823-4655. E-mail: [apryor@pegasus.cc.ucf.edu](mailto:apryor@pegasus.cc.ucf.edu) or [kseitz@mail.ucf.edu](mailto:kseitz@mail.ucf.edu)  
Web address: <http://www.cas.ucf.edu/communication/>

The University of Central Florida offers a Master of Arts in Communication. The curriculum focuses on theoretical and applied perspectives of communication theory and research, with tracks in Interpersonal Communication and 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.

## Degrees Offered

### Master of Arts in Communication (M.A.)

- Interpersonal Communication Track
- Mass Communication Track

## Faculty

Professors: R. H. Davis, Ph.D.; F. E. Fedler, Ph.D.; M. D. Meeske, Ph.D.; B. Pryor, Ph.D.; R. F. Smith, M.A.; K. P. Taylor, Ph.D.

Associate Professors: J. F. Butler, Ph.D.; W. J. Hall, Ed.D.; J. Maunez-Cuadra, Ph.D.; J. B. O'Hara, Ph.D.; M. C. Santana, Ph.D.; L. A. Tanzi, Ph.D.; E. B. Wycoff, Ph.D.

Assistant Professors: G. M. Bagley, M.A.; R. L. Barfield, Ph.D.; T. M. Bridges, M.A.; R. E. Costain, M.A.; D. E. DeLorme, Ph.D.; F. L. Johnson, M.A.; S. G. Lawrence, Ph.D.; M. Rabby, Ph.D.

## Master of Arts in Communication

### Admission Requirements

Applicants must complete an application for graduate admission (available at [www.graduate.ucf.edu](http://www.graduate.ucf.edu)) and submit a statement of academic and professional goals. Students wishing to be considered for fellowships or assistantships must apply by the priority deadline and submit three letters of recommendation with their application.

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 combined score of at least 1000 on the verbal and quantitative sections of the General (Aptitude) test of the GRE. The department requires international students and students whose native language is not English to have a minimum score of 220 (computer-based test; or equivalent score on the paper-based test) on the Test of English as a Foreign Language (TOEFL).

[Application Deadlines](#)

### Degree Requirements

Students must select either the thesis or the comprehensive exam option. The thesis option for the Interpersonal and Mass Communication Tracks requires 30 hours of course work and the preparation and defense of a thesis (4 hours), for a total of 34 credits. The comprehensive exam option requires 33 credit hours of course work for the Interpersonal and Mass Communication Tracks, and the successful completion of

the comprehensive exams. The decision whether to write a thesis and defend it in an oral examination or to take the comprehensive exams should be made in consultation with the School of Communication graduate program coordinator. Typically, students entering or continuing professional careers following the M.A. would select the comprehensive exam option, while those who plan to enter doctoral programs would select the thesis option.

## Core Requirements

Interpersonal Communication Track—15 Credit Hours

- COM 6046 Interpersonal Communication (3 credit hours)
- COM 6303 Communication Research I (3 credit hours)
- COM 6304 Communication Research II (3 credit hours)
- SPC 6219 Modern Communication Theory (3 credit hours)
- EDF 6401 Statistics for Educational Data (3 credit hours)

Mass Communication Track—12 Credit Hours

- MMC 6402 Mass Communication Theory (3 credit hours)
- MMC 6445 Mass Media Research I (3 credit hours)
- MMC 6446 Mass Media Research II (3 credit hours)
- EDF 6401 Statistics for Educational Data (3 credit hours)

## Restrictive Electives for All Tracks

Interpersonal Communication Track—15 credit hours in Thesis Option, 18 credit hours in Comprehensive Exam Option

Mass Communication Track—18 credit hours in Thesis Option, 21 credit hours in Comprehensive Exam Option

- MMC 6307 International Communication (3 credit hours)
- COM 6121 Communication Management (3 credit hours)
- COM 6467 Studies in Persuasion (3 credit hours)
- COM 6468 Communication and Conflict (3 credit hours)
- COM 6525 Communication Strategy and Planning (3 credit hours)
- COM 6XXX Seminar in Intercultural Communication (3 credit hours)
- MMC 6202 Legal and Ethical Issues for Communication (3 credit hours)
- MMC 6407 Visual Communication Theory (3 credit hours)
- MMC 6567 Seminar in New Media (3 credit hours)
- **MMC 6600 Media Effects and Audience Analysis (3 credit hours)**
- MMC 6606 Advertising and Society (3 credit hours)
- MMC 6607 Communication and Society (3 credit hours)
- MMC 6612 Communication and the Government (3 credit hours)
- PUR 6403 Crisis Public Relations (3 credit hours)
- SPC 6442 Small Group Communication (3 credit hours)

Core courses from other tracks, special topics, independent studies, 5000-level courses, and approved courses taken outside the Nicholson School of Communication may be counted as restricted electives.

# Elementary Education

## Description

College of Education Department of Teaching and Learning Principles Interim Chair of Department: Dr. Robert Williams Graduate Program Coordinator: Dr. E. Ortiz, (407) 823-5222, [ortiz@mail.ucf.edu](mailto:ortiz@mail.ucf.edu) Web address: <http://reach.ucf.edu/~elemed2>

The College of Education offers a master's program in Elementary Education leading to a Master of Education (M.Ed.) degree or Master of Arts (M.A.) degree.

The M.Ed. degree 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.

The M.A. degree can be completed in the minimum 36 credit 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.

## Degrees Offered

Master of Education in Elementary Education (M.Ed.) Master of Arts in Elementary Education (M.A.)

## Master of Education in Elementary Education

The Master of Education degree 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, and updates the student's skills and understanding as related to current research and instructional trends in basic subject matter areas, and elective choices in specific areas.

[Master's Programs in the College of Education](#)

[Application Deadlines](#)

## Degree Requirements

Minimum Hours Required for M.Ed.—30 Credit Hours

### Area A: Core—9 Credit Hours

- EDE 6933 Elementary Education Seminar I (2 credit hours)
- EDE 6935 Elementary Education Seminar II (1 credit hour)
- EDF 6233 Analysis of Classroom Teaching (3 credit hours)
- EME 5050 Fundamentals of Technology for Educators (3 credit hours) OR
- EME 6405 Application Software for Educational Settings (3 credit hours)

### Area B: Specialization: Minimum of 12 Credit Hours

The adviser may approve courses taken as part of a UCF Certificate Program for this area of the M.Ed. (up to 12 credit hours). The adviser must approve elective courses for this area.

Select from the following:

- LAE 5195 CFWP Teacher Consultant (3 credit hours)
- LAE 5295 Writing Workshop I (1-3 credit hours)
- LAE 5415 Children's Literature Elementary Education (3 credit hours). (Use the course above only if no previous children's literature course has been taken.)
- LAE 6296 Writing Workshop II (3 credit hours)
- LAE 6417 Investigations in Children's Literature (3 credit hours)
- LAE 6616 Trends in Language Arts Education (3 credit hours)
- MAE 6517 Diagnosis/Remediation of Difficulties in Mathematics for the Classroom Teacher (3 credit hours)
- MAE 6641 Problem Solving and Critical Thinking Skills (3 credit hours)
- RED 6116 Trends in Reading Education (3 credit hours)
- SCE 5825 Space Science for Educators (3 credit hours)
- SCE 6616 Trends in Elementary School Science Education (3 credit hours)
- SCE 6146 Environmental Education for Educators (3 credit hours)
- SSE 6617 Trends in Elementary School Social Studies Education (3 credit hours)
- TSL 5345 Methods of ESOL Teaching (3 credit hours)
- TSL 6142 Critical Approaches to ESOL (3 credit hours)
- TSL 6440 Problems in Evaluation in ESOL (3 credit hours)
- EEC 5205 Programs and Trends in Early Childhood Education (3 credit hours)
- EEC 5206 Organization of Instruction in Early Childhood Education (3 credit hours)

## Area C: Minimum of 9 Credit Hours: Select Option 1, or 2 below.

Option 1: Thesis Option: No Comprehensive Exam Needed for this option—9 Credit Hours

- EDE 6971 Thesis (6 credit hours)
- LAE 6792 CFWP Teacher/Researcher (3 credit hours) OR
- EDF 6481 Fundamentals of Graduate Research in Education (3 credit hours)

Option 2: Non-Thesis Option: Comprehensive Exam is required for this option—9 Credit Hours

- EDF 6432 Measurement and Evaluation in Education (3 credit hours) OR
- EDF 6446 Assessment of Learning (3 credit hours)
- AND 6 credit hours selected with the permission of the adviser

## Primary Track

The purpose of this track is to prepare students to become master teachers of, or consultants for, programs in age three through grade three. Course work includes a “professional core” of research, human development, and measurement and evaluation courses, field experiences and courses focusing on programs, creative activities, organization of instruction, individualizing, perception, and an overview of the exceptional student. Students must have certification in Elementary Education. This degree does not meet the requirements for Early Childhood Education.

## Degree Requirements

Minimum Hours Required for M.Ed.—36-39 Credit Hours

Area A: Core—12 or 15 Credit Hours

- EDF 6155 Lifespan Human Development and Learning (3 credit hours)
- EDF 6481 Fundamentals of Graduate Research in Education (3 credit hours)

Select Option A or B

Option A—Research Project or Thesis—6 Credit Hours

- EDF 6401 Statistics for Educational Data (3 credit hours)
- EDE 6971 Thesis (2,1 credit hours) OR
- EDF 6909 Research Report (2,1 credit hours)

### Option B—Non-Thesis—9 Credit Hours

- Electives approved by adviser (6 credit hours)
- EDF 6886 Multicultural Education (3 credit hours)

### Area B: Specialization—24 Credit Hours

- EEC 5205 Programs and Trends in Early Childhood Education (3 credit hours)
- EEC 5206 Organization of Instruction in Early Childhood Education (3 credit hours)
- EEC 5208 Creative Activities in Early Childhood (3 credit hours)
- EEC 6268 Play Development, Intervention, and Assessment (3 credit hours)
- EEC 6406 Guiding and Facilitating Social Competence (3 credit hours)
- EEX 5750 Communication with Parents and Agencies (3 credit hours)
- EEX 6017 Typical and Atypical Applied Child Development (3 credit hours)
- EEX 6224 Observation and Assessment of Young Children (3 credit hours)

## Mathematics Education Track

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

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

This track is not approved for automatic certification by the state of Florida. The track may qualify students for certification in Middle School Mathematics if sufficient mathematics (8 credit hours) content courses and certain experience-methods requirements have been taken. To be certified as an elementary mathematics specialist, a person must have a minimum of 18 credit hours in mathematics.

## Degree Requirements

### Minimum Hours Required for M.Ed.—33 Credit Hours

#### Area A: Core—12 or 15 Credit Hours

- EDF 6481 Fundamentals of Graduate Research in Education (3 credit hours)
- EDF 6401 Statistics for Educational Data (3 credit hours) OR
- EDF 6432 Measurement and Evaluation in Education (3 credit hours)

Select one course from the following list.

- EDF 6155 Lifespan Human Development and Learning (3 credit hours)
- EDF 6517 Perspectives on Education (3 credit hours)
- EDF 6608 Social Factors in American Education (3 credit hours)
- MAE 6909 Research Report or 2 electives (2,1 or 6 credit hours)

#### Area B: Specialization—12 Credit Hours

- MAE 4634 Programs in Teaching of Mathematics (3 credit hours)
- MAE 6517 Diagnosis/Remediation of Difficulties in Mathematics for the Classroom Teacher (3 credit hours)
- MAE 6899 Seminar in Teaching Mathematics (3 credit hours)
- MAE 6946 Practicum (3 credit hours)

#### Area C: Electives—9 Credit Hours—Approved by adviser

- MAE 5318 Current Methods in Elementary School Mathematics (3 credit hours)
- MAE 6145 Mathematics Curriculum, K-12 (3 credit hours)

- MAE 6641 Problem Solving and Critical Thinking Skills (3 credit hours)

# Master of Arts in Elementary Education

The Master of Arts in Elementary Education can be completed in the minimum 36 credit 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.

[Master's Programs in the College of Education](#)

[Application Deadlines](#)

## Degree Requirements

Minimum Hours Required for M.A.—36 Credit Hours

### Area A: Seminars—3 Credit Hours

- EDE 6933 Elementary Education Seminar I (2 credit hours)
- EDE 6935 Elementary Education Seminar II (1 credit hour)

### Area B—15 Credit Hours

- EDF 6481 Fundamentals of Graduate Research in Education (3 credit hours)
- EDF 6432 Measurement and Evaluation in Education (3 credit hours)
- EDF 6155 Lifespan Human Development and Learning (3 credit hours)
- EDG 6236 Principles of Instruction (3 credit hours)
- One elective from EDF 6608, EDF 6517, or EDF 6886 (3 credit hours)

### Area C: PR or CR EDE 6933—21 Credit Hours

- LAE 5319 Methods of Elementary School Language Arts (3 credit hours)
- LAE 5415 Children's Literature in Elementary Education (3 credit hours)
- MAE 5318 Current Methods in Elementary School Mathematics (3 credit hours)
- SCE 5716 Methods in Elementary School Science (3 credit hours)
- RED 5147 Developmental Reading (3 credit hours)
- RED 5514 Classroom Diagnosis and Development of Reading Proficiencies (PR: RED 5147) (3 credit hours)
- SSE 5115 Methods of Elementary School Social Science (3 credit hours)

### Area D: Internship—6 Credit Hours

- EDE 6946 Graduate Internship (6 credit hours)

Satisfactory completion of Graduate Internship requires the student to demonstrate proficiency in all 12 Florida Educator Accomplished Practices at the pre-professional level in accordance with State Board of Education Rule 6A-5.065.

## Co-requisites

- ARE 4313 Art in Elementary Schools (3 credit hours)
- HLP 4722 Teaching Elementary School Health and Physical Education (3 credit hours)
- MUE 3210 Music in Elementary Schools (3 credit hours)



## Additional Program Requirements

- Complete a portfolio according to program guidelines. This portfolio requires demonstration of professional growth, reflection, and proficiency in the 12 Florida Educator Accomplished Practices.
- Pass the CLAST as well as the Professional Education and Subject Area subtests of the Florida Teacher Certification Examination.

# Liberal Studies

## Description

College of Arts and Sciences Liberal Studies Graduate Program Graduate Program Director: Dr. Elliot Vittes, CNH 201, (407) 823-2745. E-mail: [mls@mail.ucf.edu](mailto:mls@mail.ucf.edu) Web address: <http://www.cas.ucf.edu/mls/>

Liberal Studies offers an interdisciplinary master's degree with more than forty concentrations and certificate affiliations available in constructing a program of study. Liberal Studies undergraduate students may be eligible for the accelerated undergraduate and graduate program in Liberal Studies. Liberal Studies also offers a specialized Maya Studies Track in combination with the Maya Studies Certificate.

## Degrees Offered

- Master of Arts in Liberal Studies (M.A.) with a concentration or certificate affiliation from one of more than forty areas
- Master of Arts in Liberal Studies (M.A.) with the Maya Studies Track

## Master of Arts in Liberal Studies

The Master of Arts in Liberal Studies Program awards an interdisciplinary degree that incorporates three core courses as a common basis of study. The core courses bring together knowledge from various fields, traditions, and cultures, enhancing and extending the educational experience. The program is intended to develop research abilities, substantive knowledge, critical thinking, and advanced skills, through the diverse concentrations of study. Individualized advising, carefully selected classes and program construction, and a commitment to the student are central to this program.

## Admission Requirements

The Graduate Record Examination (GRE) is required for all graduate students. Minimum requirements for admission consideration are the standard university criteria of a 3.0 grade point average (GPA) on a 4.0 scale for the last 60 attempted semester credit hours earned toward the baccalaureate or a GRE score of at least 1000 on the combined verbal-quantitative sections of the General (Aptitude) Test. International students and students whose native language is not English must score at least 220 (computer-based test or an equivalent score on the paper-based test) on the Test of English as a Foreign Language (TOEFL). In addition, applicants must submit three letters of recommendation (at least one from an academic reference) and have an interview with the graduate program coordinator.

[Application Deadlines](#)

## Degree Requirements

Degree-seeking students in the Liberal Studies Program may elect to follow either a thesis or a non-thesis course of study. The degree of Master of Arts is conferred when the student has fulfilled the requirements of either the thesis or non-thesis option. Students pursuing the Maya Studies Track must take the thesis option.

Requirements for M.A.—33 Credit Hours Minimum

Required Courses—9 Credit Hours

- IDS 6308 Ways of Knowing (3 credit hours)
- IDS 6669 Interdisciplinary Approaches to Research (3 credit hours)
- IDS 6351 Critical Thinking and Writing (3 credit hours)

Concentration/Graduate Certificate Program—18 Credit Hours

A minimum of 18 semester hours of course work must be completed. Course selection is done in consultation and with approval of the

program coordinator.

#### Thesis Option—6 Credit Hours

Completion of an approved elective or directed research, and a minimum of 3 semester hours of thesis credit, and a successful completion of a thesis are required.

#### Non-Thesis Option—6 Credit Hours

Six semester hours of approved graduate electives and passing a comprehensive written examination are required.

## Concentrations

These concentrations include formally identified courses of study, certificate programs, and individualized courses of study.

- American History
- American Studies
- Art and Culture in Society
- Business and Government Writing
- Communication
- Comparative Cultural Studies: The Hispanic World
- English
- English for Speakers of Other Languages
- European, Asian, and African History
- The Human Condition
- Humanities
- International Studies
- Issues of Social Concern
- Leadership Studies
- Political Science
- Psychology
- Public Policy Analysis
- Race, Ethnicity, and Class
- Sociology
- Spanish

## Graduate Certificate Programs

- Aging Studies (Gerontology)
- Arts Management
- Computer Forensics
- Conservation Biology
- Crime Analysis
- Domestic Violence
- Education (4 areas)
- English for Speakers of Other Languages
- Gender Studies
- Health Care Information Systems
- Maya Studies
- Nonprofit Management
- Professional Writing
- Public Administration
- SAS Data Mining

NOTE: The M.A. in Liberal Studies degree program stipulates that a majority of the 33 required credit hours be earned in traditional liberal arts courses.

## Maya Studies Track

Each student must complete 33 credit hours as outlined below.

Requirements for M.A. in Liberal Studies, Maya Studies Track—33 Credit Hours Minimum

Core Courses—9 Credit Hours

- IDS 6308 Ways of Knowing (3 credit hours)
- IDS 6669 Interdisciplinary Approaches to Research (3 credit hours)
- IDS 6351 Critical Thinking and Writing (3 credit hours)

Concentration—18 Credit Hours\*

Required—6 Credit Hours

- ANG 6168 The Ancient Maya (3 credit hours)
- ANG 6324 Contemporary Maya (3 credit hours)

Elective Courses—12 Credit Hours

- ANG 5166 Problems in Maya Studies (3 credit hours)
- ANG 5167 Maya Hieroglyphics (3 credit hours)
- ANG 5228 Maya Iconography (3 credit hours)
- ANT 5165 Field Research in Maya Studies (3 credit hours)
- LAH 5XXX Latin America's Colonial Legacy: The Maya (3 credit hours)
- CPO 5334 Contemporary Politics in the Maya Region (3 credit hours)

Thesis—6 Credit Hours

Students must complete an approved elective or directed research, a minimum of 3 credit hours of thesis, and a thesis.

\* To receive the Graduate Certificate in Maya Studies, an application to the Maya Studies certificate program is required.

# Accelerated Undergraduate and Graduate Program in Liberal Studies

Graduate Program Director: Dr. Elliot Vitte, CNH 201, (407) 823-2745. E-mail: [mls@mail.ucf.edu](mailto:mls@mail.ucf.edu) Web address: [www.cas.ucf.edu/liberal\\_studies/accelerated](http://www.cas.ucf.edu/liberal_studies/accelerated)

The accelerated undergraduate and graduate program in Liberal Studies allows a student to earn a bachelor of arts or bachelor of science degree and a master of arts degree in as few as five years including summer sessions. Students can earn nine hours of graduate credit toward the master's degree while still an undergraduate, and then an additional twenty-four credits after earning the bachelor's degree.

Students majoring in Liberal Studies who have compiled a superior record can apply for the program. This unique course of study requires close advising with program advisers and approval by the Master of Arts in Liberal Studies Program.

## Admission Requirements

Acceptance to the university does not constitute admission to the combined bachelor's/master's program. An additional application to the program must be submitted and the student accepted. Contact the Liberal Studies Program or visit the website for application information. All applicants must meet the following criteria:

- A student must have a grade point average of 3.25 or higher at UCF in their last 30 semester hours before applying in the second semester of their junior year.
- The student must have earned at least 75 semester hours by the time of application.
- A Graduate Record Examination score of 1050 or above (usually taken in the second semester of the junior year).

# Degree Requirements

The combined bachelor's/master's program involves a minimum of 144 credit hours for completion of both the B.A./B.S. and M.A. degrees.

## Liberal Studies Undergraduate Degree

The Liberal Studies undergraduate program offers five options: Liberal Studies, Liberal Arts, Environmental Studies, Computer Information Technology, and Women's Studies. (Please see the Undergraduate Catalog for more details about these tracks.) The undergraduate requirements listed in the Graduate Catalog are for informational purposes only. The official requirements are detailed in the Undergraduate Catalog and take precedence over what is described here.

### Liberal Studies Track

- Minor (18+ credit hours)
- Two liberal studies areas (18 credit hours each)

### Liberal Arts Track

- Ethics course
- Critical thinking course
- Minor (18+ semester hours)
- Individual minor (24+ credit hours)
- Directed reading/honors seminar
- Thesis

### Environmental Studies Track

- Core for Environmental Studies (23 credit hours)
- Subject Area: Environmental Studies Fundamentals (20 credit hours)
- One subject areas: restricted electives (18 credit hours)

### Computer Information Technology Track

- Computer information technology minor (36 semester hours)
- One liberal studies area (18 semester hours)

### Women's Studies Track

- Either the Womanist/Women of Color subject area or the Women's Studies Cognate subject area (18 credit hours)
- One subject area from among the fifteen liberal studies areas (18 credit hours)
- Women's Studies minor (18 credit hours)

## Liberal Studies Graduate Degree

### Core Courses—9 Credit Hours

- IDS 6308 Ways of Knowing (3 credit hours)
- IDS 6351 Critical Thinking and Writing (3 credit hours)
- IDS 6669 Interdisciplinary Approaches to Research (3 credit hours)

### Concentration—18 Credit Hours

More than forty concentrations and certificate affiliation programs are part of the Master of Arts in Liberal Studies Program.

### Elective—3 Credit Hours

### Thesis Option—6 Credit Hours

Successful completion of an approved elective or directed research, a minimum of 3 credit hours of thesis credit, and successful completion of a thesis are required.

Non-Thesis Option—6 Credit Hours

Six credit hours of approved graduate electives and passing a comprehensive written examination are required.

# Counselor Education

## Description

College of Education Department of Child, Family and Community Sciences Chair of Department: Dr. Bill Wienke Graduate Program Coordinator: E. H. Robinson, (407) UCF-3819. E-mail: [erobinso@pegasus.cc.ucf.edu](mailto:erobinso@pegasus.cc.ucf.edu) Web address: <http://edcollege.ucf.edu>

Counselor Education offers two degree programs: Mental Health Counseling and School Counseling.

The Mental Health Counseling degree is a Master of Arts designed to help students obtain licensure as a mental health counselor and practice in community agencies, hospitals, colleges, universities, and private practice.

The School Counseling degrees are designed to prepare students to work as professional counselors in pre-K through postsecondary school settings. The School Counseling Program has two tracks: Master of Education (M.Ed.) and Master of Arts (M.A.). The M.Ed. program is for students who already possess a teaching credential. The M.A. degree is for an individual who has a baccalaureate degree in a discipline other than education and wants initial certification as a school counselor.

All master's degree students are required to complete clinical experiences in the UCF Community Counseling Clinic and on-site in the community. Mental Health Counseling requires a total of 1,100 clock hours of such experiences. School Counseling requires 700 hours.

## Degrees Offered

Master of Education in Counselor Education, School Counseling Track. Master of Arts in Counselor Education, School Counseling Track. Master of Arts in Counselor Education, Mental Health Counseling Track.

## Admission Requirements

### [Master's Programs in the College of Education](#)

To be considered for admission to any of the counselor education program tracks, an applicant must secure, complete, and submit an application by the deadline. A formal interview is required and will be considered for final admission after the College of Education admission requirements are met. Interviews are conducted on the second Friday in March and the second Friday in October. This program can accommodate only a limited number of students; therefore, there is a possibility of being denied admission even when all criteria are met. The College of Education reserves the right to refuse student entrance or terminate a student after admission to the Counselor Education Program, if in the judgment of the faculty the student demonstrates unacceptable personal fitness to work in the counseling field with children, youth, and/or adults.

### [Application Deadlines](#)

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.
- Complete a portfolio and receive approval by Counselor Education faculty.
- Pass comprehensive written examinations satisfactorily.
- Complete a professional exit examination.

## Master of Education in Counselor Education

### School Counseling Track

# Minimum Hours Required for M.Ed.—51 Credit Hours

Prerequisite: Eligible for teacher certification

## Area A: Core—12 Credit Hours

- EDF 6155 Lifespan Human Development and Learning (3 credit hours)
- EDF 6481 Fundamentals of Graduate Research in Education (3 credit hours)
- EGC 6971 Thesis or 2 electives (6 credit hours)

## Area B: Specialization—30 Credit Hours

- MHS 5005 Introduction to the Counseling Profession (3 credit hours)
- MHS 6220 Individual Psychoeducational Testing I (3 credit hours)
- MHS 6400 Theories of Counseling and Personality (3 credit hours)
- MHS 6401 Techniques of Counseling (3 credit hours)
- MHS 6420 Counseling Special Populations (3 credit hours)
- MHS 6500 Group Procedures and Theories in Counseling (3 credit hours)
- MHS 6780 Ethical and Legal Issues (3 credit hours)
- SDS 6330 Career Development (3 credit hours)
- SDS 6411 Counseling with Children and Adolescents (3 credit hours)
- SDS 6620 Organization and Administration of School Counseling Programs (3 credit hours)

## Area C: Professional Clinical Experience—9 Credit Hours

- MHS 6800 Practicum in Counselor Education (3 credit hours)
- MHS 6830 Counseling Internship I (3 credit hours)
- MHS 6830 Counseling Internship II (3 credit hours)
- NOTE: Courses should be taken in the following sequence: MHS 5005, 6400, 6401, 6500, 6800, and 6830.

# Master of Arts in Counselor Education

## School Counseling Track

# Minimum Hours Required for M.A.—60 Credit Hours

## Area A: Core—12 Credit Hours

- EDF 6155 Lifespan Human Development and Learning (3 credit hours)
- EDF 6481 Fundamentals of Graduate Research in Education (3 credit hours)
- EGC 6971 Thesis or 2 approved electives (6 credit hours)

## Area B: Specialization—30 Credit Hours

- MHS 5005 Introduction to the Counseling Profession (3 credit hours)
- MHS 6220 Individual Psychoeducational Testing I (3 credit hours)
- MHS 6400 Theories of Counseling and Personality (3 credit hours)
- MHS 6401 Techniques of Counseling (3 credit hours)
- MHS 6420 Counseling Special Populations (3 credit hours)
- MHS 6500 Group Procedures and Theories in Counseling (3 credit hours)
- MHS 6780 Ethical and Legal Issues (3 credit hours)
- SDS 6330 Career Development (3 credit hours)
- SDS 6411 Counseling with Children and Adolescents (3 credit hours)
- SDS 6620 Organization and Administration of School Counseling and Guidance Programs (3 credit hours)



Area C: Professional Clinical Experience—9 Credit Hours

- MHS 6800 Practicum in Counselor Education (3 credit hours)
- MHS 6830 Counseling Internship I (3 credit hours)
- MHS 6830 Counseling Internship II (3 credit hours)

Area D: Required DOE Certification—9 Credit Hours

Foundations: Select one of the following:

- EDF 6517 Perspectives on Education (3 credit hours)
- EDF 6608 Social Factors in American Education (3 credit hours)
- EDF 6886 Multicultural Education (3 credit hours)
- General Methods (Approved by adviser)—6 Credit Hours

## Mental Health Counseling Track

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

### Minimum Hours Required for M.A.—63 Credit Hours

Area A: Core—12 Credit Hours

- EDF 6155 Lifespan Human Development and Learning (3 credit hours)
- EDF 6481 Fundamentals of Graduate Research in Education (3 credit hours)
- EGC 6971 Thesis or 2 approved electives (6 credit hours)

Area B: Specialization—39 Credit Hours

- MHS 5005 Introduction to the Counseling Profession (3 credit hours)
- MHS 6020 Mental Health Care Systems (3 credit hours)
- MHS 6070 Diagnosis and Treatment in Counseling (3 credit hours)
- MHS 6220 Individual Psychoeducational Testing I (3 credit hours)
- MHS 6400 Theories of Counseling and Personality (3 credit hours)
- MHS 6401 Techniques of Counseling (3 credit hours)
- MHS 6420 Counseling Special Populations (3 credit hours)
- MHS 6450 Counseling Substance Use and Abuse (3 credit hours)
- MHS 6480 Human Sexuality and Relationships (3 credit hours)
- MHS 6500 Group Procedures and Theories in Counseling (3 credit hours)
- MHS 6780 Ethical and Legal Issues (3 credit hours)
- SDS 6330 Career Development (3 credit hours)
- Elective approved by adviser (3 credit hours)

Area D: Professional Clinical Experiences—12 Credit Hours

- MHS 6800 Practicum in Counselor Education I (3 credit hours)
- MHS 6800 Practicum in Counselor Education II (3 credit hours)
- MHS 6830 Counseling Internship I (3 credit hours)
- MHS 6830 Counseling Internship II (3 credit hours)

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

# Physics

## Description

College of Arts and Sciences Department of Physics Chair of the Department: Dr. Brian P. Tonner Graduate Program Coordinator: Dr. Robert Peale, MAP 310, (407) 823-5208. E-mail: [graduate@physics.ucf.edu](mailto:graduate@physics.ucf.edu) Web address: <http://www.physics.ucf.edu>

The University of Central Florida offers master's and doctoral programs in Physics, with tracks in General Physics and Optical Physics. Research opportunities are available in condensed matter physics, nanostructure devices, surface science, optical physics, complex systems, biophysics, and atomic and molecular physics.

## Degrees Offered

### Master of Science in Physics (M.S.)

- General Physics Track
- Optical Physics Track

### Doctor of Philosophy in Physics (Ph.D.)

- General Physics Track
- Optical Physics Track

## Faculty

Professors: S. K. Bose, Ph.D.; J. J. Brennan, Ph.D.; L. Chow, Ph.D.; R. A. Llewellyn, Ph.D.; W. Luo, Ph.D.; J. E. Neighbor, Ph.D.; H. P. Saha, Ph.D.; B. P. Tonner, Ph.D.

Associate Professors: J. S. Bolemon, Ph.D.; G. Braunstein, Ph.D.; M. D. Johnson, Ph.D.; Ph.D.; R. E. Peale, Ph.D.; A. Schulte, Ph.D.

Assistant Professors: N. G. Barlow, Ph.D.; A. Bhattacharya, Ph.D.; L. Chernyak, Ph.D.; J. M. Saul, Ph.D.; R. Vanfleet, Ph.D.; D. Walters, Ph.D.

Visiting Assistant Professors: C. Efthimiou, Ph.D.; J. Evans, Ph.D.; S. Kleckley, Ph.D.

Adjunct Professors: E. Flitsiyan, Ph.D.

Affiliate Faculty: M. Bass, Ph.D., Professor of Optics; B. H. T. Chai, Ph.D., Professor of Optics; L. R. Elias, Ph.D., Professor of Optics; M. C. Richardson, Ph.D., Professor of Optics; S. Shivamoggi, Ph.D., Professor of Mathematics; W. T. Silfvast, Ph.D., Professor of Optics; M. J. Soileau, Ph.D., Professor of Optics and Vice President for Research; G. I. Stegeman, Ph.D., Cobb-Hooker Eminent Scholar Chair of Optical and Laser Sciences and Engineering; E. W. Van Stryland, Ph.D., Professor of Optics; B. Zel'dovich, Ph.D., Professor of Optics; P. Delfyett, Ph.D., Associate Professor of Optics; D. J. Hagan, Ph.D., Associate Professor of Optics; A. Kar, Ph.D., Associate Professor of Optics; G. Li, Ph.D., Associate Professor of Optics

## Master of Science in Physics

The Master of Science degree offers students the choice of general physics or optical physics. Research opportunities are available in condensed matter physics, nanostructure devices, surface science, optical physics, complex systems, biophysics, and atomic and molecular physics.

## Admission Requirements

The Graduate Record Examination (GRE) is required of all applicants, and the Physics Subject Test of the GRE is recommended. Minimum requirements for admission to the Physics graduate program are the standard university criteria of a 3.0 (A = 4.0) grade point average (GPA)

quantitative sections of the General (Aptitude) Test. Applicants must complete an application for graduate admission (available at [www.graduate.ucf.edu](http://www.graduate.ucf.edu)). Applicants to the doctoral program must also include a resume, goal statement, and three letters of recommendation. International students and students whose native language is not English must score at least 220 (computer-based test; or equivalent score on the paper-based test) on the Test of English as a Foreign Language (TOEFL). 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.

[Application Deadlines](#)

## Degree Requirements

The Master of Science in Physics degree requires a total of 33 credit hours. The student has the option of choosing tracks in general physics or optical physics. In both tracks, there are thesis and non-thesis options for the master's degree. All master's students must take 18 credit hours of core courses. The thesis option requires 9 additional credit hours of electives, plus a minimum of 6 credit hours of thesis and a satisfactory defense. The non-thesis option instead requires 15 credit hours of electives and a written comprehensive 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.

### Requirements for M.S.—33 Credit Hours Minimum

#### Core Courses—18 Credit Hours

All students are required to take:

- PHY 5606 Quantum Mechanics I (3 credit hours)
- PHY 5346 Electrodynamics I (3 credit hours)
- PHZ6156 Advanced Computational Physics (3 credit hours)

The remaining core courses depend on whether the student selects the General Physics Track or the Optical Physics Track.

#### General Physics Track

- PHY 5524 Statistical Physics (3 credit hours)
- PHY 6347 Electrodynamics II (3 credit hours)
- PHY 6624 Quantum Mechanics II (3 credit hours)

Additional electives: 9-15 credit hours (require approval of advisory committee)

#### Optical Physics Track

- OSE 5115 Interference and Diffraction (3 credit hours)
- OSE 6560 Laser Engineering (3 credit hours)
- OSE 6347 Quantum Optics (3 credit hours)

Additional electives: 9-15 credit hours (require approval of advisory committee)

#### Thesis Option—6 Credit 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. These six credit hours count toward the 12 hours of required electives for the degree.

#### Non-Thesis Option

This requirement is met by the student completing 15 credit hours of electives and a written comprehensive exit examination.

## Doctor of Philosophy in Physics

The Department of Physics at the University of Central Florida offers a Doctor of Philosophy (Ph.D.) degree with tracks in general physics and optical physics. The department is characterized by rapid growth and dynamic partnerships. This activity, which is fueled by the university's focus on industrial partnerships and research, strengthens the department and provides research and employment opportunities for our students. Research opportunities are available in condensed matter physics, nanostructure devices, surface science, optical physics, complex systems, biophysics, and atomic and molecular physics.

## Admission Requirements

The Graduate Record Examination (GRE) is required of all applicants, and the Physics Subject Test of the GRE is recommended. Minimum requirements for admission to the Physics graduate program are the standard university criteria of a 3.0 (A = 4.0) grade point average (GPA) for the last 60 attempted credit 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. Applicants must complete an application for graduate admission (available at [www.graduate.ucf.edu](http://www.graduate.ucf.edu)). Applicants to the doctoral program must also include a resume, goal statement, and three letters of recommendation. International students and students whose native language is not English must score at least 220 (computer-based test; or equivalent score on the paper-based test) on the Test of English as a Foreign Language (TOEFL). 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.

[Application Deadlines](#)

## Degree Requirements

The Doctor of Philosophy degree in Physics requires a total of 72 credit hours for completion. A specific set of eight required core courses (24 hours), five electives (15 hours), and a minimum of 15 hours of dissertation are part of those 72 hours. Electives are organized into track specializations with certain track specific requirements. The remaining 18 hours may consist of appropriately selected research, dissertation, and elective courses. In addition, each student is required to participate in the Physics Colloquium/Seminar program. No more than 6 credit hours of independent study may be credited toward the Doctor of Philosophy degree.

### Core Courses—24 Credit Hours

All students are required to take the core courses.

- PHY 5606 Quantum Mechanics I (3 credit hours)
- PHY 6624 Quantum Mechanics II (3 credit hours)
- PHY 5346 Electrodynamics I (3 credit hours)
- PHY 6347 Electrodynamics II (3 credit hours)
- PHZ 6156 Advanced Computational Physics (3 credit hours)
- PHY 5937 Methods of Experimental Physics (3 credit hours)
- PHY 5524 Statistical Physics (3 credit hours)
- PHY 6918 Summer Research Seminar (3 credit hours)

### Elective Courses—15 Credit Hours

The required 15 credit elective hours are track-specific.

### General Physics Track

The General Physics Track emphasizes strong preparation in physics fundamentals. It is intended to prepare students for careers in theoretical physics, teaching at the college level, or other areas not covered by the Materials and Optics Tracks. A number of active research programs exist in the department to accommodate such students. Participating professors include H. Saha, S. Bose, M. Johnson, J. Saul, N. Barlow, S. Shivamoggi, and R. Eastes.

A total of 15 credit hours of electives in the General Physics Track must be taken in consultation with the student's advisory committee. The following courses are recommendations.

- PHY6246 Classical Mechanics (3 credit hours)
- PHY6667 Advanced Quantum Mechanics (3 credit hours)
- PHZ 5405 Condensed Matter Physics (3 credit hours)
- PHY 6428 Condensed Matter Physics II (3 credit hours)
- PHZ 5505 Plasma Physics (3 credit hours)
- PHZ 5304 Nuclear and Particle Physics (3 credit hours)
- PHZ 6234 Atomic Physics (3 credit hours)
- OSE 6347 Quantum Optics (3 credit hours)
- OSE 5312 Optical Properties of Materials (3 credit hours)

Other courses from Physics, Math, Optics, Materials Science, Engineering.

## Optical Physics Track

The Optics Track coordinator is currently Dr. David Hagan, School of Optics. In the Optics Track, students must select five optics courses with the following restrictions.

At least one course from:

- OSE 5111 Optical wave propagation (3 credit hours)
- OSE 5115 Interference and Diffraction (3 credit hours)

At least one of the following laboratory courses:

- OSE 6526L Laser Engineering Lab (3 credit hours)
- OSE 5234L Applied Optics Lab (3 credit hours)
- OSE 6455L Photonics Lab (3 credit hours)

The remaining courses (up to three) may be elected from other graduate course in optics see ([www.creol.ucf.edu](http://www.creol.ucf.edu)).

## Dissertation

All students require a minimum of 15 credit hours of dissertation.

## Examinations

Placement Exam—The Physics field test, to be taken during the beginning of the first semester, for advisement purposes only.

Candidacy Exam—Part 1, written exam covering the common core. Part 2, track specific exam. Taken at the end of the second year. After passing the candidacy examination, the student can register for dissertation hours (PHY 7980). Before passing the candidacy, research credit can be earned as PHY 6918.

Dissertation Proposal—Prepared in consultation with dissertation advisor. Presented within one year of the candidacy exam.

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.

# History

## Description

College of Arts and Sciences Department of History Chair of the Department: Dr. Edmund F. Kallina Graduate Program Coordinator: Dr. Rosalind J. Beiler, CNH 551, (407) 823-2224. E-mail: [beiler@pegasus.cc.ucf.edu](mailto:beiler@pegasus.cc.ucf.edu) Graduate Program E-mail: [hisgrad@pegasus.cc.ucf.edu](mailto:hisgrad@pegasus.cc.ucf.edu)  
Web address: <http://pegasus.cc.ucf.edu/~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 Classical history, Early Christianity, African history, American cultural and social history, local history, the South, the American Civil War, the American frontier, women and gender roles, Asian history, Middle-Eastern history, twentieth-century mass movements, Nazism and anti-Semitism in Central Europe, Latin American history, and European history, as well as other areas.

The Department of History also offers an accelerated undergraduate/graduate program in History for highly qualified undergraduate majors in History.

## Degrees Offered

Master of Arts in History (M.A.)

- Public History Track

Accelerated Undergraduate and Graduate Program in History (B.A. and M.A.)

## Faculty

Professors: R. C. Crepeau, Ph.D.; J. B. Fernandez, Ph.D.; E. F. Kallina, Jr., Ph.D.; S. A. Leckie, Ph.D.; B. F. Pauley, Ph.D.

Professors Emeritus: T. Colbourn, Ph.D.; J. H. Shofner, Ph.D.

Associate Professors: C. E. Adams, Ph.D.; R. J. Beiler, Ph.D.; J. L. Evans, Ph.D.; F. L. Gordon, Ph.D.; H. Zhang, Ph.D.

Assistant Professors: S.P. Adams, Ph.D.; R. Alvarez, Ph.D.; C. Friend, Ph.D.; T. D. Greenhaw, Ph.D.; J. S. Perry, Ph.D.; N. Stockdale, Ph.D.; E. Walker, Ph.D.

Visiting Assistant Professor: J. Spencer Downing, Ph.D.

Visiting Instructors: J. Clark, Ph.D.; P. Farless, M.A.; A. Goffin, Ph.D.; D. Schuster, M.A.; T. M. Woods, Ph.D.

## Master of Arts in History

### Admission Requirements

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, a 3.0 GPA in history courses, 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. International students and students whose native language is not English must score at least 233 (computer-based test; or equivalent score on the paper-based test) on the Test of English as a Foreign Language (TOEFL).

history. In addition, they must submit three letters of recommendation from former professors who can address their ability to undertake graduate-level history courses.

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 a GPA of 3.0 in their history courses, or do not score 1000 or more on the combined verbal-quantitative sections of the GRE with a score of 500 in the verbal portion may take up to 9 hours of graduate courses as non-degree-seeking students. To be admitted into the graduate program, however, they must earn a GPA of 3.3 or better in the graduate-level history courses they take under this status.

Applicants who meet all of the above requirements but do not have an undergraduate degree in history must complete 12 hours of history course work at the 3000 and 4000 level, with a GPA in these courses of at least 3.25 before entering the graduate program. These courses will not count toward the graduate degree. The History Department Graduate Committee can waive this requirement, in whole or in part, when applicants present evidence that they are capable of successfully completing graduate history courses, either by submitting a portfolio documenting relevant past work or volunteer experience or by providing a sample of their own written work, which indicates that they have the research and writing skills needed to do graduate-level work in history.

If, in addition, applicants do not meet one of the other requirements for entry, such as a GPA of 3.0 for the last 60 semester hours of attempted undergraduate course work or a score of 1000 on the combined verbal-quantitative sections of the GRE and a score of 500 on the verbal portion of the GRE, they must complete 12 hours of course work at the 3000 and 4000 level with a GPA of 3.5 before they can be admitted to the graduate program.

[Application Deadlines](#)

## Degree Requirements

The Master of Arts in History requires 36 credit hours with no graduate credit given for any grade lower than “B- .”

Requirements for M.A.—36 Credit Hours Minimum

Required Courses—12 Credit Hours

- HIS 6159 Historiography (3 credit hours)
- HIS 6905 Capstone Course (3 credit hours)
- HIS 6971 Thesis (6 credit hours)

Courses in Area of Concentration—18 Credit Hours

- Eastern Hemisphere: African, Asian, European, or Middle Eastern; or
- Western Hemisphere: Caribbean, North American, or South American

Outside Area of Concentration in History—6 Credit Hours

## Public History Track

Required Courses—15 Credit Hours

- HIS 5067 Introduction to Public History (3 credit hours)
- HIS 6159 Historiography (3 credit hours)
- HIS 6905 History Capstone Course (3 credit hours)
- HIS 6971 Thesis/Research Project (6 credit hours)

Area of Concentration (Western Hemisphere)—15 Credit Hours including 9 credit hours of Public History courses or internships

Outside Area of Concentration (Eastern Hemisphere)—6 Credit Hours

## Foreign Language Competency

Students will also be expected to demonstrate a reading competency in one foreign language. The foreign language examination must be completed one semester prior to the thesis defense.

## Examination Requirements

Each candidate for the Master of Arts in History must pass written examinations in two fields upon conclusion of regular course work and before beginning a thesis. These examinations must be taken and passed as part of the requirements for the capstone course. Each student will also submit a thesis prospectus and preliminary bibliography, which the three members of the student's thesis committee judge acceptable as the preliminary step to beginning the thesis. An oral defense of the written exams and the thesis prospectus and bibliography is also a requirement of the capstone course.

## Thesis Defense

The final step in completing the thesis requirement is a one-hour oral defense before the thesis committee.

# Accelerated Undergraduate and Graduate Program in History

The accelerated undergraduate/graduate program in History allows highly qualified undergraduate majors in history to begin taking graduate-level courses that will count toward their master's degree while completing their baccalaureate degree program. Participation will enable completion of the bachelor of arts and master of arts degrees in five instead of six years for students enrolled in full-time course work.

## Admission Requirements

Students apply for admission to the combined undergraduate and graduate program at the end of their junior year or after 12 hours of upper-level history course work. The program requires a 3.5 grade point average or better in history courses and a 3.25 overall grade point average or better. The program also requires a Graduate Record Examination score of 1050 on the combined verbal and quantitative sections of the exam and a score of at least 550 on the verbal section. Students may apply for graduate admission online through the Office of Graduate Studies website at [www.graduate.ucf.edu](http://www.graduate.ucf.edu). To be considered for admission, applicants must provide a completed UCF graduate application, including an essay indicating reasons for wishing to complete the combined bachelor's/master's program and three letters of recommendation from History Department faculty. Students will be formally admitted to the master's program following receipt of the bachelor's degree.

[Application Deadlines](#)

## Degree Requirements

- Students who change degree programs and select this major must adopt the most current catalog.
- Students should consult with the department graduate coordinator.
- Students must earn at least a "B-" in each undergraduate and graduate history course for them to be counted toward the major.
- Departmental residency requirement consists of at least 18 semester hours of regularly scheduled 3000- or 4000-level courses taken from the UCF History Department. Students may substitute up to 9 hours of 5000- or 6000-level courses to meet this requirement.
- Students must compile a portfolio of their written work in History completed inside and outside the classroom.
- The bachelor of arts degree will be awarded after completion of 36 hours of history courses and all other university requirements.
- The master of arts degree will be awarded upon completion of the program.
- Courses designated in General Education Program and Common Program Prerequisites are usually completed in the first 60 hours (see History major requirements in the Undergraduate Catalog)

## Curriculum Changes

- Students admitted to the combined bachelor's/master's program may take one 5000-level course the first semester of their senior year.
- After successfully completing one 5000-level course, students will be eligible to take HIS 6159 Historiography and another 5000-level course or the 6000-level seminar following the 5000-level colloquium they have already completed.
- Students may substitute these 9 hours of graduate-level work for 9 hours of 3000- or 4000-level undergraduate courses.
- Students need to pay fees at the graduate rate for the graduate courses they take.



## Schedule for Students Enrolled Full-time

- Students complete 9 hours of graduate-level courses in their senior year.
- Students enroll in at least 3 credit hours of graduate-level courses the summer after they receive their bachelor's degree.
- Students enroll in 9 hours of graduate-level courses in both spring and fall semester during their master's program.
- Students complete the capstone course, pass their preliminary exams, and fulfill their foreign language requirement by the end of their first year in the master's program.
- Students complete and defend a master's thesis in 6 hours.

# Undergraduate Requirements

The undergraduate requirements listed in the Graduate Catalog are for informational purposes only. The official requirements are detailed in the Undergraduate Catalog and take precedence over what is described here.

## Requirements for B.A.—120 Credit Hours Minimum

### Core Requirements—15 Credit Hours

- AMH 2010 U.S. History: 1492-1877 (3 credit hours)
- AMH 2020 U.S. History: 1877-Present (3 credit hours)
- HIS 4150 History and Historians (3 credit hours)

Select one sequence:

- EUH 2000, 2001 Western Civilization I and II (6 credit hours)
- WOH 2012, 2022 World Civilization I and II (6 credit hours)

Upper Division Restricted Electives—21 Credit Hours Must be taken within the History Department.

Select six hours of approved history courses within three of the four geographic regions—18 Credit Hours

- Asian, African, and Middle Eastern
- British and European
- Latin American
- U.S. and Canadian

Select three hours of approved history courses—3 Credit Hours

Students may substitute 9 hours of 5000- or 6000-level course work for 3000- or 4000-level courses.

## Departmental Exit Requirements

- Maintain a minimum GPA of 3.5 in upper-division required courses attempted.
- Submit a portfolio during the semester of graduation. The portfolio will include representative samples of the student's written work including, but not limited to, book critiques, in-class essay exams, and term papers.
- Complete at least 18 of the required 36 history hours at UCF.
- Satisfy the computer competency requirement by completion of the major.

## Foreign Language Requirements—0-8 Credit Hours

Admission: Met by graduation requirement

Graduation: Two semesters or equivalent proficiency exam

Majors who are participating in the combined bachelor's/master's program should complete two years of a foreign language, preferably one functional in their area of historical interest. Students may take the department's foreign language proficiency exam for master's students immediately following the completion of their foreign language course work.

## Electives—Variable Hours

Select electives primarily from upper-level courses, with departmental adviser's approval. May be outside of the department.

## University Minimum Exit Requirements for B.A. Degree

- A 2.0 UCF GPA
- 60 semester hours earned after CLEP awarded
- 48 semester hours of upper-division credit completed
- 30 semester hours in regular courses completed at UCF
- A maximum of 45 hours of extension, correspondence, CLEP, Credit by Exam, and Armed Forces credits permitted
- Complete the General Education Program, the Gordon Rule, the CLAST, and nine hours of Summer credit (if applicable)

## Transfer Notes

- "D" grades from other institutions do not meet departmental requirements.
- Courses taken at community colleges do not substitute for upper-division courses.
- Courses transferred from private and out-of-state schools must be evaluated for equivalency credit. The student must provide all supporting information.
- Acceptable substitutes for common program prerequisites if taken prior to transferring to UCF—AMH 2010 and AMH 2020: may use any two introductory courses with an AFH, AMH, EUH, LAH, ASH, HIS, or WOH prefix. However, AMH 2010 and 2020 are prerequisites for all subsequent American History courses and will need to be taken for the major.

## Graduate Requirements

Requirements for M.A.—36 Credit Hours Minimum (9 credit hours of which also count toward the B.A. degree)

Required Courses—12 Credit Hours

- HIS 6159 Historiography (3 credit hours)
- HIS 6905 Capstone Course (3 credit hours)
- HIS 6971 Thesis (6 credit hours)

Courses in Area of Concentration—18 Credit Hours

- Eastern Hemisphere: African, Asian, European, or Middle Eastern; or
- Western Hemisphere: Caribbean, North American, or South American

Outside Area of Concentration in History—6 Credit Hours

## Foreign Language Requirement

Students will be expected to demonstrate a reading competency in one foreign language. The foreign language examination must be completed one semester prior to the thesis defense.

## Examination Requirements

Each candidate for the Master of Arts in History must pass written examinations in two fields upon conclusion of regular course work and before beginning a thesis. These examinations must be taken and passed as part of the requirements for the capstone course. Each student will also submit a thesis prospectus and preliminary bibliography, which the three members of the student's thesis committee judge acceptable as the preliminary step to beginning the thesis. An oral defense of the written exams and the thesis prospectus and bibliography are also requirements of the capstone course.

## Thesis Defense

The final step in completing the thesis requirement is a one-hour oral defense before the thesis committee.

# School Psychology

## Description

College of Education Department of Child, Family and Community Sciences Chair of the Department: Dr. Bill Wienke Graduate Program Coordinators: Dr. Carl Balado, School Psychology. E-mail: [cbalado@pegasus.cc.ucf.edu](mailto:cbalado@pegasus.cc.ucf.edu). Dr. Mike Robinson, Education Ph.D. and Counselor Education. E-mail: [erobinso@pegasus.cc.ucf.edu](mailto:erobinso@pegasus.cc.ucf.edu). Web address: [http://edcollege.ucf.edu/mod\\_depts/prog\\_page.cfm](http://edcollege.ucf.edu/mod_depts/prog_page.cfm)

The School Psychology Education Specialist Program has two tracks. The School Psychology Track is designed for students who wish to become licensed School Psychologists, and the School Counseling Track is appropriate for students with a master's degree who wish to become eligible for a School Counseling certification. These are distinct tracks with very specific programming to meet the respective licensing requirements of each area. Completion of one track will not result in eligibility for licensing in the other area.

## Degrees Offered

### Education Specialist in School Psychology (Ed.S.)

- o School Psychology Track
- o School Counseling Track

## Education Specialist in School Psychology

The School Psychology Education Specialist Program has two tracks. The School Psychology Track is designed for students who wish to become licensed School Psychologists, and the School Counseling Track is appropriate for students with a master's degree who wish to become eligible for a School Counseling certification. These are distinct tracks with very specific programming to meet the respective licensing requirements of each area. Completion of one track will not result in eligibility for licensing in the other area.

## School Psychology Track

Graduate Program Coordinator: Dr. Carl Balado, ED 314, (407) UCF-2054. E-mail: [cbalado@mail.ucf.edu](mailto:cbalado@mail.ucf.edu)

The Education Specialist degree program in School Psychology is a unique specialization in psychology and education. This program is based on two assumptions. 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. Also, 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 closely related undergraduate majors may qualify for the School Psychology Track in this degree program.

The program involves formal preparation and practical experiences focusing on psychological foundations (human development, learning and motivation), psychoeducational assessment, exceptional students, remediation or intervention techniques, counseling skills, as well as full-time supervised internship of two semesters in the public school setting. Graduates are certifiable at the state level and the program is approved and accredited by NASP/NCATE.

[Specialist Programs in the College of Education](#)

## Admission Requirements

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

- Have an undergraduate grade point average of 3.0 (on a 4.0 scale) for the last 60 attempted Credit 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.

This program can accommodate only a limited number of students; therefore, there is a possibility of being denied admission even when all criteria are met. Admissions to this program will occur only in the fall term. Information concerning specific admissions policies and procedures can be obtained from Dr. Carl Balado, (407) 823-2054. For more information, visit the track website: [pegasus.cc.ucf.edu/~edserv/](http://pegasus.cc.ucf.edu/~edserv/).

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.

### [Application Deadlines](#)

## Degree Requirements

### Minimum Hours Required for Ed.S.—53 Credit Hours

#### Area A: Core—12 Credit Hours

- EDF 6401 Statistics for Educational Data (3 credit hours)
- EDF 6481 Fundamentals of Graduate Research in Education (3 credit hours)
- EEX 5051 Exceptional Children in the Schools (3 credit hours)
- EDP 6056 Advanced Educational Psychology (3 credit hours)

#### Area B: Specialization—53 Credit Hours

- SPS 6601 Introduction to Psychological Services in Schools (3 credit hours)
- SPS 6606 School Consultation Techniques (3 credit hours)
- SPS 6608 Seminar in School Psychology (3 credit hours)
- SPS 6801 Developmental Basis of Diverse Behaviors (3 credit hours)
- SPS 6225 Behavioral and Observational Analysis of Classroom Interactions in Schools (3 credit hours)
- SPS 6703 Child and Adolescent Deviant Behavior and Treatment (3 credit hours)
- SPS 6931 Ethical and Legal Issues in School Psychological Services (3 credit hours)
- MHS 6400 Theories of Counseling and Personality (3 credit hours)
- MHS 6401 Techniques of Counseling (3 credit hours)
- SPS 6191 Individual Psychoeducational Diagnosis I (4 credit hours)
- SPS 6192 Individual Psychoeducational Diagnosis II (4 credit hours)
- SPS 6125 Infant Development Assessment (3 credit hours)
- SPS 6194 Assessment of Special Needs (3 credit hours)
- SPS 6206 Psychoeducational Interventions (3 credit hours)
- SPS 6175 Cultural Diversity and Nonbiased Assessment (3 credit hours)
- SPS 6909 Research Report I and II (6 credit hours)

#### Area C: Practicum and Internship—18 Credit Hours

- SPS 6946 Practicum in School Psychology I (3 credit hours)
- SPS 6946 Practicum in School Psychology II (3 credit hours)
- SPS 6949 School Psychology Internship I and II (12 credit hours)

#### Prerequisites or Co-requisites (DOE Certification)

- EDA 6061 Organization and Administration of Schools (3 credit hours)
- EDF 6517 Perspectives on Education (3 credit hours) OR
- EDF 6608 Social Factors in American Education (3 credit hours)

## School Counseling Track

Graduate Program Coordinator: E. H. Robinson, ED 311, (407) UCF-3819. E-mail: [erobinso@mail.ucf.edu](mailto:erobinso@mail.ucf.edu)

The School Counseling Track of the Education Specialist Program in School Psychology is designed for a very specific audience. This track is open to certified teachers who hold an education master's degree in an area other than school counseling. This track provides, within the degree program, courses for initial certification in school counseling.

[Specialist Programs in the College of Education](#)

## Admission Requirements

To be considered for admission to the School Counseling Track, an applicant must secure, complete, and submit an application by the deadline. A formal interview is required of all applicants and will be considered for final admission after the College of Education admission requirements are met. This program can accommodate only a limited number of students; therefore, there is a possibility of being denied admission even when all criteria are met. The College of Education reserves the right to refuse student entrance or terminate a student after admission to the School Counseling Track, 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.

[Application Deadlines](#)

## Degree Requirements

Minimum Hours Required for Ed.S.—48 Credit Hours

Area A: Core—9 or 12 Credit Hours

- EDF 6155 Lifespan Human Development and Learning (3 credit hours)
- EDF 6481 Fundamentals of Graduate Research in Education (3 credit hours)
- MHS 6220 Individual Psychoeducational Testing I (3 credit hours)

Area B: Specialization—30 Credit Hours

- MHS 6400 Theories of Counseling and Personality (3 credit hours)
- MHS 6401 Techniques of Counseling (3 credit hours)
- MHS 6420 Counseling Special Populations (3 credit hours)
- MHS 6500 Group Procedures and Theories in Counseling (3 credit hours)
- MHS 6780 Ethical and Legal Issues (3 credit hours)
- SDS 6330 Career Development (3 credit hours)
- SDS 6411 Counseling with Children and Adolescents (3 credit hours)
- SDS 6620 Organization and Administration of School Counseling and Guidance Programs (3 credit hours)

Area C: Professional Clinical Experience—9 Credit Hours

- MHS 6800 Practicum in Counselor Education (3 credit hours)
- MHS 6830 Counseling Internship I (3 credit hours)
- MHS 6830 Counseling Internship II (3 credit hours)

Area D: Electives

- Thesis or two electives approved by the adviser

## 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.
- Complete a portfolio and receive approval by Counselor Education faculty.
- Pass comprehensive oral examinations satisfactorily.

# Aerospace Engineering

## Description

College of Engineering and Computer Science Department of Mechanical, Materials and Aerospace Engineering Interim Chair of the Department: Dr. D. W. Nicholson Associate Chair of the Department: Dr. H. Hagedoorn Graduate Program Coordinator: Dr. Alain J. Kassab, ENGR 381, (407) 823-5778. E-mail: [kassab@mail.ucf.edu](mailto:kassab@mail.ucf.edu) Web address: <http://www-mmae.engr.ucf.edu/>

The aerospace engineering program offers two tracks for the master's (MSAE) degree: Space Systems Design and Engineering, which includes the fields of controls and dynamics, space environment, instrumentation and communications, structures and materials, thermal analysis and design; and Thermofluid Aerodynamic Systems Design and Engineering, which includes the fields of controls and dynamics, aerodynamics, propulsion, thermal analysis, and design.

## Degrees Offered

### Master of Science in Aerospace Engineering (M.S.A.E.)

- Space Systems Design and Engineering Track
- Thermofluid Aerodynamic Systems Design and Engineering Track

## Faculty

Professors: P. J. Bishop, Ph.D., P.E., Vice Provost and Dean of Graduate Studies; L. C. Chow, Ph.D.; V. H. Desai, Ph.D., P.E.; B. E. Eno, Ph.D., P.E.; A. J. Kassab, Ph.D.; F. A. Moslehy, Ph.D., P.E.; D. W. Nicholson, Ph.D.

Associate Professors: R. H. Chen, Ph.D.; L. Chew, Ph.D.; T. Conway, Ph.D.; S. T. Durrance, Ph.D.; L. A. Giannuzzi, Ph.D.; A. H. Hagedoorn, Ph.D., P.E.; R. W. Johnson, Ph.D., P.E.; J. Kapat, Sc.D.; K. C. Lin, Ph.D., P.E.; A. Minardi, Ph.D.; J. Nayfeh, Ph.D.; C. E. Nuckolls, Ph.D., P.E.; C. Suryanarayana, Ph.D.; G. G. Ventre, Ph.D., P.E.

Assistant Professors: Linan An, Ph.D.; Quanfang Chen, Ph.D.; Yong-ho Sohn, Ph.D.; Raj Vaidyanathan, Ph.D.; D. Zhou, Ph.D.

Emeritus Professors: E. R. Hosler, Ph.D., P.E.; J. D. McBrayer, Sc.D., P.E.; W. F. Smith, Sc.D., P.E.

Visiting Assistant Professors: C. Ham, Ph.D.; E. Divo, Ph.D.

Joint Appointees: K.D. Belfield, Ph.D., Department of Chemistry; K. A. Cerqua-Richardson, Ph.D., School of Optics; M. B. Chopra, Ph.D., Department of Civil and Environmental Engineering; N. S. Dhere, Ph.D., Florida Solar Energy Center; A. Kar, Ph.D., School of Optics; W. Luo, Physics, D.C. Malocha, Ph.D., School of Electrical Engineering and Computer Science; N. Misconi, Engineering Technology; K.V. Sundaram, School of Electrical Engineering and Computer Science; R. Y. Ting, Ph.D., AMPAC; K. Vajravelu, Ph.D., Department of Mathematics

Research Faculty: J. Bindell, Ph.D., Cirent Semiconductor; R. Irwin, Ph.D., Cirent Semiconductor; F. Stevie, M.S., Cirent Semiconductor; R. Zarda, Ph.D., Lockheed-Martin Missiles and Fire Control

## Master of Science in Aerospace Engineering

### Admission Requirements

The Master of Science degree in Mechanical Engineering (M.S.A.E.) is intended primarily for a student with a bachelor's degree in mechanical or aerospace engineering or a closely related discipline obtained from a recognized institution. Minimum requirements for admission to regular status are a 3.0 grade point average (4.0=A) in the last 60 attempted hours of undergraduate study at an accredited institution, 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).

university), a score of 220 (computer-based test; or equivalent score on the paper-based test) on the Test of English as a Foreign Language (TOEFL).

In certain circumstances a trial program may be extended to students who have a GPA below 3.0 but otherwise meet university requirements. Additional courses may be required to correct deficiencies. Students should contact the MMAE graduate program coordinator for further information.

[Application Deadlines](#)

## Degree Requirements

All students are expected to identify an adviser and file an official degree program of study prior to the completion of nine semester hours of study. Students should consult with the MMAE graduate program coordinator for assistance in filling out a program of study. The Aerospace master's program is divided into two tracks: (1) Space Systems Design and Engineering Track and (2) Thermofluid Aerodynamic Systems Design and Engineering Track. Students will select one of these on entering the Aerospace Program and select a thesis or non-thesis alternative. (A plan of study must be completed and signed by your adviser by the end of the first semester.)

Thesis Alternative

Required Courses (Core)—9 credit hours

Optional Courses (at least four)—12 credit hours

Electives (at least one)—3 credit hours. Electives selected in consultation with adviser and taken from Optional Course List and/or [Other Support Course List](#)

Thesis—6 credit hours

Minimum Credit Hours Required for MMAE—30 credit hours

Non-Thesis Alternative

Required Courses (Core)—9 credit hours

Optional Courses (at least five)—15 credit hours

Electives (at least four)—12 credit hours. Electives selected in consultation with adviser and taken from Optional Course List and/or [Other Support Course List](#)

Final Examination—0 credit hours

Minimum Credit Hours Required for MMAE—36 credit hours

Comprehensive Examination—The Non-Thesis Alternative requires a comprehensive final examination.

## Space Systems Design and Engineering Track

There are three options available in the master's degree program (MSAE) in this track. Students should select one option. These options are:

- Controls/Dynamics
- Structures/Materials/Thermal
- Space Environment/Instrumentation/Communications

Prerequisite (or Equivalent) Requirements For This Track

- Mathematics through Differential Equations (MAP 2302)
- Modeling Methods in Mechanical and Aerospace Engineering (EML 3034)
- Engineering Analysis - Dynamics (EGN 3321)
- Feedback Control (EML 3312)
- Discrete Control in Aerospace Vehicles (EAS 3404) or Digital Control in Mechatronics (EML 3804)



## Controls/Dynamics Option

Required Courses (Core)—9 Credit Hours

- EAS 5407 Mechatronic Systems (3 credit hours)
- EAS 6507 Topics of Astrodynamics (3 credit hours)
- EML 5060 Mathematical Methods in Mechanical, Materials and Aerospace Engineering (3 credit hours)

Optional Course List

- EAS 5XXX Guidance, Navigation and Control (3 credit hours)
- EAS 6405 Advanced Flight Dynamics (3 credit hours)
- EAS 6XXX Aerospace Measurements/Instrumentation (3 credit hours)
- EAS 6XXX Attitude Determination and Control (3 credit hours)
- EEL 6616 Adaptive Control (3 credit hours)
- EEL 6621 Nonlinear Control Systems (3 credit hours)
- EML 5271 Intermediate Dynamics (3 credit hours)
- EML 5311 System Control (3 credit hours)
- EML 6808 Analysis and Control of Robot Manipulators (3 credit hours)

[Other Support Course List](#)

## Structures/Materials/Thermal Option

Required Courses (Core)—9 Credit Hours

- EAS 5407 Mechatronic Systems (3 credit hours)
- EAS 6507 Topics of Astrodynamics (3 credit hours)
- EML 5060 Mathematical Methods in MMAE (3 credit hours)

Optional Course List

- EMA 6628 Materials Failure Analysis (3 credit hours)
- EML 5152 Intermediate Heat Transfer (3 credit hours)
- EML 5211 Continuum Mechanics (3 credit hours)
- EML 5237 Intermediate Mechanics of Materials (3 credit hours)
- EML 5713 Intermediate Fluid Mechanics (3 credit hours)
- EML 6067 Finite Elements in MMAE (3 credit hours)
- EML 6157 Radiation Heat Transfer (3 credit hours)
- EML 6227 Nonlinear Vibration (3 credit hours)
- EML 6547 Engineering Fracture Mechanics in Design (3 credit hours)

[Other Support Course List](#)

## Space Environment/Instrumentation/Communications Option

Required Courses (Core)—9 Credit Hours

- EAS 5407 Mechatronic Systems (3 credit hours)
- EAS 6507 Topics of Astrodynamics (3 credit hours)
- EML 5060 Mathematical Methods in MMAE (3 credit hours)

Optional Course List

- EAS 6XXX Space Environment and Payload Instrumentation (3 credit hours)
- EEL 5432 Satellite Remote Sensing (3 credit hours)
- EEI 5542 Random Processes I (3 credit hours)

- EEL 5881 Software Engineering I (3 credit hours)
- EEL 6530 Communication Theory (3 credit hours)
- EML 5271 Intermediate Dynamics (3 credit hours)
- EML 5311 System Control (3 credit hours)

[Other Support Course List](#)

## Thermofluid Aerodynamic Systems Design and Engineering Track

There are three options available in the master's degree program (MSAE) in this track. Students should select one option. These options are:

- Aerodynamics
- Thermal Analysis and Design
- Propulsion

### Prerequisite (or Equivalent) Requirements For This Track

- Mathematics through Differential Equations (MAP 2302)
- Mathematical Modeling Methods (EML 3034)
- High-Speed Aerodynamics (EAS 4134)
- Aerothermodynamics of Propulsion Systems (EAS 4300)
- Flight Mechanics (EAS 4105)
- Fluid Mechanics II (EML 4703)

### Required Courses (Core) For This Track—9 Credit Hours

- EAS 5407 Mechatronic Systems (3 credit hours)
- EAS 6507 Topics of Astrodynamics (3 credit hours)
- EML 5060 Mathematical Methods in MMAE (3 credit hours)

## Aerodynamics Option

### Optional Course List

- EAS 5123 Intermediate Aerodynamics (3 credit hours)
- EAS 5315 Rocket Propulsion (3 credit hours)
- EAS 6138 Advanced Gas Dynamics (3 credit hours)
- EAS 6185 Turbulent Flow (3 credit hours)
- EML 5402 Turbomachinery (3 credit hours)
- EML 5713 Intermediate Fluid Mechanics (3 credit hours)
- EML 6712 Mechanics of Viscous Flow (3 credit hours)
- EML 6725 Computational Fluid Dynamics and Heat Transfer I (3 credit hours)

[Other Support Course List](#)

## Thermal Analysis and Design Option

### Optional Course List

- EAS 5302 Direct Energy Conversion (3 credit hours)
- EAS 5315 Rocket Propulsion (3 credit hours)
- EAS 6138 Advanced Gas Dynamics (3 credit hours)
- EML 5152 Intermediate Heat Transfer (3 credit hours)
- EML 5402 Turbomachinery (3 credit hours)

- EML 6157 Radiation Heat Transfer (3 credit hours)
- EML 6712 Mechanics of Viscous Flow (3 credit hours)

[Other Support Course List](#)

## Propulsion Option

Optional Course List

- EAS 5315 Rocket Propulsion (3 credit hours)
- EAS 6138 Advanced Gas Dynamics (3 credit hours)
- EAS 6138 Advanced Gas Dynamics (3 credit hours)
- EML 5105 Gas Kinetics and Statistical Thermodynamics (3 credit hours)
- EML 5131 Combustion Phenomena (3 credit hours)
- EML 5402 Turbomachinery (3 credit hours)
- EML 6712 Mechanics of Viscous Flow (3 credit hours)
- EML 6725 Computational Fluid Dynamics and Heat Transfer I (3 credit hours)

[Other Support Course List](#)

## Other Support Course List

For both tracks and all options

- CDA 5106 Advanced Computer Architecture I (3 credit hours)
- COT 5405 Design and Analysis of Algorithms (3 credit hours)
- EAS 5315 Rocket Propulsion (3 credit hours)
- EAS 5XXX Engineering Design for Aerospace Vehicle (3 credit hours)
- EEL 5173 Linear Systems Theory (3 credit hours)
- EEL 5245C Power Electronics (3 credit hours)
- EEL 5881 Software Engineering 1 (3 credit hours)
- EEL 6537 Detection and Estimation (3 credit hours)
- EEL 6543 Random Processes II (3 credit hours)
- EEL 6883 Software Engineering II (3 credit hours)
- EEL 6897 Software Development for Real-Time Engineering Systems (3 credit hours)
- EML 5025C Engineering Design Practice (3 credit hours)
- EML 5123 Intermediate Aerodynamics (3 credit hours)
- EML 5211 Continuum Mechanics (3 credit hours)
- EML 5237 Intermediate Mechanics of Materials (3 credit hours)
- EML 5532C Computer-Aided Design for Manufacture (3 credit hours)
- EML 5546 Engineering Design with Composite Materials (3 credit hours)
- EML 6067 Finite Elements in MMAE I (3 credit hours)
- EML 6547 Engineering Fracture Mechanics in Design (3 credit hours)
- EML 6712 Mechanics of Viscous Flow (3 credit hours)
- EML 6725 Computational Fluid Dynamics and Heat Transfer (3 credit hours)
- MAA 5405 Complex Variables (3 credit hours)
- MAP 5426 Special Functions (3 credit hours)

# Civil Engineering

## Description

College of Engineering and Computer Science Department of Civil and Environmental Engineering Chair of the Department: Dr. A. E. Radwan Assistant Chair of the Department: Dr. M. B. Chopra Graduate Program Coordinator: Dr. R. L. Wayson, ENGR II211, (407) 823-2841. E-mail: [go\\_ucf@mail.ucf.edu](mailto:go_ucf@mail.ucf.edu) Web address: <http://www-cee.engr.ucf.edu/>

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.

The Civil and Environmental Engineering Department offers Master of Science degrees in Civil Engineering (M.S.C.E.). In addition, more specialized Master of Science (M.S.) degrees are offered in Structures and Foundations, Transportation Systems Engineering, and Water Resources Engineering. The department also offers the Doctor of Philosophy (Ph.D.) degree in Civil Engineering.

## Degrees Offered

### Master of Science in Civil Engineering (M.S.C.E.)

- Structural and Geotechnical Engineering Track
- Transportation Engineering Track
- Water Resources Engineering Track

### Master of Science in General Civil Engineering (M.S.)

- Structures and Foundations Engineering Track
- Transportation Systems Engineering Track
- Water Resources Engineering Track

### Doctor of Philosophy in Civil Engineering (Ph.D.)

## Faculty

Professors: C. D. Cooper, Ph.D., P.E.; S. S. Kuo, Ph.D., P.E.; A. E. Radwan Ph.D., P.E.; D. R. Reinhart, Ph.D., P.E., Associate Dean; J. S. Taylor, Ph.D., P.E.; M. P. Wanielista, Ph.D., P.E., Dean; R. L. Wayson, Ph.D., P.E., G. Yeh, Ph.D.

Associate Professors: H. M. Al-Deek, Ph.D., P.E.; M. A. Aty, Ph.D., P.E.; M. B. Chopra, Ph.D., P.E.; J. D. Dietz, Ph.D., P.E.; S. M. El-Tawil, Ph.D., P.E.; C. M. Head, Ph.D., P.E.; S. K. Kunnath, Ph.D., P.E.; F. N. Nnadi, Ph.D., P.E.; A. Oloufa, Ph.D., P.E.; U. O. Onyemelukwe, Ph.D., P.E.; A. A. Randall, Ph.D., P.E.;

Assistant Professors: S.C. Hagen, Ph.D.; S. K. Hong, Ph.D.

## Master of Science in Civil Engineering

The Civil and Environmental Engineering Department offers Master of Science degrees in Civil Engineering (M.S.C.E.), with tracks in Structural and Geotechnical Engineering, Transportation Engineering, and Water Resources Engineering.

There are two options for the master's degree programs: the thesis option and the non-thesis option. The thesis option is available in all

master's degree programs and requires a thesis that is equivalent to 6 credit hours out of a total of 30 credit hours. It is the required option for students supported on contracts and grants as well as any student receiving department financial support.

The non-thesis option is also available for all master's degree programs and requires 36 credit hours of course work and a comprehensive final oral and written examination as a requirement for graduation. This option is recommended only for part-time students on a limited access basis.

## Admission Requirements

For admission to the advanced degree program in Civil Engineering, students must have completed a bachelor of science degree. The Master of Science in Civil Engineering (M.S.C.E.) degree is designed for students who have an undergraduate degree in Civil Engineering or another closely related engineering degree. Applicants who are applying to the programs without a directly related undergraduate degree should closely check the prerequisites.

Admittance to the program requires a combined verbal and quantitative score of 1000 on the Graduate Record Examination (or 450 on the GMAT) or a grade point average of 3.0 or greater in the last 60 attempted semester hours of undergraduate studies.

International applicants must be in the top one-half of their graduating class if only meeting the GRE requirement. In addition, international applicants may have their transcript evaluated by the World Education Services (WES) to meet the minimum grade point average in cases where they do not meet the GRE requirement.

[Application Deadlines](#)

## Degree Requirements

The Master of Science in Civil Engineering (M.S.C.E.) degree is designed for 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 are required. The degree requires 30 credit hours of acceptable graduate work and includes a thesis (6 credit hours), or 36 credit hours of acceptable graduate work with a comprehensive final examination. Three defined tracks are available for this degree: Structural and Geotechnical Engineering, Transportation Engineering, and Water Resources Engineering. The student must develop an individual program of study with a faculty adviser by the second semester of study.

Required Courses—15 Credit Hours

Take any three of the following courses for all tracks:

- CEG 5015 Geotechnical Engineering II (3 credit hours)
- CEG 5700 Geo-Environmental Engineering (3 credit hours)
- CEG 6115 Foundation Engineering (3 credit hours)
- CES 5325 Bridge Engineering (3 credit hours)
- CES 5606 Advanced Steel Structures (3 credit hours)
- CES 5706 Advanced Reinforced Concrete (3 credit hours)
- CES 6715 Prestressed Concrete Structures (3 credit hours)
- CES 6840 Composite Steel Concrete Structures (3 credit hours)

For all tracks, take two of the following courses:

- TTE 5204 Traffic Engineering (3 credit hours) OR
- TTE 5805 Geometric Design of Transportation Systems (3 credit hours)
- CWR 5205 Hydraulic Engineering (3 credit hours) OR
- CWR 5545 Water Resources Engineering (3 credit hours) OR
- CWR 6125 Groundwater Hydrology (3 credit hours) OR
- CWR 6235 Open Channel Hydraulics (3 credit hours)

Courses that comprise the elective part of the program are selected in accordance with the general requirements of the College of Engineering and Computer Science, and often include courses taken from the following three sub-discipline areas, especially when a specific track is followed.

Tracks—9 or 21 Credit Hours

Take three courses with a thesis, or seven courses without a thesis from among the following tracks.

Thesis—6 Credit Hours

Minimum Credit Hours Required for M.S.C.E.—30 or 36 Credit Hours

## Structural and Geotechnical Engineering Track

Any of the structural/geotechnical courses not taken as a required course

- CEG 6065 Soil Dynamics (3 credit hours)
- CEG 6317 Advanced Geotechnical Engineering (3 credit hours)
- CES 5325 Bridge Engineering (3 credit hours)
- CES 5821 Masonry and Timber Design (3 credit hours)
- CES 6116 Finite Element Structural Analysis (3 credit hours)
- CES 6170 Boundary Element Methods in Civil Engineering (3 credit hours)
- CES 6209 Dynamics of Structures (3 credit hours)
- CES 6220 Wind and Earthquake Engineering (3 credit hours)
- CES 6230 Advanced Structural Mechanics (3 credit hours)
- CES 6715 Prestressed Concrete Structures (3 credit hours)
- CES 6840 Composite Steel Concrete Structures (3 credit hours)
- CES 6910 Research in Structural Engineering (3 credit hours)
- TTE 5835 Pavement Design (3 credit hours)
- Other courses with adviser's consent

## Transportation Engineering Track

Any of the transportation courses not taken as a required course

- CGN 6655 Regional Planning, Design, and Development (3 credit hours)
- TTE 5205 Highway Capacity and Traffic Flow Analysis (3 credit hours)
- TTE 5256 Traffic Operations (3 credit hours)
- TTE 5700 Railroad Engineering (3 credit hours)
- TTE 5835 Pavement Design (3 credit hours)
- TTE 6270 Intelligent Transportation Systems (3 credit hours)
- TTE 6315 Traffic Safety Analysis (3 credit hours)
- TTE 6526 Planning and Design of Airports (3 credit hours)
- TTE 6625 Mass Transportation Systems (3 credit hours)

## Water Resources Engineering Track

Any of the water resources courses not taken as a required course

- CWR 6102 Advanced Hydrology (3 credit hours)
- CWR 6126 Groundwater Modeling (3 credit hours)
- CWR 6236 River Engineering and Sediment Transport (3 credit hours)
- CWR 6535 Modeling Water Resources Systems (3 credit hours)
- CWR 6539 Finite Differences/Elements in Surface Water Modeling (3 credit hours)

## Master of Science in General Civil Engineering

The Civil and Environmental Engineering Department offers specialized Master of Science (M.S.) degrees in general Civil Engineering, with tracks in Structures and Foundations, Transportation Systems Engineering, and Water Resources Engineering.

There are two options for the master's degree programs: the thesis option and the non-thesis option. The thesis option is available in all master's degree programs and requires a thesis that is equivalent to 6 credit hours out of a total of 30 credit hours. It is the required option for students supported on contracts and grants as well as any student receiving department financial support.

The non-thesis option is also available for all master's degree programs and requires 36 credit hours of course work and a comprehensive final oral and written examination as a requirement for graduation. This option is recommended only for part-time students on a limited access basis.

## Admission Requirements

For admission to the advanced degree program in Civil Engineering, students must have completed a bachelor of science degree. The Master of Science (M.S.) degree in general civil engineering degree is designed for students with appropriate engineering baccalaureate backgrounds. Applicants who are applying to the programs without a directly related undergraduate degree should closely check the prerequisites.

Admittance to the program requires a combined verbal and quantitative score of 1000 on the Graduate Record Examination (or 450 on the GMAT) or a grade point average of 3.0 or greater in the last 60 attempted semester hours of undergraduate studies.

International applicants must be in the top one-half of their graduating class if only meeting the GRE requirement. In addition, international applicants may have their transcript evaluated by the World Education Services (WES) to meet the minimum grade point average in cases where they do not meet the GRE requirement.

[Application Deadlines](#)

## Degree Requirements

The M.S. degree in general civil engineering requires 30 credit hours of acceptable graduate work and includes a thesis (6 credit hours), or 36 credit hours of acceptable graduate work with a comprehensive final examination. Three defined tracks are available for this degree: Structures and Foundations Engineering, Transportation Systems Engineering, and Water Resources Engineering. The student must develop an individual program of study with a faculty adviser by the second semester of study.

## Structures and Foundations Engineering Track

The department offers a Master of Science (M.S.) degree in Structures and Foundations Engineering to students with appropriate engineering baccalaureate backgrounds. The degree requires 30 credit hours of acceptable graduate course work and includes a thesis (6 credit hours), or 36 credit hours of acceptable graduate course work with a comprehensive final examination. The student must develop an individual program of study with a faculty adviser and must have background or articulation course work as described below.

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 Credit Hours

Take 30 credit hours (thesis option) or 36 credit hours (non-thesis option) from the following courses, with at least 2 courses from each subgroup. Other courses may also be taken with the consent of the faculty adviser.

Sub-Group A: Geotechnical Engineering

- CEG 5015 Geotechnical Engineering II (3 credit hours)
- CEG 5700 Geo-Environmental Engineering (3 credit hours)
- CEG 6065 Soil Dynamics (3 credit hours)
- CEG 6115 Foundation Engineering (3 credit hours)

- CEG 6317 Advanced Geotechnical Engineering (3 credit hours)
- CES 6170 Boundary Element Methods in Civil Engineering (3 credit hours)
- TTE 5835 Pavement Design (3 credit hours)

#### Sub-Group B: Structural Engineering

- CES 5325 Bridge Engineering (3 credit hours)
- CES 5606 Advanced Steel Structures (3 credit hours)
- CES 5706 Advanced Reinforced Concrete (3 credit hours)
- CES 5821 Masonry and Timber Design (3 credit hours)
- CES 6116 Finite Element Structural Analysis (3 credit hours)
- CES 6209 Dynamics of Structures (3 credit hours)
- CES 6220 Wind and Earthquake Engineering (3 credit hours)
- CES 6230 Advanced Structural Mechanics (3 credit hours)
- CES 6715 Prestressed Concrete Structures (3 credit hours)
- CES 6840 Composite Steel Concrete Structures (3 credit hours)
- CES 6910 Research in Structural Engineering (3 credit hours)

Thesis—6 Credit Hours

Minimum Credit Hours Required for M.S.—30 or 36 Credit Hours

## Transportation Systems Engineering Track

The department offers a Master of Science (M.S.) degree in Transportation Systems Engineering for students with appropriate science or engineering baccalaureate backgrounds. Students without a bachelor's degree in science or engineering will not be admitted. Students must also have background (or articulation course work) as described below.

#### Prerequisites

- Probability and Statistics for Engineers (STA 3032)
- Engineering Economic Analysis (EGN 3613)
- Transportation Engineering (TTE 4004)

#### Required Courses—12 Credit Hours

- TTE 5204 Traffic Engineering (3 credit hours)
- TTE 5805 Geometric Design of Transportation Systems (3 credit hours)
- TTE 6256 Traffic Operations (3 credit hours)
- TTE 6270 Intelligent Transportation Systems (3 credit hours)

#### Elective Courses—12 or 24 Credit Hours

- CGN 6655 Regional Planning, Design, and Development (3 credit hours)
- ENV 5071 Environmental Analysis of Transportation Systems (3 credit hours)
- STA 5156 Probability and Statistics for Engineers (3 credit hours)
- TTE 5205 Highway Capacity and Traffic Flow Analysis (3 credit hours)
- TTE 6315 Traffic Safety Analysis (3 credit hours)
- TTE 5700 Railroad Engineering (3 credit hours)
- TTE 5835 Pavement Design (3 credit hours)
- TTE 6526 Planning and Design of Airports (3 credit hours)
- TTE 6625 Mass Transportation Systems (3 credit hours)

Thesis—6 Credit Hours

Minimum Credit Hours Required for M.S.—30 or 36 Credit Hours

## Water Resources Engineering Track



The department offers a Master of Science (M.S.) degree in Water Resources Engineering to students with appropriate science or engineering baccalaureate backgrounds. The degree requires 30 credit hours of acceptable graduate course work, which includes a thesis (6 credit hours), or 36 credit hours of acceptable graduate course work with a comprehensive final examination. Each student must have an individual program of study approved by the student's faculty committee and have completed all required articulation course work as described below.

#### Prerequisites

- CEG 4101C Geotechnical Engineering I
- CWR 4101C Hydrology
- CWR 4203C Hydraulics
- EGN 3613 Engineering Economic Analysis
- STA 3032 Probability and Statistics for Engineers

#### Required Courses (any five)—15 Credit Hours

- CWR 5205 Hydraulic Engineering (3 credit hours)
- CWR 5545 Water Resources Engineering (3 credit hours)
- CWR 6125 Groundwater Hydrology (3 credit hours)
- CWR 6235 Open Channel Hydraulics (3 credit hours)
- CWR 6236 River Engineering and Sediment Transport (3 credit hours)
- CWR 6535 Modeling Water Resources Systems (3 credit hours)

#### Technical Elective Courses—9 or 15 Credit Hours

- ENV 6046 Membrane Mass Transfer (3 credit hours)
- ENV 6055 Fate and Transport of Subsurface Contaminants (3 credit hours)
- ENV 6336 Site Remediation and Hazardous Waste Treatment (3 credit hours)
- CEG 6317 Advanced Geotechnical Engineering (3 credit hours)
- CWR 6539 Finite Differences/Elements in Surface Water Modeling (3 credit hours)
- STA 5156 Probability and Statistics for Engineers (3 credit hours) OR
- STA 5206 Statistical Analysis (3 credit hours)
- Other courses with adviser's consent (3 credit hours each)

#### Thesis—6 Credit Hours

#### Total Hours Required for M.S.—30 or 36 Credit Hours

## Doctor of Philosophy in Civil Engineering

The Doctor of Philosophy (Ph.D.) degree requires a student to have completed a master's degree in Civil 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.

## Admission Requirements

In addition to satisfying regular university admissions criteria, the student must have a master's degree in Civil Engineering or a closely related discipline from a recognized and accredited institution and achieve a combined verbal and quantitative score of 1100 on the Graduate Record Examination (or equivalent GMAT score). Prospective applicants should forward a detailed resume and a letter with research interests and three letters of recommendation for department review with the application.

[Application Deadlines](#)

## Degree Requirements

The Ph.D. degree requires a minimum of 36 to 42 credit hours beyond the master's degree, 18 of which will be dissertation credits, and a

thesis as part of their master's degree with no additional course work beyond the minimum, 12 credit hours of electives are required. Otherwise, a minimum of 6 credit hours of electives are required. In addition, a minimum of 12 credit hours of formal classroom work is required while 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.

Hours that must be taken in formal courses at UCF—12 credit hours

Hours taken at the discretion of the adviser—6 credit hours or 12 credit hours\*

Dissertation—18 credit hours

Minimum hours required for Ph.D.—36-42 credit hours beyond the master's degree

\* The student must take 12 credit hours if the student completes the thesis with no additional course work past the minimum. Hours taken at the discretion of the adviser include research hours, special topics, directed studies, as well as additional formal courses.

## Examinations

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. 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.

# Educational Leadership

## Description

College of Education Department of Educational Research, Technology and Leadership Chair of Department: Dr. Jeffrey Cornett Web address: <http://edcollege.ucf.edu>

The University of Central Florida offers master's, specialist, and doctoral programs in Educational Leadership.

Two master's degrees are offered in Educational Leadership: Master of Education (M.Ed.) and Master of Arts (M.A.). The M.Ed. in Educational Leadership is intended for individuals who wish to work in leadership positions and administrative careers in education. The M.A. options are designed to prepare individuals for leadership positions in student personnel administration in higher education and education-related fields. The M.A. options do not fulfill state certification requirements.

## Degrees Offered

- Master of Education in Educational Leadership (M.Ed.)
- Master of Arts in Educational Leadership (M.A.)
  - Student Personnel Administration in Higher Education Track
- Education Specialist in Educational Leadership (Ed.S.)
- Doctor of Education in Educational Leadership (Ed.D.)

## Doctor of Education in Educational Leadership

Graduate Program Coordinator: Dr. W. Bozeman, RP 215, (407) 384-2189 OR (386) 254-4428 (UCF-DAYTONA BEACH OFFICE. E-mail: [bozeman@mail.ucf.edu](mailto:bozeman@mail.ucf.edu))

The purpose of this program is to provide advanced graduate studies for individuals aspiring to leadership positions in education. The general program of study leading to the Ed.D. degree in Educational Leadership permits students to concentrate their doctoral study in either K-12 or higher education administration. Specific program information may be found on the Educational Leadership web page at <http://pegasus.cc.ucf.edu/~educlead/content.html>.

[Doctoral Programs in the College of Education](#)

[Application Deadlines](#)

NOTE: Please contact the Coordinator of the Daytona doctoral program for information about the deadlines for new students: Dr. W. Bozeman, [bozeman@mail.ucf.edu](mailto:bozeman@mail.ucf.edu).

## Degree Requirements

### Prerequisite Courses

- As necessary

### Educational Leadership Core Courses—19 Credit Hours

- EDA 7101 Organizational Theory in Education (3 credit hours)
- EDA 7192 Educational Leadership (4 credit hours)
- EDA 7195 Politics, Governance, and Financing of Educational Organizations (4 credit hours)
- EDA 7205 Planning, Research, and Evaluation Systems in Educational Administration (4 credit hours)
- EDA 7225 Educational Personnel, Contracts, and Negotiations (4 credit hours)

Cognate Courses—6 Credit Hours Minimum

Area of Specialization—15 Credit Hours Minimum

Research and Data Analysis—9 Credit Hours Minimum

- EDF 6401 Statistics for Educational Data (3 credit hours)
- EDF 7403 Quantitative Foundations of Educational Research (3 credit hours)
- EDF 7463 Analysis of Survey, Record, and Other Qualitative Data (3 credit hours)

Dissertation—21 Credit Hours Minimum

Doctoral students must present a prospectus for the dissertation to the doctoral adviser, prepare a proposal and present to the dissertation committee, and defend the final research submission with the dissertation committee.

## Candidacy

To enter candidacy for the Ed.D., students must have an overall 3.0 grade point average on all graduate work included in the planned program and pass all required examinations.

## Candidacy Examinations

- Examinations must be completed prior to admission to candidacy.
- Examinations will be scheduled near the tenth week of the fall and spring semesters. Summer examinations will be scheduled for the sixth week of the term.
- All Educational Leadership Ed.D. candidates will be required to write examinations. Students must be enrolled in the university during the semester an examination is taken.
  - General Educational Leadership—5-hour examination
  - Area of Specialization—3-hour examination
  - Research/Data Analysis—3-hour examination

# Education Specialist in Educational Leadership

Graduate Program Coordinator, Educational Leadership: Dr. M. A. Lynn, RP 215, (407) 384-2193. E-mail: [malynn@mail.ucf.edu](mailto:malynn@mail.ucf.edu)

## Admissions Policy

Admissions will occur three times a year, fall, spring and summer. Completed Filenames must be on campus by September 20 for spring admission screening and February 20 for summer admission screening, and June 20 for fall admission screening. Admitted students may begin course work during the first new semester after admission.

Completed Filenames 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 Filename is started.

Admission to an Education Specialist Program in Curriculum and Instruction or Educational Leadership is separate from admission to the Doctoral Program. Upon completion of the Education Specialist degree, the candidate may apply for admission to a doctoral program.

[Specialist Programs in the College of Education](#)

[Application Deadlines](#)

## Degree Requirements

- Complete a minimum of 36 credit hours beyond the master's degree including the selected program requirements.
- Have an overall 3.0 grade point average on all graduate work attempted.
- The completed planned program must include a minimum of 12 graduate-level credit hours in the specialization area AND a minimum of 6 graduate-level credit hours in Research/ Statistics.
- Pass all required examinations.

## Minimum Hours Required for Ed.S.—36 Credit Hours beyond the master's degree

### Area I—Educational Leadership Core—9 Credit Hours

- EDA 7101 Organizational Theory in Education (3 credit hours)
- EDA 6946 Internship (3 credit hours)
- EDA 6909 Research Report (3 credit hours)

### Area II—Specialization—21 Credit Hours

- EDA 6061 Organization and Administration of Schools (3 credit hours)
- EDA 6232 Legal Aspects of School Operation (3 credit hours)
- EDA 6240 Educational Financial Affairs (3 credit hours)
- EDA 6260 Educational Systems Planning and Management (3 credit hours)
- EDA 6931 Contemporary Issues in Educational Leadership (3 credit hours)
- EDS 6123 Educational Supervisory Practices I (3 credit hours)
- EDS 6130 Educational Supervisory Practices II (3 credit hours)

### Area III—Co-requisites/Electives—6 Credit Hours Minimum

- EDF 6401 Statistics for Educational Data (3 credit hours)\*
- EDF 6481 Fundamentals of Graduate Research in Education (3 credit hours)\*
- EDG 6223 Curriculum Theory and Organization (3 credit hours)
- Elective (as approved by adviser) (3 credit hours)

\* Required, if not completed in master's degree

## Examinations

Educational Leadership majors must successfully complete one 5-hour examination in general educational leadership.

# Master of Education in Educational Leadership

Graduate Program Coordinator: M. A. Lynn, RP 215, (407) 384-2193. E-mail: [malynn@mail.ucf.edu](mailto:malynn@mail.ucf.edu)

The Master of Education (M.Ed.) degree is a 39-credit-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. Students are required to pass a comprehensive examination.

## Modified Leadership Core Program

If an individual holds a graduate degree with a major other than educational administration, 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. The Educational Leadership

program).

## Admission Requirements

[Master's Programs in the College of Education](#)

[Application Deadlines](#)

## Degree Requirements

### Minimum Hours Required for M.Ed.—39 Credit Hours

#### Area A: Core—9 Credit Hours

- EDF 6432 Measurement and Evaluation in Education (3 credit hours)
- EDF 6481 Fundamentals of Graduate Research in Education (3 credit hours)

#### Select One:

- EDF 6155 Lifespan Human Development and Learning (3 credit hours)
- EDF 6259 Learning Theories Applied to Classroom Instruction and Management (3 credit hours)
- EDF 6517 Perspectives on Education (3 credit hours)
- EDF 6608 Social Factors in American Education (3 credit hours)
- EDF 6886 Multicultural Education (3 credit hours)

#### Area B: Specialization—24 Credit Hours

It is recommended that these courses be taken in the following sequence:

- EDA 6061 Organization and Administration of Schools (3 credit hours)\*
- EDA 6232 Legal Aspects of School Operation (3 credit hours)\*
- EDA 6240 Educational Financial Affairs (3 credit hours)\*
- EDA 6260 Educational Systems Planning and Management (3 credit hours)\*
- EDA 6931 Contemporary Issues in Educational Leadership (3 credit hours)\*
- EDS 6123 Educational Supervisory Practices I (3 credit hours)\*
- EDS 6130 Educational Supervisory Practices II (3 credit hours)\*
- EDA 6946 Graduate Internship (3 credit hours)\*

#### Area C: Electives—6 Credit Hours

- EDA 6300 Community School Administration (3 credit hours)
- EDA 6502 Organization and Administration of Instructional Programs (3 credit hours)
- EDG 6223 Curriculum Theory and Organization (3 credit hours)
- EDG 6253 Curriculum Inquiry (3 credit hours)

\* Students must have teaching experience to complete the internship.

## Master of Arts in Educational Leadership

Graduate Program Coordinator: C. Wilson, RP 215, (407) 384-2801. E-mail: [cwilson@mail.ucf.edu](mailto:cwilson@mail.ucf.edu)

The Master of Arts degree in Educational Leadership is designed to prepare individuals for leadership positions in student personnel administration in higher education and education-related fields. The M.A. options do not fulfill state certification requirements. Students are required to pass a comprehensive examination.

# Admission Requirements

[Master's Programs in the College of Education](#)

[Application Deadlines](#)

## Degree Requirements

### Minimum Hours Required for M.A.—42 Credit Hours

#### Area A: Core—15 Credit Hours

- EDF 6155 Lifespan Human Development and Learning (3 credit hours)
- EDF 6481 Fundamentals of Graduate Research in Education (3 credit hours)
- EDF 6517 Perspectives on Education (3 credit hours) OR
- EDF 6608 Social Factors in American Education (3 credit hours)
- EDF 6401 Statistics for Educational Data (3 credit hours) OR
- EDF 6432 Measurement and Evaluation in Education (3 credit hours)
- EDA 6909 Research Report (2,1 credit hours)

#### Area B: Specialization—9 Credit Hours

Approved by adviser

#### Area C: Administration—18 Credit Hours

It is recommended that these courses be taken in the following sequence:

- EDA 6061 Organization and Administration of Schools (required) (3 credit hours)
- EDS 6123 Educational Supervisory Practices I (3 credit hours) OR
- EDS 6130 Educational Supervisory Practices II (3 credit hours)
- EDA 6232 Legal Aspects of School Operation (3 credit hours)
- EDA 6240 Educational Financial Affairs (3 credit hours)
- EDA 6260 Educational Systems Planning and Management (3 credit hours)
- EDA 6931 Contemporary Issues in Educational Leadership (required) (3 credit hours)

## Student Personnel Administration in Higher Education Track

### Minimum Hours Required for M.A.—39 Credit Hours

#### Area A: Core—6 Credit Hours

- EDF 6481 Fundamentals of Graduate Research in Education (3 credit hours)
- EDF 6432 Measurement and Evaluation in Education (3 credit hours) OR
- EDF 6401 Statistics for Educational Data (3 credit hours)

#### Area B: Specialization—24 Credit Hours

- EDA 6540 Organization and Administration of Higher Education (3 credit hours)
- EDH 6065 History and Philosophy of Higher Education (3 credit hours)
- EDH 6505 Finance in Higher Education (3 credit hours)
- MHS 6400 Theories of Counseling and Personality (3 credit hours)
- MHS 6780 Ethical and Legal Issues (3 credit hours)
- SDS 6040 Student Personnel Services in Higher Education (3 credit hours)
- SDS 6330 Career Development (3 credit hours)

Area C: Electives—3 Credit Hours

Approved by adviser

Area D: Professional Field Experience— 6 Credit Hours

- EDH 6946 Higher Education Internship (3 credit hours)
- EDH 6947 Practicum in Student Personnel (3 credit hours)



# Exceptional Education: Varying Exceptionalities

## Description

College of Education Department of Child, Family and Community Sciences Chair of Department: Dr. Bill Wienke Graduate Program Coordinator: Dr. Lee Cross (407) 823-5477. E-mail: [lcross@mail.ucf.edu](mailto:lcross@mail.ucf.edu) Web address: <http://edcollege.ucf.edu/>

The College of Education offers a master's program in Exceptional Education, Varying Exceptionalities, leading to a Master of Education degree or a Master of Arts degree.

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.

The Master of Arts program is for non-education majors or previously certified teachers in another field. In addition to the 36 hours, students must complete co-requisite and prerequisite courses. The varying exceptionalities option leads to certification in Varying Exceptionalities Learning (VE) and prepares graduates to teach in the areas of VE, Specific Learning Disabilities (SLD), Mental Handicaps (MH), and Emotional Handicapped (EH). Graduates must be eligible for certification by the completion of the degree program.

## Degrees Offered

Master of Education in Exceptional Education (M.Ed.)

- Varying Exceptionalities Track

Master of Arts in Exceptional Education (M.A.)

- Varying Exceptionalities Track

## Master of Education in Exceptional Education

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.

[Master's Programs in the College of Education](#)

[Application Deadlines](#)

## Varying Exceptionalities Track

### Minimum Hours Required for M.Ed.—33-36 Credit Hours

Area A: Core—9-12 Credit Hours

- EDF 6432 Measurement and Evaluation in Education (3 credit hours)
- EDF 6481 Fundamentals of Graduate Research in Education (3 credit hours)
- EEX 6971 Thesis OR two of the following three approved electives\*
- ELD 6248 Instructional Strategies for Students with Learning Disabilities (3 credit hours)
- EMR 6365 Teaching Students with Mental Disabilities (3 credit hours)
- EED 6226 Theory and Application for the Emotional Handicapped (3 credit hours)

Area B: Specialization—24 Credit Hours

- EEX 6061 Instructional Strategies PreK-6 (3 credit hours)
- EEX 6065 Instructional Strategies 6-12 (3 credit hours)

- EEX 6266 Assessment and Curriculum Prescriptions for the Exceptional Population (3 credit hours)
- EEX 6342 Seminar—Critical Issues in Special Education (3 credit hours)
- EEX 6524 Organization and Collaboration in Special Ed (3 credit hours)
- EEX 6612 Methods of Behavioral Management (3 credit hours)
- EEX 6863 Supervised Teaching Practicum with Exceptional Children or Elective (Approved by Adviser) (3 credit hours)

Culminating experience includes a comprehensive examination. Please see your adviser.

\* Approved electives include ELD 6248, EMR 6362, EED 6226, or other course approved by adviser.

# Master of Arts in Exceptional Education

The Master of Arts program is for non-education majors or previously certified teachers in another field. In addition to the 36 hours, students must complete co-requisite and prerequisite courses. The varying exceptionalities option leads to certification in Varying Exceptionalities Learning (VE) and prepares graduates to teach in the areas of VE, Specific Learning Disabilities (SLD), Mental Handicaps (MH), and Emotional Handicapped (EH). Graduates must be eligible for certification by the completion of the degree program.

[Master's Programs in the College of Education](#)

[Application Deadlines](#)

## Varying Exceptionalities Track

### Minimum Hours Required for M.A.—36-39 Credit Hours

#### Area A: Core—9-12 Credit Hours

- EDF 6432 Measurement and Evaluation in Education (3 credit hours)
- EDF 6481 Fundamentals of Graduate Research in Education (3 credit hours)
- EEX 6908 Research Report OR two of the following three approved electives
- ELD 6248 Instructional Strategies for Students with Learning Disabilities (3 credit hours)
- EMR 6365 Teaching Students with Mental Disabilities (3 credit hours)
- EED 6226 Theory and Application for the Emotional Handicapped (3 credit hours)

#### Area B: Specialization—27 Credit Hours

- EEX 6061 Instructional Strategies PreK-6 (3 credit hours)
- EEX 6065 Instructional Strategies 6-12 (3 credit hours)
- EEX 6107 Teaching Spoken and Written Language (3 credit hours)
- EEX 6266 Assessment and Curriculum Prescriptions for the Exceptional Population (3 credit hours)
- EEX 6342 Seminar: Critical Issues in Special Education (3 credit hours)
- EEX 6524 Organization & Collaboration in Special Ed (3 credit hours)
- EEX 6612 Methods of Behavioral Management (3 credit hours)
- EEX 6946 Graduate Internship (6 credit hours)

## Co-requisites

Prescribed by College of Education to meet State Certification requirements or as support for degree program. Waiver/substitutions for co-requisites must meet departmental standards and be approved by the Chair of the Department.

- EDF 6155 Lifespan Human Development and Learning (3 credit hours)
- EDF 6236 Principles in Instruction (3 credit hours)
- MAE 5318 Current Methods in Elementary School Mathematics (3 credit hours)
- RED 5147 Developmental Reading (3 credit hours)
- Students must also choose one of the following courses:

- EDF 6517 Perspectives on Education (3 credit hours)
- EDF 6608 Social Factors in American Education (3 credit hours)
- EDF 6886 Multicultural Education (3 credit hours)

## Prerequisite

- EEX 5051 Exceptional Children in the Schools (3 credit hours)

As a culminating activity, students must complete the College of Education portfolio and comprehensive examinations. Please see your adviser.

## Additional Program Requirements

Pass the CLAST as well as the Professional Education and Subject Area subtests of the Florida Teacher Certification Examination.

# Certificates

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## Graduate Certificate in Addictions

### Description

College of Health and Public Affairs School of Social Work Graduate Program Coordinator: Dr. Paul Maiden, (407) 823-6167 or [pmaiden@mail.ucf.edu](mailto:pmaiden@mail.ucf.edu)

The Graduate Certificate in Addictions provides a unique opportunity for professionals working in governmental agencies, nonprofit organizations, and private corporations, whose responsibilities include developing policies and programs, intervening and treating the alcohol and drug abusing population and other forms of addictions such as pathological gambling, tobacco addiction, prescription drug abuse, and eating disorders. In addition, the certificate would complement many existing courses of study at UCF. The program is targeted to the following audiences:

- Nontraditional students who are working in a wide range of public and private health, mental health, and criminal justice agencies and institutions
- Degree-seeking students with an interest in addictions who would like to complete the certificate at the same time as they work on their degree
- Practitioners who need continuing education units for re-certification or re-licensure
- Human services agencies who have an interest in enrolling their staff members in this certificate program

The Graduate Addictions Certificate training has been approved by the Florida Certification Board.

### Admission

The Addictions Certificate can only be taken as part of the Master of Social Work program. Applicants are encouraged to apply online at [www.graduate.ucf.edu](http://www.graduate.ucf.edu).

[Application Deadlines](#)

### Requirements—12 Credit Hours Minimum

#### Required Course

Required Course—3 Credit Hours

- SOW 5712 Interventions with Substance Abusers

#### Addictions Course Elective—3 Credit Hours

Take one of the courses listed below.

- SOW 5603 Medications and Social Work (3 credit hours)
- SOW 5662 Strategies in Employee Assistance Programs (3 credit hours)
- SOW 5713 Prevention and Treatment of Adolescent Substance Abuse (3 credit hours)
- SOW 5907 Independent Study in Addiction (3 credit hours)
- SOW 5937 Substance Abuse and Older Adults (3 credit hours)

#### Clinical Social Work Courses—6 Credit Hours

Take any two courses listed below.

- SOW 6123 Psychosocial Pathology (3 credit hours)
- SOW 6324 Clinical Practice with Groups (3 credit hours)
- SOW 6612 Clinical Practice with Families (3 credit hours)
- SOW 6656 Clinical Practice with Children and Adolescents (3 credit hours)

# Post-Master's Graduate Certificate in Adult Nurse Practitioner

## Description

College of Health and Public Affairs School of Nursing Graduate Program Coordinator: J. Kijek, HPA 220, (407) 823-2744. E-mail: [gradnurs@mail.ucf.edu](mailto:gradnurs@mail.ucf.edu)

The Post-Master's Graduate Certificate option is designed to prepare nurses who already have a master's degree in nursing as Adult, Family, or Pediatric Nurse Practitioners. The program is 18 credits in length and includes up to 630 hours of clinical practice. There are 11 credit hours of prerequisite or co-requisite requirements. Applicants who are licensed as Advanced Practice Nurses may have up to 3 credit hours of NGR 6941 Advanced Practice Practicum waived.

## Admission

Requirements for admission to the program include the following:

- A master's degree in nursing from a program accredited by NLNAC (National League for Nursing Accreditation Commission) or CCNE (Commission on Collegiate Nursing Education)
- Licensure as a Registered Nurse in Florida
- Completion of undergraduate health assessment course

Admission to the program is competitive on a space-available basis. Applicants are encouraged to apply online.

[Application Deadlines](#)

## Application Process

The following information must be submitted to the Office of Graduate Studies in order to be considered:

- Non-degree application from Graduate Studies
- Official transcripts of BSN degree\*
- Official transcripts of graduate course work showing awarding of master's degree\*
- Three letters of recommendation from individuals who can judge abilities for graduate school
- Personal statement describing interest in completing certificate program
- UCF Health Form (Upon acceptance to the program, a School of Nursing Health Form will be required.)
- Resume (no longer than 2 pages)
- Copy of RN License

\*Send one copy of all official transcripts to the UCF Office of Graduate Studies and one copy of each transcript to the School of Nursing.

## Program Progression

All UCF Office of Graduate Studies requirements for progression must be met. This includes, but is not limited to, completion of all required courses within a three-year period and achievement of a grade of "B" or better in all courses.

## Prerequisites or Co-requisites

The following graduate-level courses are prerequisites or co-requisites for the program. Courses can be incorporated into the individual plan of

- NGR 5003 Advanced Health Assessment, Health Promotion, and Diagnostic Reasoning (3 credit hours)
- NGR 5004L Advanced Health Assessment, Health Promotion, and Diagnostic Reasoning Clinical (2 credit hours)
- NGR 5141 Pathophysiologic Bases for ANP (3 credit hours)
- NGR 6192 Pharmacology for Advanced Nursing (3 credit hours)

## Requirements—18 Credit Hours Minimum

Certificates may be completed with a primary focus in Family, Pediatric, or Adult Nurse Practitioner studies.

### Required for All Nurse Practitioner Certificate Tracks—5 Credit Hours

- NGR 6941 Advanced Practice Practicum (5 credit hours)

NOTE: Applicants who are licensed as Advanced Practice Nurses may have up to 3 credit hours of NGR 6941 Advanced Practice Practicum waived.

### Required Courses for Adult Nurse Practitioner—13 Credit Hours

- NGR 6240 Adult I for APNs (3 credit hours)
- NGR 6240L Adult I Clinical for APNs (3 credit hours)
- NGR 6242 Adult II for APNs (2 credit hours)
- NGR 6242L Adult II Clinical for APNs (2 credit hours)
- NGR 6334 Women's Health for APNs (2 credit hours)
- NGR 6482L Women's Health Clinical for APNs (1 credit hour)

## Additional Information

Information about tuition, fees, and length of nursing program can be obtained from the National League for Nursing Accreditation Commission, 61 Broadway Street, New York, NY 10006; phone: (800) 669-9656, ext. 153.

## Related Links

- [Family Nurse Practitioner](#)
- [Adult Nurse Practitioner](#)

# Graduate Certificate in Aging Studies

## Description

College of Health and Public Affairs School of Social Work Graduate Program Coordinator: M Sauer, HPA 204, (407) 823-2114. E-mail: [msauer@mail.ucf.edu](mailto:msauer@mail.ucf.edu)

In recognition of the special needs of elderly citizens, UCF offers a fifteen-hour interdisciplinary Graduate Certificate in Aging Studies. This graduate certificate program is designed for people presently employed in the aging field who have a baccalaureate or higher degree and who wish to increase their knowledge of aging studies. Graduate students who are enrolled in health sciences, psychology, social work, nursing, communicative disorders, or sociology, as well as in other areas, such as liberal arts, music education, physical education, or art education, may find the certificate valuable. The mission of aging studies is to prepare individuals from diverse disciplines to address the physiological, psychological, sociological, environmental, cultural, legal-ethical, and public policy dynamics inherent in the lives of older adults.

## Admission

Admission is open to those with a bachelor's degree from a regionally accredited institution. An application to the graduate certificate program and official transcripts must be submitted. Applicants are encouraged to apply online.

[Application Deadlines](#)

## Requirements—15 Credit Hours Minimum

### Required Course—3 Credit Hours

- GEY 5648 Gerontology: An Interdisciplinary Approach

### Elective Courses—12 Credit Hours

Select four courses from the following.

- CLP 5187 Mental Health and Aging (3 credit hours)
- GEY 5600 Physiology of Aging (3 credit hours)
- GEY 5007 Women and Healthy Aging (3 credit hours)
- 5XXX Interdisciplinary Care at End of Life (3 credit hours)
- PHT 6374 Gerontology in Physical Therapy\* (3 credit hours)
- SOW 5642 Aging in Social Situations (3 credit hours)
- SOW 5644 Interventions with Elderly and Their Families (3 credit hours)
- )
- SOW 5937 Drug Abuse Among Older Adults (3 credit hours)
- SPA 5477 Aging and Communication (3 credit hours)
- SYO 6937 The Welfare State and Aging (3 credit hours)
- SYP 6565 Elder Abuse and Neglect (3 credit hours)

\* Physical Therapy majors only



# Graduate Certificate in Applied Mathematics

## Description

College of Arts and Sciences Department of Mathematics Graduate Program Coordinator: R. Mohapatra, MAP 207, (407) 823-6253. E-mail: [ramm@pegasus.cc.ucf.edu](mailto:ramm@pegasus.cc.ucf.edu).

The Graduate Certificate in Applied Mathematics is designed to provide students with a strong mathematical and analytical foundation for course work, research, and practical applications in disciplines where mathematics is an essential tool.

## Admission

Admission is open to those with a bachelor's degree from a regionally accredited institution. An application to the graduate certificate program and official transcripts must be submitted. Applicants are encouraged to apply online.

[Application Deadlines](#)

## Required Courses—9 Credit Hours Minimum

Select three courses from the following list.

- MAA 5405 Complex Variables (3 credit hours)
- MAP 5407 Applied Mathematics I (3 credit hours)
- MAP 5426 Special Functions (3 credit hours)
- MAP 5435 Advanced Mathematics for Engineers (3 credit hours)
- MAP 6424 Transform Methods (3 credit hours)
- MAP 6939 Wave Propagation Through Random Media (3 credit hours)

# Graduate Certificate in Applied Operations Research

## Description

College of Engineering and Computer Science Department of Industrial Engineering and Management Systems Graduate Program  
Coordinator: L. Malone, ENG II 312H, (407) 823-2833. E-mail: [lmalone@mail.ucf.edu](mailto:lmalone@mail.ucf.edu)

Operations research (OR) models and solution techniques provide a powerful arsenal for solving complex resource allocation and management problems. For instance, OR has been used to solve many of the scheduling, distribution, staffing, and design problems in industry. As more powerful desktop computers and software become available, the potential to apply OR models and methods to such problems will grow. This graduate certificate program gives students a good overview of OR tools, develops competence in modeling programs, and provides practice and hands-on experience with OR tools.

## Admission

Admission is open to those with a bachelor's degree from a regionally accredited institution. An application to the graduate certificate program and official transcripts must be submitted. Applicants are encouraged to apply online.

[Application Deadlines](#)

## Required Courses—12 Credit Hours Minimum

- ESI 5219 Engineering Statistics (3 credit hours)
- ESI 5316 Operations Research (3 credit hours)
- ESI 5419C Engineering Applications of Linear and Nonlinear Optimization (3 credit hours)
- ESI 5531 Discrete Systems Simulation (3 credit hours)

# Graduate Certificate in Arts Management

## Description

College of Arts and Sciences Liberal Arts Program Graduate Program Director: Elliot Vitte, CNH 201, (407) 823-2745, Fax (407) 823-3603. E-mail: [mls@mail.ucf.edu](mailto:mls@mail.ucf.edu) Web address: <http://www.cas.ucf.edu/ArtsManagement/>

The Graduate Certificate Program in Arts Management provides introductory as well as advanced exposure to the concepts and tools of arts management. Individuals who matriculate through this program will have a solid understanding of the parameters of arts programs, the needs of arts groups, and the ways in which arts managers function to accomplish successful results.

Students wishing to earn a master's degree can apply for the Master of Arts in Liberal Studies program and complete the Arts Management graduate certificate as their concentration.

## Admission

Admission is open to those with a bachelor's degree from a regionally accredited institution. The admission standards include some experience in the arts, either through course work at the undergraduate or graduate level, or through professional experience working for an arts organization. An interview with the Director is also required. An application to the graduate certificate and official transcripts must be submitted. Applicants are encouraged to apply online.

[Application Deadlines](#)

## Requirements—13.5 Credit Hours Minimum

Students enrolled in the program will take three business classes (1.5 credits each) and at least three of the four arts management courses (3 credits each). Overall GPA must be 3.0 to receive the graduate certificate.

### Required Courses—4.5 Credit Hours

- ACG 5005 Accounting Foundations (1.5 credit hours)
- MAN 5021 Management Foundations (1.5 credit hours)
- MAR 5055 Marketing Foundations (1.5 credit hours)

### Elective Courses—9 Credit Hours

Choose three from the four following courses:

- TPA 5405 Theatre Management for Non-Majors (3 credit hours)
- FIL 5609 Film and Internet Business (3 credit hours)
- MUM 5806 Performing Arts Management (3 credit hours)
- ART 5811C The Professional Practice of Art (3 credit hours)

# Graduate Certificate in CAD/CAM Technology

## Description

College of Engineering and Computer Science Department of Mechanical, Materials, and Aerospace Engineering Graduate Program  
Coordinator: A. Kassab, ENG 307B, (407) 823-5778. E-mail: [kassab@mail.ucf.edu](mailto:kassab@mail.ucf.edu)

The Graduate Certificate in CAD/CAM Technology prepares engineers for careers in design. The focus is on engineering practice and experience as students learn to solve problems within realistic industrial constraints. This graduate certificate program offers a variety of learning opportunities for professional development.

## Admission

Admission is open to those with a bachelor's degree from a regionally accredited institution. An application to the graduate certificate program and official transcripts must be submitted. Applicants are encouraged to apply online.

[Application Deadlines](#)

## Required Courses—9 Credit Hours Minimum

- EML 5025C Engineering Design Practice (3 credit hours)
- EML 5532C Computer-Aided Design for Manufacture (3 credit hours)
- EGN 5858C Introduction to Rapid Prototyping (3 credit hours)

# Graduate Certificate in Child Language Disorders

## Description

College of Health and Public Affairs Department of Communicative Disorders Graduate Certificate Coordinator: R. Jane Lieberman, HPA-2 101, (407) 823-4793. Email: [jlieberm@mail.ucf.edu](mailto:jlieberm@mail.ucf.edu)

Child language disorders are the most prevalent communication disorder served by speech-language pathologists, comprising over 50 percent of the caseload of school-based practitioners. The Graduate Certificate in Child Language Disorders provides prospective and practicing speech-language pathologists with advanced knowledge and skills to manage children with language disorders.

## Admission

Admission is open to those with a bachelor's degree from a regionally accredited institution. An application to the graduate certificate program and official transcripts must be submitted. Applicants are encouraged to apply online.

[Application Deadlines](#)

## Requirements—12 Credit Hours Minimum

### Required Courses—6 Credit Hours

- SPA 6401 Language Disorders in Infants and Toddlers (3 credit hours)
- SPA 6XXX Severe Language-based Reading and Writing Disabilities (3 credit hours)

### Elective Courses—6 Credit Hours

Two elective courses are required in communicative disorders or related disciplines. Elective courses must be selected in consultation with the student's adviser.

# Graduate Certificate in Children's Services

## Description

College of Health and Public Affairs School of Social Work Graduate Program Coordinator: Dr. Mary Van Hook, (407) 823-2114. E-mail: [mvanhook@mail.ucf.edu](mailto:mvanhook@mail.ucf.edu) MSW Field Coordinator: Claire Massey, (407) 823-5716. Email: [cmassev@mail.ucf.edu](mailto:cmassev@mail.ucf.edu)

The Graduate Certificate in Children's Services is designed to prepare students to work with children and families who are facing issues of abuse or neglect, or are involved in some way with the child welfare system. Students learn how to assess abuse and neglect and to develop appropriate ways to work with the families and elements of the child welfare system. The graduate certificate includes both classroom academic work and a specialized field internship. The program is a joint effort between the Schools of Social Work in Florida and the Department of Children and Families to improve services to children and their families.

## Admission

The Children's Services Certificate can only be taken as part of the Master of Social Work program. Students interested in the certificate should contact the Children's Services certificate coordinator and the Field Coordinator to ensure a proper field placement.\* Applicants are encouraged to apply online.

[Application Deadlines](#)

## Requirements—15 Credit Hours Minimum

- SOW 4654 Children's Services (3 credit hours)\*\*
- SOW 5655 Child Abuse: Treatment and Prevention (3 credit hours)\*\*
- SOW 6612 Clinical Practice with Families (3 credit hours)
- SOW 6535 Clinical Field Education I (3 credit hours)
- SOW 6536 Clinical Field Education II (3 credit hours)

\* Placement with the Department of Children and Families or related agencies (working with protective services or child welfare). Students need to discuss their interest in the certificate with the Field Office while arranging for the MSW placement.

\*\* Students who completed these courses for the undergraduate certificate in Children's Services must contact the program coordinator to arrange for appropriate course substitutions to be made.

# Graduate Certificate in Coaching

## Description

College of Education Physical Education graduate program (M.A. Teaching Physical Education track) Graduate Program Coordinator: P. Higginbotham, (407) 823-2050. Email: [higginbp@mail.ucf.edu](mailto:higginbp@mail.ucf.edu)

The Graduate Certificate in Coaching is designed to prepare coaches in youth, school, and recreational programs. These courses will provide teachers with two of the three required courses for the coaching endorsement, a requirement in the State of Florida to coach in public school. The additional requirement to gain the coaching endorsement can be obtained by taking an undergraduate course or completing a county workshop on coaching specialization. Students completing this program could be hired in school districts, youth sports programs, and other recreational agencies needing trained and certified coaches.

## Admission

Admission is open to those with a bachelor's degree from a regionally accredited institution. A prerequisite/ corequisite would be a course or workshop in a coaching specialization. An application to the graduate certificate program and official transcripts must be submitted. Applicants are encouraged to apply online.

[Application Deadlines](#)

## Required Courses—15 Credit Hours Minimum

- PET 5355 Exercise and Health (3 credit hours)
- PET 5635 Advanced Human Injuries (3 credit hours)
- PET 5937 Advanced Coaching Theory (3 credit hours)
- PET 6XXX Training and Conditioning Techniques for Coaches (3 credit hours)
- PET 6XXX Peak Performance in Sports (3 credit hours)

## Prerequisite/Co-requisite Choices

Choose one course from the following selection or complete credit via a county workshop.

- PEO 2624 Coaching Basketball
- PEO 3644 Coaching Football
- PEO 3324 Coaching Volleyball

# Graduate Certificate in Communications Systems

## Description

College of Engineering and Computer Science School of Electrical Engineering and Computer Science Graduate Program Coordinator: M. Georgiopoulos, ENG 407B, (407) 823-5338. E-mail: [michaelg@mail.ucf.edu](mailto:michaelg@mail.ucf.edu)

Every day we use a variety of modern communication systems and communication media, including the telephone, radio, television, electronic mail, and facsimile. The Graduate Certificate in Communication Systems provides the basic principles in the analysis and design of communication systems. After studying the background concepts of probability, random variables, and stochastic processes, students will be able to analyze existing or new communication systems. The fundamental elements of all communication systems (transmitter, channel, and receiver) will be thoroughly investigated and a number of practical communication systems will be discussed in detail.

## Admission

Admission is open to those with a bachelor's degree from a regionally accredited institution. An application to the graduate certificate program and official transcripts must be submitted. Applicants are encouraged to apply online.

[Application Deadlines](#)

## Required Courses—9 Credit Hours Minimum

- EEL 5542 Random Processes I (3 credit hours)
- EEL 6504 Communications Systems Design (3 credit hours)
- EEL 6530 Communication Theory (3 credit hours)



# Graduate Certificate in Community College Education

## Description

College of Education Graduate Program Coordinator: Dr. Ruby Evans, (407) 823-1129. E-mail: [revans@mail.ucf.edu](mailto:revans@mail.ucf.edu)

The graduate certificate program in Community College Education is designed to prepare individuals to become campus leaders at all organizational levels in community colleges, including the classroom. The program consists of five graduate courses that cover all facets of community college education. The courses are available online in Web-based format.

## Admission

A master's degree is prerequisite for admission to the program, and the applicant must be employed in a community college as well. An application to the graduate certificate program and an official transcript of the master's degree must be submitted. Applicants are encouraged to apply online.

[Application Deadlines](#)

## Required Courses—15 Credit Hours

- EDH 6053 The Community College in America (3 credit hours)
- EDH 6061 Contemporary Problems in Community Colleges (3 credit hours)
- EDH 6204 Community College Organization, Administration, and Supervision (3 credit hours)
- EDH 6215 Community College Curriculum (3 credit hours)
- EDH 6305 Teaching and Learning in the Community College (3 credit hours)

# Graduate Certificate in Computer Forensics

## Description

Graduate program coordinator: Sheau-Dong Lang, Computer Science, CSB 203, (407) 823-2474. E-mail: [lang@cs.ucf.edu](mailto:lang@cs.ucf.edu)

The National Center for Forensic Science (NCFS), the School of Electrical Engineering and Computer Science, and the Department of Chemistry jointly sponsor the interdisciplinary graduate certificate program in Computer Forensics. In addition, the Liberal Studies Program in the College of Arts and Sciences offers a Master of Arts degree in Liberal Studies with a concentration in Computer Forensics. This certificate program provides a unique opportunity of graduate training to professionals and paraprofessionals who deal directly or indirectly with digital evidence, including law enforcement investigators, forensic laboratory analysts, lawyers and judges, and corporate computer security specialists.

## Admission

Admission is open to those with a bachelor's degree from a regionally accredited institution. An application to the graduate certificate program and official transcripts must be submitted. Applicants are encouraged to apply online.

[Application Deadlines](#)

## Requirements—15 Credit Hours Minimum

To receive the certificate, students must take the four required courses and one of the elective courses listed below, for a total of 15 semester hours. A minimum grade point average of 3.0 is required in all courses applied to this certificate program.

### Required Courses—12 Credit Hours

- CHS 5503 Topics in Forensic Science (3 credit hours)
- CHS 5596 The Forensic Expert in the Courtroom (3 credit hours)
- CGS 5131 Computer Forensics I: Seizure and Examination of Computer Systems (3 credit hours)
- CGS 5132 Computer Forensics II: Network Security, Intrusion Detection, and Forensic Analysis (3 credit hours)

### Electives—3 Credit Hours

Choose one course.

- CGS 6133 Advanced Topics in Computer Security and Computer Forensics (3 credit hours)
- CHS 5518 The Forensic Collection and Examination of Digital Evidence (3 credit hours)

# Graduate Certificate in Conservation Biology

## Description

College of Arts and Sciences Department of Biology Graduate Program Coordinator: Dr. John F. Weishampel, BIO 140, (407) 823-6634. E-mail: [jweisham@mail.ucf.edu](mailto:jweisham@mail.ucf.edu)

The Graduate Certificate in Conservation Biology emphasizes basic and applied conservation biology. The Department of Biology provides basic courses on campus, while scientists at Disney's Animal Kingdom offer applied courses on Disney property. This program offers an excellent opportunity for cross-discipline training that provides conservation theory in a classroom setting and valuable field work in the laboratory portions of the Biology courses. Practical experience dealing with small animal populations is provided within Disney's unique zoological setting.

## Admission

Admission is open to those with a bachelor's degree from a regionally accredited institution. Applicants must also have strong Biology backgrounds, including course work in ecology and genetics. An application to the graduate certificate program and official transcripts must be submitted. Applicants are encouraged to apply online.

[Application Deadlines](#)

## Requirements—14 Credit Hours Minimum

Students will be required to take all three courses in Group A, and at least one course each from Group B and Group C.

### Group A

- EVR 5930 Seminar in Conservation Issues (1 credit hour)
- PCB 5045 Conservation Biology (4 credit hours)
- PCB 5556C Conservation Genetics (4 credit hours)

### Group B

- ZOO 5463 Herpetology (4 credit hours)
- ZOO 5475 Ornithology (4 credit hours)
- ZOO 5486 Mammalogy (4 credit hours)
- ZOO 5456 Ichthyology (4 credit hours)

### Group C

- ZOO 5517 Research Methods for Animal Behavior (1 credit hour)
- ZOO 5981 Applied Conservation Biology (1 credit hour)
- ZOO 5893L Reproductive Management in Zoological Environments (1 credit hour)

# Graduate Certificate in Construction Engineering

## Description

College of Engineering and Computer Science Department of Civil and Environmental Engineering Graduate Certificate Coordinator: A. Oloufa, ENGR2 225, (407) 823-3592. E-mail: [aoloufa@mail.ucf.edu](mailto:aoloufa@mail.ucf.edu)

The graduate certificate in construction engineering offers a wide range of expertise to the practicing civil engineer, from project management principles and tools to construction methods. The certificate program will cover the areas of organization, people, information, control, and technology of construction engineering.

## Admission

Admission is open to those with a bachelor's degree from a regionally accredited institution. An application to the graduate certificate program and official transcripts must be submitted. Applicants are encouraged to apply online.

[Application Deadlines](#)

## Requirements—12 Credit Hours Minimum

### Required Courses—9 Credit Hours

Choose three courses from the following.

- CCE 5006 Introduction to Construction Industry (3 credit hours)
- CCE 5036 Construction Estimation and Scheduling (3 credit hours)
- CCE 5205 Construction Methods (3 credit hours)
- CCE 5815 Mechanical and Electrical Systems for Buildings (3 credit hours)

### Elective Course—3 Credit Hours

A graduate course in the College of Engineering and Computer Science or the College of Business Administration, as approved by the graduate certificate coordinator.

# Graduate Certificate in Contemporary Humanities

## Description

College of Arts and Sciences Liberal Studies Graduate Program Graduate Program Coordinator: E. Vittes, CHN 201, (407) 823-2745. E-mail: [mls@mail.ucf.edu](mailto:mls@mail.ucf.edu)

The Graduate Certificate in Contemporary Humanities is an interdisciplinary program that focuses on contemporary western and non-western concerns. By encouraging students to develop unique, cross-disciplinary perspectives on how contemporary trends, such as advancing technology and globalization, affect who we are and what we are becoming, the Contemporary Humanities graduate certificate has the potential to affect scholarly inquiry in both humanistic and non-humanistic fields and to serve Central Florida, a site of rapid technological and demographic change.

Faculty in the Department of Philosophy will teach core and selected elective courses. Other courses, focused on some particular area of inquiry in Art, Anthropology, Communication, English, English Education, History, Liberal Studies, Philosophy, Political Science, Spanish, Theatre, Woman's Studies, are taught by faculty in those departments and disciplines.

## Admission

Admission is open to those with a bachelor's degree from a regionally accredited institution. An application to the graduate certificate program and official transcripts must be submitted. Applicants are encouraged to apply online. Relevant experiences with the humanities through course work at the undergraduate or graduate level or through professional experience working with cultural documents, analyses, or performances will be evaluated by the coordinator together with the certificate committee composed of faculty from the participating departments. Additionally, it is normally expected that applicants will have a grade point average of 3.0. However, the committee may grant exceptions where applications provide other indicators of preparedness.

[Application Deadlines](#)

## Requirements—15 Credit Hours Minimum

### Required Courses

- HUM 5XXX Theories and Methods of the Humanities (3 credit hours)
- HUM 5XXX Applied Contemporary Humanities (3 credit hours)

### Elective Courses—9 Credit Hours

Students may choose to specialize in some specific academic discipline or tailor their own areas of concentration. Choose elective courses from the following list.

- AMH 5296 Colloquium in 20th Century U.S.
- AMH 5391 Colloquium in U.S. Cultural History
- ANG 5479 Comparative Cultural Analysis
- ANG 5324 Contemporary Maya
- ASH 5408 Colloquium in Modern China
- ARH 5451 Artistic World Views
- ARH 5478 Contemporary Women Artists
- ARH 5943 Orlando Art Exhibition
- COM 6303 Communication Research I
- COM 6468 Communication and Conflict

- CPO 6091 Seminar in Comparative Politics
- ENC 5256 Gendered Rhetoric
- ENG 5018 Literary Criticism
- ENC 5425 Hypertext Theory and Design
- ENC 5427 Hypertext
- ENG 5705 Theory and Practice in Composition
- ENG 6261 Technical Writing, Theory and Practice
- ENC 5337 Modern Rhetorical Theory
- EUH 5285 Colloquium in Europe since World War II
- LAE 5415 Children's Literature in Elementary Education
- LAE 5465 Literature for Adolescents
- PHI 5XXX Ethical Theory and Practice
- PHI 5XXX Knowledge, Responsibility, and Society
- PHM 5035 Environmental Philosophy
- POS 6324 Women and Public Policy
- SPN 5505 Spanish Peninsular Culture and Civilization\*\*
- SPN 5506 Spanish American Culture and Civilization\*\*
- SPW 6585 Contemporary Peninsular Culture\*\*
- SPW 6306 Spanish American Drama I\*\*
- SPW 6307 Spanish American Poetry\*\*
- SPW 6217 Spanish-American Prose I\*\*
- SPW 6218 Spanish American Prose II\*\*
- SPW 6725 The Generation of 98\*\*
- SPN 5502 Hispanic Culture of the U.S.
- THE 5307 Contemporary Theatre Practice
- WST 5347 Research Seminar in Gender Studies

\* All elective courses have been approved for inclusion by the relevant departments. However, students without relevant prerequisites will need to obtain consent of the instructor in order to enroll.

\*\* Spanish courses are taught in Spanish. Students will need to pass a Spanish proficiency exam in order to enroll.

# Graduate Certificate in Corrections Leadership

## Description

College of Health and Public Affairs Department of Criminal Justice and Legal Studies Graduate Program Coordinator: K. Michael Reynolds, HPA 311, (407) 823-2943. E-mail: [kreynold@mail.ucf.edu](mailto:kreynold@mail.ucf.edu)

Corrections Leadership is a rapidly growing area of criminal justice. Private, state, and federal agencies alike are seeking qualified managers and leaders to meet the changing needs of the twenty-first century. Leaders of correctional facilities and programs should be prepared to meet the challenges of changing policies and effectively deal with the management of budgets, grants, cooperative agreements, and other inter-governmental projects.

The certificate program in Corrections Leadership is designed to provide a theoretical and practical knowledge base for correctional practitioners in Criminal Justice, Public Administration, and Social Work. The Corrections Leadership certificate program consists of two required courses and two elective courses for a total of 12 credit hours.

## Admission

Admission is open to those with a bachelor's degree from a regionally accredited institution. An application to the graduate certificate program and official transcripts must be submitted. Applicants are encouraged to apply online.

[Application Deadlines](#)

## Requirements—12 Credit Hours Minimum

### Required Courses—6 Credit Hours

- CJC 5020 Foundations of Corrections (3 credit hours)
- CCJ 6217 Law and Social Control (3 credit hours)

### Elective Courses—6 Credit Hours

Choose two of the following courses.

- CCJ 5467 Justice and Safety System Manpower (3 credit hours)
- CCJ 6106 Policy Analysis in Criminal Justice (3 credit hours)
- CCJ 6485 Issues in Justice Policy (3 credit hours)
- PAD 5041 Ethics and Values in Public Administration (3 credit hours)
- PAD 6335 Strategic Planning and Management (3 credit hours)
- PAD 6417 Human Resource Management (3 credit hours)
- SOW 5132 Diverse Client Populations (3 credit hours)
- SOW 5712 Interventions with Substance Abusers (3 credit hours)

# Graduate Certificate in Crime Analysis

## Description

College of Health and Public Affairs Department of Criminal Justice and Legal Studies Graduate Program Coordinator: K. Michael Reynolds, Ph.D., HPA 330, (407) 823-2943. E-mail: [kreynold@pegasus.cc.ucf.edu](mailto:kreynold@pegasus.cc.ucf.edu)

The Graduate Certificate in Crime Analysis has been developed by the Criminal Justice and Legal Studies Department to provide information for data-driven management, investigative support, and general crime analysis. This unique graduate certificate program is designed to provide essential skills that are critically needed by law enforcement agencies to meet new demands for sophisticated crime analysis and mapping products.

The program addresses the needs of traditional criminal justice graduate students and nontraditional criminal justice practitioners. Theoretical aspects of crime pattern analysis are combined with practical applications to understand the development of data-driven crime prevention strategies. Crime pattern recognition and examination are emphasized.

The program emphasizes data management abilities that are essential for sophisticated crime analysis. Students learn to synthesize theory and application in order to produce the knowledge base necessary to 1) fully utilize available technologies to develop and perform complex crime analysis and mapping, 2) perform advanced spatial analyses of crime, and 3) understand the essentials of creating customized crime analysis and mapping applications that are agency-specific.

The certificate program is affiliated with the Master of Science in Criminal Justice and administered by the Department of Criminal Justice. The program follows UCF policies and procedures for graduate certificate programs.

## Admission

Admission is open to those with a bachelor's degree from a regionally accredited university. An application to the graduate certificate program and official transcripts must be submitted. Applicants are encouraged to apply online.

[Application Deadlines](#)

## Requirements—9 Credit Hours Minimum

The Crime Analysis certificate program consists of three required courses, which are taught in a computer lab with a hands-on environment. The courses must be taken in following sequential order:

- CCJ 5073 Data Management Systems for Crime Analysis - Fall (3 credit hours)
- CCJ 6079 Crime Mapping and Analysis in Criminal Justice - Spring (3 credit hours)
- CCJ 6077 Advanced Crime Mapping and Analysis in Criminal Justice - Summer (3 credit hours)

Entry to a graduate certificate program does not guarantee admission to a graduate program. However, once a student has applied to and is accepted into a regular graduate program, credits from a certificate program may be applied toward an existing graduate program with the consent of the program. No internship or independent study may be used in a certificate program. A certificate program must be completed within three years of the start of the first course in the certificate program.



# Graduate Certificate in Design for Usability

## Description

College of Engineering and Computer Science Department of Industrial Engineering and Management Systems Graduate Program

Coordinator: L. Malone, ENG II 312H, (407) 823-2833. E-mail: [lmalone@mail.ucf.edu](mailto:lmalone@mail.ucf.edu)

Too often we hear about products, services, or systems that are supposedly designed with the user in mind, only to discover that the design is ineffective or unfriendly to users. The Graduate Certificate in Design for Usability educates students in the methods of user-centered design and usability engineering that can be used to assess and assure usability throughout a product, service, or system development cycle. Students will learn how to design products that are both ergonomically sound and "user-friendly," as well as how to plan and conduct usability tests, analyze related data, and use the results to improve the design of a product, service, or system.

## Admission

Admission is open to those with a bachelor's degree from a regionally accredited institution. An application to the graduate certificate program and official transcripts must be submitted. Applicants are encouraged to apply online.

[Application Deadlines](#)

## Required Courses—12 Credit Hours Minimum

- EIN 5248C Ergonomics (3 credit hours)
- EIN 5251 Human-Computer Interaction: Usability Evaluation (3 credit hours)
- EIN 6258 Human Computer Interaction (3 credit hours)
- ESI 6247 Experimental Design and Taguchi Methods (3 credit hours)

# Graduate Certificate in Domestic Violence

## Description

College of Arts and Sciences Department of Sociology and Anthropology Graduate Program Coordinators: Jana Jasinski, PH 403P, (407) 823-2227. E-mail: [jjasinsk@pegasus.cc.ucf.edu](mailto:jjasinsk@pegasus.cc.ucf.edu) John Lynxwiler, PH 403F, (407) 823-2227. E-mail: [jlwnxwil@mail.ucf.edu](mailto:jlwnxwil@mail.ucf.edu) Web address: [http://www.cas.ucf.edu/soc\\_anthro](http://www.cas.ucf.edu/soc_anthro)

The Department of Sociology and Anthropology offers a Sociology Graduate Certificate in Domestic Violence for persons working or planning to work in the domestic violence field or whose occupational responsibilities include contacts with the victims or perpetrators of domestic violence. The program addresses domestic violence definitions, causes, consequences, and prevention strategies from a sociological perspective. By analyzing the social forces contributing to domestic violence, professionals working in social service, mental health, medical, law enforcement, legal and educational fields will increase their knowledge and skills in developing, implementing, and evaluating intervention strategies.

## Admission

To be admitted into the Domestic Violence Certificate Program, students must possess a bachelor's degree from a regionally accredited institution. Students must apply to and be admitted into the Domestic Violence Certificate program in order to pursue and be awarded the certificate upon completion. Applicants are encouraged to apply online.

[Application Deadlines](#)

## Requirements—12 Credit Hours Minimum

All required courses are offered regularly in the evenings or on Saturdays on the main campus of UCF as well as on the Daytona Beach and Brevard area campuses. By taking one course per term, students may complete the graduate certificate program in any four consecutive terms. Non—degree—seeking students as well as those in other graduate programs can enroll in any of the Domestic Violence Certificate courses without being admitted into the Master of Arts Program in Applied Sociology. All courses, however, will be accepted as part of the master's degree.

### Required Courses—6 Credit Hours

- SYP 5562 Seminar in Domestic Violence: Theory, Research and Social Policy (3 credit hours)
- SYP 6563 Reactions to Domestic Violence (3 credit hours)

### Elective Courses—6 Credit Hours

Choose two of the following courses:

- SYA 6657 Program Design and Evaluation (3 credit hours)
- SYP 6565 Seminar in Elder Abuse and Neglect (3 credit hours)
- SYP 6561 Child Abuse in Society (3 credit hours)

## Graduate Certificate Completion

Students must submit a Graduate Certificate Completion form when they register for the final course in the Domestic Violence Certificate program. The Program Coordinator and College Representative must record and verify student's coursework before the Domestic Violence Certificate can be awarded.

**Deliverables**

Students must earn a grade of "B-" (2.75) or better to get credit toward the graduate certificate. Courses may be retaken to achieve a better grade. However, the certificate will only be awarded if the overall grade point average for all courses in the certificate program of study is 3.0 or higher.

No internship, independent study, or practicum courses may be used in the Domestic Violence Certificate program. No graduate credit hours taken at other institutions may be applied to the Domestic Violence Certificate program. With the consent of the Program Coordinator, UCF students who completed either required or elective courses in the Domestic Violence Certificate program as undergraduates may apply them toward the certificate.

# Graduate Certificate in Electronic Circuits

## Description

College of Engineering and Computer Science School of Electrical Engineering and Computer Science Graduate Program Coordinator: M. Georgiopoulos, ENG 407B, (407) 823-5338. E-mail: [michaelg@mail.ucf.edu](mailto:michaelg@mail.ucf.edu)

The Graduate Certificate in Electronic Circuits emphasizes modern design practice for power electronics, CMOS-integrated circuits, computer-aided circuit simulation, semiconductor device modeling, advanced analog and digital circuits, and advanced machinery. The power electronics courses cover principles of power electronics, power semiconductor devices, inverter topologies, switch-mode and resonant dc-to-dc converters, cyclo-converters, and advanced topics, such as soft-switching techniques, small-signal modeling of PWM and resonant converters, control techniques, power factor correction circuits. Conventional analog circuits such as ideal and non-ideal OP-amps, active RC and switched-capacitor filters, non-linear and other functional circuits, frequency stability and compensation of OP-amps will also be included. For electronic circuit design, SPICE circuit simulation is an essential computer-aided design tool, and course work focuses on semiconductor device modeling for circuit simulation, illustration of semiconductor device physics, and design principles of advanced CMOS analog and digital circuits in mixed-signal integrated circuits. Extensive circuit simulation and design examples will be provided.

## Admission

Admission is open to those with a bachelor's degree from a regionally accredited institution. An application to the graduate certificate program and official transcripts must be submitted. Applicants are encouraged to apply online.

[Application Deadlines](#)

## Requirements—12 Credit Hours Minimum

### Required Courses—6 Credit Hours

- EEL 5245C Power Electronics (3 credit hours)
- EEL 5357 CMOS Analog and Digital IC Design (3 credit hours)

### Elective Courses—6 Credit Hours

Choose two courses from the following.

- EEL 5353 Semiconductor Device Modeling and Simulation (3 credit hours)
- EEL 5370 Operational Amplifiers (3 credit hours)
- EEL 6208 Advanced Machines (3 credit hours)
- EEL 6246 Power Electronics II (3 credit hours)

# Post-Master's Graduate Certificate in Family Nurse Practitioner

## Description

College of Health and Public Affairs School of Nursing Graduate Program Coordinator: J. Kijek, HPA 220, (407) 823-2744. E-mail: [gradnurs@mail.ucf.edu](mailto:gradnurs@mail.ucf.edu)

The Post-Master's Graduate Certificate option is designed to prepare nurses who already have a master's degree in nursing as Family Nurse Practitioners. The program is 18 credits in length and includes up to 630 hours of clinical practice. There are 11 credit hours of prerequisite or co-requisite requirements. Applicants who are licensed as Advanced Practice Nurses may have up to 3 credit hours of NGR 6941 Advanced Practice Practicum waived.

## Admission

Requirements for admission to the program include the following:

- A master's degree in nursing from a program accredited by NLNAC (National League for Nursing Accreditation Commission) or CCNE (Commission on Collegiate Nursing Education)
- Licensure as a Registered Nurse in Florida
- Completion of undergraduate health assessment course

Admission to the program is competitive on a space-available basis. Applicants are encouraged to apply online.

[Application Deadlines](#)

## Application Process

The following information must be submitted to the Office of Graduate Studies in order to be considered:

- Non-degree application from Graduate Studies
- Official transcripts of BSN degree\*
- Official transcripts of graduate course work showing awarding of master's degree\*
- Three letters of recommendation from individuals who can judge abilities for graduate school
- Personal statement describing interest in completing certificate program
- UCF Health Form (Upon acceptance to the program, a School of Nursing Health Form will be required.)
- Resume (no longer than two pages)
- Copy of RN License

\*Send one copy of all official transcripts to the UCF Office of Graduate Studies and one copy of each transcript to the School of Nursing.

## Program Progression

All UCF Office of Graduate Studies requirements for progression must be met. This includes, but is not limited to, completion of all required courses within a three-year period and achievement of a grade of "B" or better in all courses.

## Prerequisites or Co-requisites

The following graduate-level courses are prerequisites or co-requisites for the program. Courses can be incorporated into the individual plan of

- NGR 5003 Advanced Health Assessment, Health Promotion, and Diagnostic Reasoning (3 credit hours)
- NGR 5004L Advanced Health Assessment, Health Promotion, and Diagnostic Reasoning Clinical (2 hours)
- NGR 5141 Pathophysiologic Bases for ANP (3 credit hours)
- NGR 6192 Pharmacology for Advanced Nursing (3 credit hours)

## Requirements—18 Credit Hours Minimum

In addition to Family Nurse Practitioner, graduate certificates may be completed with a primary focus in Pediatric or Adult Nurse Practitioner studies. [Link to related graduate certificate programs: Adult Nurse Practitioner and Pediatric Nurse Practitioner.

### Required for All Nurse Practitioner Graduate Certificates—5 Credit Hours

- NGR 6941 Advanced Practice Practicum (5 credit hours)

NOTE: Applicants who are licensed as Advanced Practice Nurses may have up to 3 credit hours of NGR 6941 Advanced Practice Practicum waived.

### Required Courses for Family Nurse Practitioner—13 Credit Hours

- NGR 6240 Adult I for APNs (3 credit hours)
- NGR 6240L Adult I Clinical for APNs (3 credit hours)
- NGR 6331 Pediatrics I for APNs (2 credit hours)
- NGR 6331L Pediatrics I Clinical for APNs (2 credit hours)
- NGR 6334 Women's Health for APNs (2 credit hours)
- NGR 6482L Women's Health Clinical for APNs (1 credit hour)

## Additional Information

Information about tuition, fees, and length of nursing program can be obtained from the National League for Nursing Accreditation Commission, 61 Broadway Street, New York, NY 10006; phone: (800) 669-9656, ext. 153.

# Graduate Certificate in Foreign Language Education

## Description

College of Education Curriculum and Instruction Master's program Graduate certificate coordinator: K. Verkler, (407) 823-5235. E-mail: [kverkler@mail.ucf.edu](mailto:kverkler@mail.ucf.edu)

The Foreign Language Education Graduate Certificate program is designed for in-service foreign language educators who seek additional expertise in their discipline and for in-service foreign language teachers for re-certification.

## Admission

Admission is open to those with a bachelor's degree from a regionally accredited institution. An application to the graduate certificate program and official transcripts must be submitted. Applicants are encouraged to apply online.

[Application Deadlines](#)

## Requirements—18 credit hours minimum

### Required Courses—9 hours

- FLE 6XXX Professional Development in Foreign Language Education (3 hours)
- EDF 6886 Multicultural Education (3 hours)
- SPN 5705 Introduction to Spanish Linguistics (3 hours)\*

\* Teachers of other languages or teachers who have already taken a course in linguistics may substitute a course from the list of electives.

### Electives—9 hours

Choose three courses with adviser approval:

- FLE 5335 Foreign Language Methods at the Elementary School (3 hours)
- FLE 6XXX Testing and Evaluation in Foreign Language Education (3 hours)
- FLE 6XXX Curriculum and Materials in Foreign Language Teaching (3 hours)
- EDM 6321 Middle Level Instruction (3 hours)
- EDF 6204 Challenges of Classroom Diversity (PR: EDG 6886) (3 hours)
- EME 5XXX Fundamentals of Technology for Teachers ([Online course](#)) (3 hours)
- LAE 5295 Writing Workshop I ([Online course](#)) (3 hours)

# Graduate Certificate in Gender Studies

## Description

College of Arts and Sciences Women's Studies Program Interim Graduate Certificate Coordinator: Dr. Lisa Logan, CNH 207A, (407) 823-6502. E-mail: [lmlogan@pegasus.cc.ucf.edu](mailto:lmlogan@pegasus.cc.ucf.edu)

## Gender Studies Faculty

Gender Studies Faculty are affiliated with the Women's Studies Program and include faculty in Art, English, History, Philosophy, Psychology, Political Science, Sociology and Anthropology, and Women's Studies. For a full list of affiliated faculty, visit the website for the Women's Studies Program at <http://www.cas.ucf.edu/womensstudies/>.

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

## Admission

Admission is open to those with a bachelor's degree from a regionally accredited institution. An application to the graduate certificate program and official transcripts must be submitted. Applicants are encouraged to apply online.

[Application Deadlines](#)

## Requirements—15 Credit Hours Minimum

The graduate certificate in Gender Studies includes courses from both the humanities and the social sciences. Students may include only 3 credit hours (one course) from those marked with an asterisk below toward meeting the requirements. Other courses may be approved as meeting requirements as new courses are added to the curriculum. Please consult with the graduate program coordinator.

### Required Course—3 Credit Hours

- WST 5347 Research Seminar in Gender Studies (3 credit hours)

### Humanities—6 Credit Hours

- AMH 5566 Colloquium: Women in American History (3 credit hours)
- ARH 5478 Contemporary Women Artists (3 credit hours)
- LIT 5389 Studies in Gender and Fiction Writing (3 credit hours)
- ENC 5256 Gendered Rhetoric (3 credit hours)
- ENL 5XXX Renaissance Women (3 credit hours)
- ENL 6217 Gender and the Medieval Text (3 credit hours)
- \*EUH 6938 Women and Gender in European History (3 credit hours)
- \*LIT 5097 Studies in Contemporary Fiction (3 credit hours)
- LIT 5387 Captives, Housewives, and Coquettes (3 credit hours)
- LIT 5556 Advanced Feminist Theories (3 credit hours)

### Social Sciences—6 Credit Hours



- CLP 6459C Human Sexuality, Marriage, and Sex Therapies (3 credit hours)
- POS 6324 Women and Public Policy (3 credit hours)
- SOW 5625 Social Work with Women (3 credit hours)
- SYP 5562 Seminar on Domestic Violence (3 credit hours)
- SYP 6563 Reactions to Domestic Violence (3 credit hours)
- \*SYP 6565 Elder Abuse and Neglect (3 credit hours)
- \*SYP 6561 Child Abuse in Society (3 credit hours)
- SYD 6809 Seminar in Gender Issues (3 credit hours)

\*Students may include only one of these courses (marked with an asterisk) toward meeting the certificate requirements.

# Graduate Certificate in Health and Wellness

## Description

College of Education Physical Education graduate program (M.A. Teaching Physical Education track) Graduate Program Coordinator: P. Higginbotham, (407) 823-2050. Email: [higginbp@mail.ucf.edu](mailto:higginbp@mail.ucf.edu)

The Graduate Certificate in Health and Wellness is designed to prepare educators to teach health, fitness, and wellness principles including information about risk behaviors and choices made by adolescents. In addition, this group of courses comprises one-half of the course work needed for a health education certification in the State of Florida. The health certificate is needed by teachers who teach Life Management Skills, a required course in Florida high schools. These courses may also be of interest to students and community members from many different disciplines concerned with youth and adolescent development.

## Admission

Admission is open to those with a bachelor's degree from a regionally accredited institution. An application to the graduate certificate program and official transcripts must be submitted. Applicants are encouraged to apply online.

[Application Deadlines](#)

## Required Courses—15 Credit Hours Minimum

- PET 5XXX Health Methods: Teaching Strategies and Interventions (3 credit hours)
- PET 5355 Exercise and Health (3 credit hours)
- PET 6088 Wellness Development in Children (3 credit hours)
- PET 6089 Personal and Organizational Wellness (3 credit hours)
- PET 6XXX Wellness Technology in Physical Education (3 credit hours)

# Graduate Certificate in HVAC Engineering

## Description

College of Engineering and Computer Science Department of Mechanical, Materials, and Aerospace Engineering Graduate Program

Coordinator: A. Kassab, ENG 307B, (407) 823-5778. E-mail: [kassab@mail.ucf.edu](mailto:kassab@mail.ucf.edu)

The Graduate Certificate in HVAC Engineering is designed to provide students with a fundamental understanding of the principles behind HVAC engineering and the applied aspects of HVAC engineering, including analysis and design of practical systems. Students will participate in laboratory and hands-on experiences.

## Admission

Admission is open to those with a bachelor's degree from a regionally accredited institution. An application to the graduate certificate program and official transcripts must be submitted. Applicants are encouraged to apply online.

[Application Deadlines](#)

## Required Courses—12 Credit Hours Minimum

- EML 5066 Computational Methods in Mechanical, Materials, and Aerospace Engineering (3 credit hours)
- EML 5152 Intermediate Heat Transfer (3 credit hours)
- EML 5606 HVAC Systems Engineering (3 credit hours)
- EML 5605 Applied HVAC Engineering (3 credit hours)

# Graduate Certificate in Industrial Ergonomics and Safety

## Description

College of Engineering and Computer Science Department of Industrial Engineering and Management Systems Graduate Program  
Coordinator: L. Malone, ENG II 312H, (407) 823-2833. E-mail: [lmalone@mail.ucf.edu](mailto:lmalone@mail.ucf.edu)

Because of increasing costs due to injuries, on-the-job accidents, and rehabilitation, interest in injury and accident prevention has increased dramatically. Designing workplaces to accommodate human workers is a key to improving worker safety and occupational health. The Graduate Certificate in Industrial Ergonomics and Safety prepares students in the design and implementation of an effective human engineering/ergonomics effort within an occupational setting.

## Admission

Admission is open to those with a bachelor's degree from a regionally accredited institution. An application to the graduate certificate program and official transcripts must be submitted. Applicants are encouraged to apply online.

[Application Deadlines](#)

## Required Courses—15 Credit Hours Minimum

- EIN 5248C Ergonomics (3 credit hours)
- EIN 6215 System Safety Engineering and Management (3 credit hours)
- EIN 6249C Biomechanics (3 credit hours)
- EIN 6264C Industrial Hygiene (3 credit hours)
- EIN 6270C Work Physiology (3 credit hours)

# Graduate Certificate in Initial Teacher Professional Preparation

## Description

College of Education Graduate Program Coordinator: J. Lockett, (407) 823-6437. E-mail: [jlockett@pegasus.cc.ucf.edu](mailto:jlockett@pegasus.cc.ucf.edu)

The graduate certificate program in Initial Teacher Professional Preparation is designed for those who have secured a teaching position and a temporary teaching certificate, but who need professional core certification to meet State Department of Education requirements. The goal of this program is to provide these teachers with the most appropriate courses available to ensure successful teaching experiences in grades 6-12 classrooms and state certification. Courses will be offered throughout the academic year.

## Admission

Admission is open to those with a bachelor's degree from a regionally accredited institution. An application to the graduate certificate program and official transcripts must be submitted. Applicants are encouraged to apply online.

[Application Deadlines](#)

## Required Courses—15 Credit Hours

There is no mandated sequence to the classes. However, we recommend the following course sequence.

- EDG 6236 Principles of Instruction (3 credit hours)
- EDF 6608 Social Factors in American Education (3 credit hours)
- EDF 6155 Life Span Human Development and Learning (3 credit hours)
- EDF 6432 Measurement and Evaluation in Education (3 credit hours)
- Special Methods (Course selection depends on the student's intended certification.) (3 credit hours)

# Graduate Certificate in Instructional/Educational Technology

## Description

College of Education Graduate Program Coordinator: Dr. Glenda Gunter, (407) 823-3502. E-mail: [ggunter@pegasus.cc.ucf.edu](mailto:ggunter@pegasus.cc.ucf.edu) Web address: <http://pegasus.cc.ucf.edu/~edtech>

The graduate certificate in Instructional/Educational Technology provides an opportunity for study and professional training. The program requires a great deal of independent thinking and emphasis is placed on the cultivation of scholarly attitudes and methods. The certificate program will prepare students with a subject matter degree, who wish to apply for State of Florida Teacher technology positions. Also, students will acquire the subject matter needed to meet the National Educational Technology Standards for Teachers developed by the International Society for Technology in Education (ISTE) and being adopted by the National Council for Accreditation of Teacher Education (NCATE). Several courses will be taught online and others will be taught with flexible scheduling at the Orlando Campus.

## Admission

Admission is open to those with a bachelor's degree from a regionally accredited institution. An application to the graduate certificate program and official transcripts must be submitted. Applicants are encouraged to apply online.

[Application Deadlines](#)

## Required Courses—15 Credit Hours

- EME 5050 Fundamentals of Technology for Educators (3 credit hours)
- EME 5052 Electronic Resources for Education (3 credit hours)
- EME 6405 Application Software for Educational Settings (3 credit hours)
- EME 6507 Multimedia in the Classroom (3 credit hours)
- EME 6602 Integrating Technology into the Curriculum (3 credit hours)

# Graduate Certificate in Juvenile Justice Leadership

## Description

College of Health and Public Affairs Department of Criminal Justice and Legal Studies Graduate Program Coordinator: K. Michael Reynolds, HPA 311, (407) 823-2943. E-mail: [kreynold@mail.ucf.edu](mailto:kreynold@mail.ucf.edu)

Recent events in the state and in the nation have prompted policy makers, police, juvenile justice administrators, and school administrators to re-examine their role in the juvenile justice process. The juvenile justice system, long understaffed, is facing the continuing problem of increased juvenile crime, high levels of juvenile drug use and substance abuse, and debatable programs to rehabilitate delinquent children. It is one of the fastest growing career fields in criminal justice.

The certificate program in Juvenile Justice Leadership is designed to provide a theoretical and practical knowledge base for juvenile justice executives in the areas of criminal justice, public administration, and social work. This certificate program requires 12 hours of graduate course work. The successful completion of this program would allow the student to continue as a degree-seeking student in the master's program in Criminal Justice.

## Admission

Admission is open to those with a bachelor's degree from a regionally accredited university. An application to the graduate certificate program and official transcripts must be submitted. Applicants are encouraged to apply online.

[Application Deadlines](#)

## Requirements—12 Credit Hours Minimum

### Required Courses—9 Credit Hours

- CJJ 6020 The Juvenile Justice System (3 credit hours)
- PAD 6037 Public Organization Management (3 credit hours)
- SOW 5655 Child Abuse: Treatment and Prevention (3 credit hours)

### Elective Course—3 Credit Hours

Choose one of the following courses.

- CCJ 5456 The Administration of Justice (3 credit hours)
- CCJ 5015 The Nature of Crime (3 credit hours)
- CCJ 5073 Data Management Systems for Crime Analysis (offered fall term only) (3 credit hours)
- PAD 6053 Public Administration in the Policy Process (3 credit hours)
- PAD 6327 Public Program Evaluation Techniques (3 credit hours)
- SOW 5712 Interventions with Substance Abusers (3 credit hours)
- SYP 6561 Child Abuse in Society (3 credit hours)

# Graduate Certificate in Marriage and Family Therapy

## Description

College of Education Graduate Program Coordinator: M. E. Young, (407) 823-6314. E-mail: [meyoung@mail.ucf.edu](mailto:meyoung@mail.ucf.edu)

The graduate certificate program in Marriage and Family Therapy is designed to provide additional training for counselors and therapists who work with families, couples, and children. The program is composed of five graduate courses addressing family systems, working with couples and family therapy theory, and counseling techniques. For many counselors, this certificate will fulfill the requirements for Florida Licensure as a Marriage and Family Therapist. Applicants should contact the State Licensure Board to verify the courses they need.

Master's students in the School of Social Work can also obtain the Graduate Certificate in Family Therapy by taking the required courses for Social Work students, which include content about family theory and assessment and counseling with families. There is also a field component. Information about Social Work courses and the field courses can be obtained through the School of Social Work.

## Admission

Admission is open to those with a master's degree from a regionally accredited institution and those currently admitted in a master's degree program in counseling or a related field. In addition, applicants must attend and pass an interview that is offered twice yearly. An application to the graduate certificate program and official transcripts must be submitted. Applicants are encouraged to apply online.

[Application Deadlines](#)

## Required Courses—15 Credit Hours Minimum

- MHS 6430 Family Counseling I (3 credit hours)
- MHS 6431 Family Counseling II (3 credit hours)
- MHS 6440 Couples Counseling (3 credit hours)
- MHS 6800 Practicum (3 credit hours)
- MHS 6830 Counseling Internship (3 credit hours)

MHS 6800 and 6830 must be taken in separate semesters and together contain at least 180 hours of direct client contact including couples, families, unmarried dyads, and individuals.

NOTE: Developmental Process of the Resilient Family (MHS 6433) is recommended as an additional course.

## Required Courses for Social Work students—17 Credit Hours Minimum

- SOW 5106 Human Behavior and Social Environment II: Social Systems (3 credit hours)
- SOW 6612 Clinical Practice with Families (3 credit hours)
- SOW Clinical Field Education I (4 credit hours)
- SOW Clinical Field Education (4 credit hours)
- MHS 6430 Couples Counseling (College of Education) (3 credit hours)



# Graduate Certificate in Materials Failure Analysis

## Description

College of Engineering and Computer Science Mechanical, Materials, and Aerospace Engineering graduate program Graduate Program Coordinator: A. Kassab, ENG 307B, (407) 823-5778. E-mail: [kassab@mail.ucf.edu](mailto:kassab@mail.ucf.edu)

The Graduate Certificate in Materials Failure Analysis is designed to familiarize engineers entrusted with conducting materials failure analysis for possible causes of failure and the possible interaction of these causes. Aims of the program include developing the ability to conduct detailed fractographic and microstructural evaluations and improving proficiency with modern tools and techniques of failure analysis.

## Admission

Admission is open to those with a bachelor's degree from a regionally accredited institution. An application to the graduate certificate program and official transcripts must be submitted. Applicants are encouraged to apply online.

[Application Deadlines](#)

## Required Courses—12 Credit Hours

- EMA 6628 Materials Failure Analysis (3 credit hours)
- EMA 5326 Corrosion Science and Engineering (3 credit hours)
- EMA 5505 Scanning Electron Microscopy (3 credit hours)
- EMA 5108 Surface Science (3 credit hours) OR EMA 5504 Modern Characterization of Materials (3 credit hours)

# Graduate Certificate in Maya Studies

## Description

College of Arts and Sciences Department of Sociology and Anthropology Graduate Program Coordinators: Diane Chase, CNH 406F, (407) 823-2227, Fax (407) 823-3026. E-mail: [chase@mail.ucf.edu](mailto:chase@mail.ucf.edu) Jay Corzine, HFA 402, (407) 823-2227, Fax (407) 823-3026. E-mail: [hcorzine@pegasus.cc.ucf.edu](mailto:hcorzine@pegasus.cc.ucf.edu) Web address: [http://www.caracol.org/maya\\_certificate.htm](http://www.caracol.org/maya_certificate.htm)

## Maya Studies Faculty

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

## Admission

Admission is open to those with a bachelor's degree from a regionally accredited institution. An application to the graduate certificate program and official transcripts must be submitted. Applicants are encouraged to apply online.

[Application Deadlines](#)

## Requirements—15 Credit Hours Minimum

Students must take two core (required) courses and three additional courses selected from a pool of 8 elective courses. Before taking an elective course, students must have taken at least one of the required courses or must have the instructor's consent to take the elective course.

## Required Courses—6 Credit Hours

- ANG 6168 The Ancient Maya (3 credit hours)
- ANG 6324 Contemporary Maya (3 credit hours)

## Elective Courses—9 Credit Hours

- ANG 5166 Problems in Maya Studies (3 credit hours)
- ANG 5167 Maya Hieroglyphs (3 credit hours)
- ANT 5165 Field Research in Maya Studies (3 credit hours)
- ANG 5228 Maya Iconography (3 credit hours)
- LAH 5XXX Latin America's Colonial Legacy: The Maya (3 credit hours)
- ANG 5XXX Archaeological Theory and Method (3 credit hours)
- CPO 5334 Contemporary Politics of the Mayan Region (3 credit hours)
- SPW 5XXX Modern Maya Literature (3 credit hours)

# Maya Studies Track in the Master of Arts in Liberal Studies

The [Maya Studies track in the Master of Arts in Liberal Studies](#) is an interdisciplinary degree that expands on the Graduate Certificate in Maya Studies. The program has required and elective courses, individualized advising and class selection, and an MA thesis. For details of the track, see the Master of Arts in Liberal Studies.

# Graduate Certificate in Medical Speech-Language Pathology

## Description

College of Health and Public Affairs Department of Communicative Disorders Graduate Certificate Coordinator: R. Jane Lieberman, HPA-2 101, (407) 823-4793. Email: [jlieberm@mail.ucf.edu](mailto:jlieberm@mail.ucf.edu)

The Graduate Certificate in Medical Speech-Language Pathology is designed for practicing speech-language pathologists who work in hospital, nursing home, or rehabilitation center settings. It provides the advanced knowledge and skills necessary to evaluate and treat individuals with medically based communication disorders.

The specific objectives of the of the Graduate Certificate in Medical Speech-Language Pathology are to develop advanced knowledge and skills in the assessment and treatment of cleft palate-velopharyngeal dysfunction, cognitive-linguistic communication disorders, and feeding and swallowing disorders.

## Admission

Admission is open to those with a bachelor's degree from a regionally accredited institution. An application to the graduate certificate program and official transcripts must be submitted. Applicants are encouraged to apply online.

[Application Deadlines](#)

## Requirements—12 Credit Hours Minimum

### Required Courses—9 Credit Hours

- SPA 6245 Communication Disorders in Cleft Palate-Velopharyngeal Dysfunction (3 credit hours)
- SPA 6417 Cognitive-Linguistic Communication Disorders (3 credit hours)
- SPA 6567 Feeding and Swallowing Disorders (3 credit hours)

### Elective Course—3 Credit Hours

An elective course in communicative disorders or a related discipline is required and should be selected in consultation with the student's adviser. The list of electives includes, but is not limited to, the following courses.

- SPA 5477 Aging and Communication
- SPA 5559 Augmentative and Alternative Communication Systems
- SPA 6309 Auditory Processing of Language
- SPA 6401 Language Disorders in Infants and Toddlers
- SPA 6XXX Severe Reading and Writing Disabilities
- CLP 5187 Mental Health and Aging
- EED 6071 Behavior Disorders in Schools
- EXP 5067 Human Factors and Aging
- HSC 6468 Issues in Geriatric Health Care
- NGR 5252 Psycho-Social Factors and Health Care Outcomes in the Elderly
- PET 6655 Developmental Aspects of Motor Disabilities

# Graduate Certificate in Middle Level Education

## Description

College of Education Graduate Program Coordinator: L. Holt, (407) 823-2015. E-mail: [holt@mail.ucf.edu](mailto:holt@mail.ucf.edu) The graduate certificate program in Middle Level Education offers graduate education for prospective or current middle level teachers who have not completed prior course work focusing on the specific needs of young adolescents.

## Admission

Admission is open to those with a bachelor's degree from a regionally accredited institution.

An application to the graduate certificate program and official transcripts must be submitted. Applicants are encouraged to apply online.

[Application Deadlines](#)

## Required Courses—15 Credit Hours

- EDM 6401 Principles of Middle Level Education (3 credit hours)
- EDM 6047 Understanding the Young Adolescent (3 credit hours)
- EDM 6321 Middle Level Instruction (3 credit hours)
- EDM 6235 Contemporary Issues in Middle Level Education (3 credit hours)
- EDM 6908 Research Project (3 credit hours)

# Graduate Certificate in Multicultural/Multilingual Speech-Language Pathology

## Description

College of Health and Public Affairs Department of Communicative Disorders Graduate Certificate Coordinator: R. Jane Lieberman, HPA-2 101, (407) 823-4793. Email: [jlieberm@mail.ucf.edu](mailto:jlieberm@mail.ucf.edu)

The Graduate Certificate in Multicultural/Multilingual Speech-Language Pathology provides prospective and practicing speech-language pathologists with the knowledge and skills to evaluate and treat individuals with communication disorders from culturally and linguistically diverse backgrounds. As the demographic profile of the U.S. population becomes more diverse, speech-language pathologists must become more knowledgeable and responsive to the communication needs of children and adults in our community.

## Admission

Admission is open to those with a bachelor's degree from a regionally accredited institution. An application to the graduate certificate program and official transcripts must be submitted. Applicants are encouraged to apply online.

[Application Deadlines](#)

## Requirements—12 Credit Hours Minimum

### Required Courses—9 Credit Hours

- SPA 5473 Multicultural Aspects of Communication Disorders and Differences (3 credit hours)
- SPA 6474 Assessment of Culturally and Linguistically Diverse Populations (3 credit hours)
- SPA 6475 Management of Culturally and Linguistically Diverse Populations (3 credit hours)

### Elective Course—3 Credit Hours

One elective is required in communicative disorders or a related discipline, such as anthropology, communication, educational foundations, exceptional education, counselor education, early childhood education, sociology, social work, foreign languages, and teaching English to speakers of other languages (TESOL). The elective course must be selected in consultation with the student's adviser.

# Graduate Certificate in Nonprofit Management

## Description

College of Health and Public Affairs Department of Public Administration Graduate Program Coordinator: Mary Ann Felheim, Ph.D., (407) 823-2604. E-mail: [mfeldhei@mail.ucf.edu](mailto:mfeldhei@mail.ucf.edu)

This graduate certificate program offers specialized, graduate-level knowledge in nonprofit management, resource development, strategic planning, and program evaluation to those currently working in the nonprofit sector or in organizations that partner with the nonprofit sector.

## Admission

Admission is open to those with a bachelor's degree from a regionally accredited institution. An application to the graduate certificate and official transcripts must be submitted. Applicants are encouraged to apply online.

[Application Deadlines](#)

## Requirements—18 Credit Hours Minimum

### Required Courses—15 Credit Hours

- PAD 5146 Nonprofit Resource Development (3 credit hours)
- PAD 5144 Nonprofit Organizations (3 credit hours)
- PAD 5145 Volunteerism in Nonprofit Management (3 credit hours)
- PAD 6327 Public Program Evaluation Techniques or SOW 5432 Evaluating Social Work (3 credit hours)
- PAD 6335 Strategic Planning and Management (3 credit hours)

### Elective Course—3 Credit Hours

Choose one course below or see the graduate program coordinator.

- PAD 5208 Nonprofit Financial Management (3 credit hours)
- PAD 5425 Dispute Resolution in the Public Sector (3 credit hours)
- PAD 5850 Grant and Contract Management (3 credit hours)
- SOW 5373 Clinical Supervision (3 credit hours)
- SOW 6246 Policy Analysis and Social Change (3 credit hours)

# Graduate Certificate in Nursing and Health Professional Education

## Description

College of Health and Public Affairs School of Nursing Graduate Program Coordinator: J. Kijek, HPA 220, (407) 823-2744. E-mail: [gradnurs@mail.ucf.edu](mailto:gradnurs@mail.ucf.edu)

The Graduate Certificate in Nursing and Health Professional Education is designed to prepare nurses and other health care professionals to teach in professional health care education programs, health care institutions, and the community.

## Admission

Admission is open to those with a bachelor's degree in nursing or a health-related field. An application to the graduate program and official transcripts must be submitted. A resume (no longer than two pages) is also required. Applicants are encouraged to apply online.

[Application Deadlines](#)

## Requirements—12-15 Credit Hours Minimum

### Required Courses—9 Credit Hours

- NGR 5715 Instructional Technology Resources for Health Professional Education (3 credit hours)
- NGR 5791 Teaching Strategies for Health Professionals (3 credit hours)
- EDF 6259 Learning Theories Applied to Classroom Instruction and Management (3 credit hours)

### Elective Courses—3-6 Credit Hours

Students must take at least one of the following courses (based on learning goals), but may take both courses.

- NGR 5714 Clinical Teaching Strategies for Health Professional Education (3 credit hours)
- NGR 5871 Health Care Informatics (3 credit hours)



# Post-Master's Graduate Certificate in Pediatric Nurse Practitioner

## Description

College of Health and Public Affairs School of Nursing Graduate Program Coordinator: J. Kijek, HPA 220, (407) 823-2744. E-mail: [gradnurs@mail.ucf.edu](mailto:gradnurs@mail.ucf.edu)

The Post-Master's Graduate Certificate option is designed to prepare nurses who already have a master's degree in nursing as Adult, Family, or Pediatric Nurse Practitioners. The program is 18 credits in length and includes up to 630 hours of clinical practice. There are 11 credit hours of prerequisite or co-requisite requirements. Applicants who are licensed as Advanced Practice Nurses may have up to 3 credit hours of NGR 6941 Advanced Practice Practicum waived.

## Admission

Requirements for admission to the program include the following:

- A master's degree in nursing from a program accredited by NLNAC (National League for Nursing Accreditation Commission) or CCNE (Commission on Collegiate Nursing Education)
- Licensure as a Registered Nurse in Florida
- Completion of undergraduate health assessment course

Admission to the program is competitive on a space-available basis. Applicants are encouraged to apply online.

[Application Deadlines](#)

## Application Process

The following information must be submitted to the Office of Graduate Studies in order to be considered:

- Nondegree application from Graduate Studies
- Official transcripts of BSN degree\*
- Official transcripts of graduate course work showing awarding of master's degree\*
- Three letters of recommendation from individuals who can judge abilities for graduate school
- Personal statement describing interest in completing certificate program
- UCF Health Form (Upon acceptance to the program, a School of Nursing Health Form will be required.)
- Resume (no longer than 2 pages)
- Copy of RN License

\* Send one copy of all official transcripts to the UCF Office of Graduate Studies and one copy of each transcript to the School of Nursing.

## Program Progression

All UCF Office of Graduate Studies requirements for progression must be met. This includes, but is not limited to, completion of all required courses within a three-year period and achievement of a grade of "B" or better in all courses.

## Prerequisites or Co-requisites

The following graduate-level courses are prerequisites or co-requisites for the program. Courses can be incorporated into the individual plan of

- NGR 5003 Advanced Health Assessment, Health Promotion, and Diagnostic Reasoning (3 credit hours)
- NGR 5003L Advanced Health Assessment, Health Promotion, and Diagnostic Reasoning Clinical (2 credit hours)
- NGR 5141 Pathophysiologic Bases for ANP (3 credit hours)
- NGR 6192 Pharmacology for Advanced Nursing (3 credit hours)

## Requirements—18 Credit Hours Minimum

Certificates may be completed with a primary focus in Family, Pediatric, or Adult Nurse Practitioner studies.

[Link to related graduate certificate programs: Family Nurse Practitioner and Adult Nurse Practitioner.]

## Required for Nurse Practitioner Certificate—5 Credit Hours

- NGR 6941 Advanced Practice Practicum (5 credit hours)

NOTE: Applicants who are licensed as Advanced Practice Nurses may have up to 3 credit hours of NGR 6941 Advanced Practice Practicum waived.

## Requirements for Pediatric Nurse Practitioner Track—13 Credit Hours

- NGR 6331 Pediatrics I for APNs (2 credit hours)
- NGR 6331L Pediatrics I Clinical for APNs (2 credit hours)
- NGR 6332 Pediatrics II for APNs (3 credit hours)
- NGR 6332L Pediatrics II Clinical for APNs (3 credit hours)
- NGR 6335 Focused Pediatrics for APNs (2 credit hours)
- NGR 6335L Focused Pediatrics Clinical for APNs (1 credit hour)

## Additional Information

Information about tuition, fees, and length of nursing program can be obtained from the National League for Nursing Accreditation Commission, 61 Broadway Street, New York, NY 10006; phone: (800) 669-9656, ext. 153.

# Graduate Certificate in Play Therapy

## Description

College of Education Graduate Program Coordinator: Montse Casado, (407) 823-4126. E-mail: [mcasado@mail.ucf.edu](mailto:mcasado@mail.ucf.edu)

This graduate certificate program provides advanced training in play therapy to students in counselor education and to professional school and mental health counselors who seek to improve their counseling skills. All school counselors and a large number of mental health counselors provide counseling services to children and adolescents. Thus, many students and counselors may find play therapy useful for their work with children and adolescents. Students who complete the certificate in Play Therapy will meet the educational requirements for national certification in play therapy.

## Admission

Admission is open to those with a bachelor's degree from a regionally accredited institution and those currently admitted in a master's degree in counseling or related field. In addition, applicants must attend and pass an interview that is offered twice each year. An application to the graduate certificate program as well as transcripts must be submitted. Applicants are encouraged to apply online.

[Application Deadlines](#)

## Required Courses—15 Credit Hours

- MHS 6421 Play Process in Counseling with Children (3 credit hours)
- SDS 6411 Counseling with Children and Adolescents (3 credit hours)
- EDF 6155 Lifespan and Human Development (3 credit hours)
- MHS 6422 Advanced Play Process in Counseling (3 credit hours)
- MHS 6403 Counseling and the Expressive Arts (3 credit hours)

NOTE: Those individuals seeking national certification in Play Therapy, enrolled in a counseling program or mental health profession that did not include a practicum and internship experience will need to complete MHS 6800 and MHS 6830 to be eligible for national certification. A master's degree in a Medical or Mental Health profession is required for National Certification. It is also recommended that individuals take MHS 6433 Developmental Process of the Resilient Family.

# Graduate Certificate in Police Leadership

## Description

College of Health and Public Affairs Department of Criminal Justice and Legal Studies Graduate Program Coordinator: K. Michael Reynolds, Ph.D., HPA 311, (407) 823-2943. E-mail: [krevnold@mail.ucf.edu](mailto:krevnold@mail.ucf.edu)

Municipalities, county government, and state agencies have been working to develop new technologies, cooperative business and government relationships, and new ways of fighting and deterring criminal behavior. The police manager, who previously had been concerned only with issues involving statutes, policies, and local jurisdictional issues, must now be concerned with human resource and management issues, employee assistance programs, ethical issues, and local, state, federal, and international government relations.

The certificate program in Police Leadership is designed to provide a theoretical and practical knowledge base for the law enforcement executive in criminal justice, public administration, or social work. The graduate certificate consists of twelve credit hours of graduate course work. The successful completion of this certificate program would allow the student to continue as a degree-seeking student in the master's program of Criminal Justice.

## Admission

Admission is open to those with a bachelor's degree from a regionally accredited university. An application to the graduate certificate program and official transcripts must be submitted. Applicants are encouraged to apply online.

[Application Deadlines](#)

## Requirements—12 Credit Hours Minimum

### Required Courses—9 Credit Hours

- CCJ 5024 Foundations of Law Enforcement (3 credit hours)
- CCJ 6730 Planned Change and Innovation in Criminal Justice (3 credit hours)
- PAD 5806 Local Government Operations (3 credit hours)

NOTE: CCJ 6730 Planned Change and Innovation in Criminal Justice may be substituted with CCJ 6106 Policy Analysis in Criminal Justice by permission.

### Elective Course—3 Credit Hours

Choose one of the following courses.

- CCJ 5015 The Nature of Crime (3 credit hours)
- CCJ 5456 The Administration of Justice (3 credit hours)
- CCJ 5467 Justice and Safety System Manpower (3 credit hours)
- PAD 5041 Ethics and Values in Public Administration (3 credit hours)
- PAD 6035 Public Administration in the Policy Process (3 credit hours)
- PAD 6335 Strategic Planning and Management (3 credit hours)
- PAD 6417 Human Resource Management (3 credit hours)
- SOW 5132 Diverse Client Populations (3 credit hours)
- SOW 5662 Strategies in Employee Assistance Programs (3 credit hours)

# Graduate Certificate in Pre-Kindergarten Handicapped Endorsement

## Description

College of Education Graduate Program Coordinator: L. Cross, (407) 823-2401. E-mail: [lcross@mail.ucf.edu](mailto:lcross@mail.ucf.edu)

The graduate certificate program in Pre-Kindergarten Handicapped Endorsement provides post-baccalaureate students and master's-prepared teachers the opportunity to obtain the requisite curriculum to become credentialed in the area of pre-kindergarten children with disabilities. The goal of the program is to prepare qualified students to teach the pre-kindergarten handicapped population.

## Admission

Students must have completed one of the following admission requirements.

- Bachelor's degree in exceptional education or primary education from a regionally accredited institution
- Master's degree in varying exceptionalities or primary education from a regionally accredited institution
- Evidence of graduate course work in one of these areas: exceptional student education, preschool education (0-4), primary education (K-3), pre-kindergarten/primary education (PK-3), early childhood education

An application to the graduate certificate program and official transcripts must be submitted. Applicants are encouraged to apply online.

[Application Deadlines](#)

## Required Courses—12 Credit Hours

- EEX 5702 Planning Curriculum for Pre-Kindergarten Children with Disabilities (3 credit hours)
- EEX 5750 Communication with Parents and Agencies (3 credit hours)
- EEX 6017 Typical and Atypical Applied Child Development (3 credit hours)
- EEX 6224 Observation and Assessment of Young Children (3 credit hours)

# Graduate Certificate in Professoriate

## Description

College of Education Curriculum and Instruction Doctoral Program Graduate Certificate Coordinator: David Boote, (407) 823-4160. E-mail: [dboote@mail.ucf.edu](mailto:dboote@mail.ucf.edu)

The Professoriate Graduate Certificate program is designed to prepare doctoral students to be future professors. Most similar programs focus exclusively on improving instruction. This innovative graduate program proposes to prepare future faculty to understand all of the responsibilities of university professors: designing effective learning environments, remaining active in research and attracting funding, and supporting the governance and administration of their school. The graduate certificate program will work in conjunction with UCF doctoral programs to provide exemplary experiences for students in all disciplines.

Course work and internship experience will culminate with students developing an academic portfolio for faculty positions. Traditional courses will be linked with an ongoing seminar. The design of this program allows program faculty to closely monitor the professional development of the student and provide continual assistance with portfolio development.

## Admission

Applicants will normally already have graduate admission to the university, and preference will be given to current UCF doctoral and MFA students. An application to the graduate certificate program must be submitted. Applicants are encouraged to apply online.

[Application Deadlines](#)

## Required Courses—12 Credit Hours Minimum

- EDH 6XXX Seminar for Future Professoriate (1 credit hour), taken three times
- IDS 6XXX Adult Learning (3 credit hours)
- EDH 6946 Higher Education Internship (3 credit hours)
- EDA 6540 Organization and Administration of Higher Education (3 credit hours)

# Graduate Certificate in Professional Writing

## Description

College of Arts and Sciences Department of English Graduate Certificate Coordinator: Melody Bowdon, CNH 405, (407) 823-5254. E-mail: [englgrad@pegasus.cc.ucf.edu](mailto:englgrad@pegasus.cc.ucf.edu) Web address: [www.cas.ucf.edu/english](http://www.cas.ucf.edu/english)

The Graduate Certificate Program in Professional Writing studies the theory and practice of organizational writing. Providing at least two web-based courses each semester, this innovative program offers professionals from a wide range of academic and career backgrounds an opportunity to improve and build upon their document writing and design skills. This flexible five-course sequence of graduate study includes three required core courses and allows students to choose two electives. Each course presents students with a blend of theoretical training in and practical application of effective communication strategies. The curriculum is designed for immediate relevance in the workplace; to that end, faculty incorporate cutting-edge classroom technologies, service-learning opportunities, and a wide range of community collaborations in their classes.

## Admission

Admission is open to those with a bachelor's degree from a regionally accredited institution. An application to the graduate certificate program and official transcripts must be submitted. Applicants are encouraged to apply online.

[Application Deadlines](#)

## Requirements—15 Credit Hours Minimum

### Required Courses—9 Credit Hours

- ENC 5337 Modern Rhetorical Theory (3 credit hours)
- ENC 5237 Writing for the Business Professional (3 credit hours)
- ENC 5216 Editing Professional Writing (3 credit hours)

### Elective Courses—6 Credit Hours

Choose two courses from the following.

- ENC 5306 Persuasive Writing (3 credit hours)
- ENC 5344 Proposal Writing (3 credit hours)
- ENC 5XXX Current Topics in Professional Writing (3 credit hours)
- ENC 5XXX Developing Professional Writing Projects (3 credit hours)
- ENC 5XXX The Writer's Marketplace (3 credit hours)
- ENC 5245 Teaching Professional Writing (3 credit hours)
- ENC 5276 Writing/Consulting: Theory and Practice (3 credit hours)
- ENG 5009 Methods of Bibliography and Research (3 credit hours)
- LIN 5675 English Grammar and Usage (3 credit hours)

# Graduate Certificate in Project Engineering

## Description

College of Engineering and Computer Science Department of Industrial Engineering and Management Systems Graduate Program

Coordinator: L. Malone, ENG II 312H, (407) 823-2833. E-mail: [lmalone@mail.ucf.edu](mailto:lmalone@mail.ucf.edu)

Engineers increasingly are found in leadership positions. They must have certain management skills in order to be effective in such a role. The Graduate Certificate in Project Engineering is designed to meet the needs of engineers moving into management and other leadership roles by complementing their technical backgrounds with the human aspects, organizational and financial issues, project considerations, and analytical tools for effective decision making.

## Admission

Admission is open to those with a bachelor's degree from a regionally accredited institution. An application to the graduate certificate program and official transcripts must be submitted. Applicants are encouraged to apply online.

[Application Deadlines](#)

## Required Courses—12 Credit Hours Minimum

- EIN 5108 The Environment of Technical Organizations (3 credit hours)
- EIN 5117 Management Information Systems I (3 credit hours)
- EIN 5140 Project Engineering (3 credit hours)
- EIN 6357 Advanced Engineering Economic Analysis (3 credit hours) OR ESI 6358 Decision Analysis (3 credit hours)



# Graduate Certificate in Public Administration

## Description

College of Health and Public Affairs Department of Public Administration Graduate Certificate Coordinator: K. Tom Liou, HPA II 338, (407) 823-2604. E-mail: [kliou@mail.ucf.edu](mailto:kliou@mail.ucf.edu)

The Graduate Certificate in Public Administration provides graduate-level continuing education for both in-service and pre-career students. The program emphasizes the managerial skills essential for local government programs in an evolving metropolitan environment. The knowledge gained can strengthen the student's professional standing and help open doors to management and support positions.

## Admission

Admission is open to those with a bachelor's degree from a regionally accredited institution. An application to the graduate certificate program and official transcripts must be submitted. Applicants are encouraged to apply online.

[Application Deadlines](#)

## Requirements—18 Credit Hours Minimum

### Required Courses—15 Credit Hours Minimum

- PAD 6035 Public Administration in the Policy Process (3 credit hours)
- PAD 6037 Public Organization Management (3 credit hours)
- PAD 6053 Public Administrators in the Governance Process (3 credit hours)
- PAD 6227 Public Budgeting (3 credit hours)
- PAD 6417 Human Resource Management (3 credit hours)

### Restricted Elective Course—3 Credit Hours

Choose one course from the following list.

- PAD 5425 Dispute Resolution in the Public Sector (3 credit hours)
- PAD 5427 Labor Relations in the Public Sector (3 credit hours)
- PAD 5806 Local Government Operations (3 credit hours)
- PAD 5807 Administrative Practice in the Public Sector (3 credit hours)
- PAD 5850 Grant and Contract Management (3 credit hours)
- PAD 6307 Policy Implementation (3 credit hours)
- PAD 6327 Public Program Evaluation Techniques (3 credit hours)
- PAD 6335 Strategic Planning and Management (3 credit hours)

# Graduate Certificate in Quality Assurance

## Description

College of Engineering and Computer Science Department of Industrial Engineering and Management Systems Graduate Program  
Coordinator: L. Malone, ENG II 312H, (407) 823-2833. E-mail: [lmalone@mail.ucf.edu](mailto:lmalone@mail.ucf.edu)

Much of the resurgence of U.S. products in the global marketplace has been due to an increased emphasis on quality. Today's consumers are offered many alternatives to meet their needs, and they have consequently become very discriminating in their purchases. In addition, companies seek to be known as a quality organization, not merely the producer of quality products. The Graduate Certificate in Quality Assurance provides students with the knowledge they need to improve the quality and reliability of the goods and services they produce and to institute steps to make their organizations more competitive through an overall commitment to quality.

## Admission

Admission is open to those with a bachelor's degree from a regionally accredited institution. An application to the graduate certificate program and official transcripts must be submitted. Applicants are encouraged to apply online.

[Application Deadlines](#)

## Required Courses—12 Credit Hours Minimum

- ESI 5219 Engineering Statistics (3 credit hours)
- ESI 5227 Total Quality Improvement (3 credit hours)
- ESI 5236 Reliability Engineering (3 credit hours)
- ESI 6225 Quality Design and Control (3 credit hours)

# Graduate Certificate in SAS Data Mining

## Description

College of Arts and Sciences Department of Statistics and Actuarial Science Graduate Program Coordinator: Jim Schott, CCII 205, (407)823-2797, Fax (407) 823-3930. E-mail: [jschott@pegasus.cc.ucf.edu](mailto:jschott@pegasus.cc.ucf.edu)

The graduate certificate program in SAS Data Mining provides students the knowledge to use statistical tools, data presentation tools, and data visualization tools needed for data mining with SAS/Enterprise Miner and SAS/Warehouse Administrator software. The program welcomes interested UCF students and those already employed full-time but wishing to advance their careers. Basic familiarity with the Web and computer programming is required. The program requires five courses, and is set up so that students begin the program in the fall semester. Two courses can be taken during this initial fall semester. The remaining courses will be taken one per semester during the spring (year 1), fall (year 2) and spring (year 2) semesters. All courses are scheduled in the late afternoon or evening hours.

## Admission

Admission is open to those with a bachelor's degree from a regionally accredited institution. An application to the graduate certificate program and official transcripts must be submitted. Applicants are encouraged to apply online.

[Application Deadlines](#)

## Required Courses—15 Credit Hours Minimum

- STA 5103 Advanced Computer Processing of Statistical Data (3 credit hours)
- STA 5206 Statistical Analysis (3 credit hours)\*
- STA 6XXX Data Preparation (3 credit hours)
- STA 5703 Data Mining Methodology I (3 credit hours)
- STA 6704 Data Mining Methodology II (3 credit hours)

\* Students who have a sufficient background in statistics can, subject to the approval of the graduate program coordinator, take a higher-level course such as STA 6236 Regression Analysis instead of STA 5206 Statistical Analysis.

# Graduate Certificate in Software Engineering

## Description

College of Engineering and Computer Science School of Electrical Engineering and Computer Science Graduate Certificate Coordinator: G. Walton, ENG 407, (407) 823-3276. E-mail: [gwalton@mail.ucf.edu](mailto:gwalton@mail.ucf.edu)

The current shortage of computer engineers in the United States has been described by many in the industry and government as a shortage of crisis proportions. The Graduate Certificate in Software Engineering has been designed to address this shortage by providing students with proficiency in software engineering.

## Admission

Admission is open to those with a bachelor's degree from a regionally accredited institution. An application to the graduate certificate program and official transcripts must be submitted. Applicants are encouraged to apply online.

[Application Deadlines](#)

## Required Courses—12 Credit Hours Minimum

- EEL 5881 Software Engineering I (3 credit hours)
- EEL 5860 Software Requirements Engineering (3 credit hours)
- EEL 6887 Software Engineering Life-Cycle Control (3 credit hours)
- EEL 6XXX Software Engineering Architecture and Design (3 credit hours)

# Graduate Certificate in Software-Intensive Systems

## Description

College of Engineering and Computer Science School of Electrical Engineering and Computer Science Graduate Certificate Coordinator: J. Zalewski, ENG 407, (407) 823-6171. E-mail: [jza@ece.engr.ucf.edu](mailto:jza@ece.engr.ucf.edu)

Due to rapid technological development and changes in software engineering, several important application areas, including real-time systems, computer networking, computer graphics, real-time simulation, and intelligent systems, require significant knowledge that is application-specific. The Graduate Certificate in Software-Intensive Systems directly addresses these needs by providing the opportunity for students to pursue their individual interests as well as meet the needs of industry.

## Admission

Admission is open to those with a bachelor's degree from a regionally accredited institution. An application to the graduate certificate program and official transcripts must be submitted. Applicants are encouraged to apply online.

## Requirements—12 Credit Hours Minimum

### Required Courses—6 Credit Hours

- EEL 5881 Software Engineering I (3 credit hours)
- EEL 6883 Software Engineering II (3 credit hours)

[Application Deadlines](#)

### Elective Courses—6 Credit Hours

Choose two courses from the following list.

- EEL 5771C Engineering Applications of Computer Graphics (3 credit hours)
- EEL 5874 Expert Systems and Knowledge Engineering (3 credit hours)
- EEL 6785 Computer Network Design (3 credit hours)
- EEL 6885 Software Engineering Quality Assurance Methods (3 credit hours)
- EEL 6887 Software Engineering Life-Cycle Control (3 credit hours)
- EEL 6895 Current Issues in Real-Time Simulation (3 credit hours)
- EEL 6897 Software Development for Real-Time Engineering Systems (3 credit hours)

# Graduate Certificate in Special Education

## Description

College of Education Graduate Program Coordinator: L. Cross, (407) 823-2401. E-mail: [lcross@mail.ucf.edu](mailto:lcross@mail.ucf.edu)

The graduate certificate program in Special Education provides out-of-field teachers with some of the course work needed to meet state certification requirements in special education. This graduate certificate will help out-of-field teachers become more effective in their classrooms and will enhance the education of children and youth with disabilities.

## Admission

Admission is open to those with a bachelor's degree from a regionally accredited institution. An application to the graduate certificate program and official transcripts must be submitted. Applicants are encouraged to apply online.

[Application Deadlines](#)

## Required Courses—18 Credit Hours

- EEX 5051 Exceptional Children in the Schools (3 credit hours)
- EEX 6061 Instructional Strategies Pre-K-6 (3 credit hours)
- EEX 6065 Instructional Strategies 6-12 (3 credit hours)
- EEX 6107 Teaching Spoken and Written Language (3 credit hours)
- EEX 6266 Assessment and Curriculum Prescriptions for the Exceptional Population (3 credit hours)
- EEX 6612 Methods of Behavior Management (3 credit hours)

# Graduate Certificate in Sports Leadership

## Description

College of Education Physical Education, Exercise Physiology and Wellness, Graduate Program Department of Child, Family, and Community Sciences Graduate Certificate Coordinator: V. Mumford, (407) 823-4127. E-mail: [vmumford@mail.ucf.edu](mailto:vmumford@mail.ucf.edu)

The Graduate Certificate in Sports Leadership is designed to enhance leadership and other skills for those who work in participatory sports organizations. This program will benefit professionals working in areas such as athletic administration (scholastic and collegiate), coaching, community and youth sports organizations, recreation (commercial and municipal), fitness facilities, golf courses, and exercise science, and physical education teachers/ majors. Among the benefits of the graduate certificate are the enhancement of knowledge, skills, and expertise in key areas of sport, the opportunity to network with other professionals in the participatory sports industry, and professional credentials and advancement.

## Admission

Admission is open to those with a bachelor's degree from a regionally accredited institution. An application to the graduate certificate program and official transcripts must be submitted. Applicants are encouraged to apply online.

[Application Deadlines](#)

## Required Courses—15 Credit Hours Minimum

Choose five courses from the following list.

- PET 5XXX Introduction to Sports Administration (3 credit hours)
- PET 5XXX Financial Issues in Sports and Fitness Programs (3 credit hours)
- PET 5XXX Marketing and Promoting Sports and Fitness Programs (3 credit hours)
- PET 6XXX Leadership and Management in Sports and Fitness Programs (3 credit hours)
- PET 6XXX Planning and Operating Facilities for Sports and Fitness Programs (3 credit hours)
- PET 6XXX Legal Issues in Sports and Fitness Programs (3 credit hours)

# Graduate Certificate in Structural Engineering

## Description

College of Engineering and Computer Science Department of Civil and Environmental Engineering Graduate Certificate Coordinator: S. Kunnath, ENG II 211, (407) 823-0176. E-mail: [kunnath@mail.ucf.edu](mailto:kunnath@mail.ucf.edu)

Structural engineering plays a significant role in the ongoing infrastructure developments in the Central Florida area. Engineers continually need to update their knowledge of the state-of-the-art in research and practice in order to ensure the safety of constructed facilities. This graduate certificate program provides courses in this area.

## Admission

Admission is open to those with a bachelor's degree from a regionally accredited institution. An application to the graduate certificate program and official transcripts must be submitted. Applicants are encouraged to apply online.

[Application Deadlines](#)

## Required Courses—12 Credit Hours Minimum

Choose four courses from the following:

- CEG 6115 Foundation Engineering (3 credit hours)
- CES 5325 Bridge Engineering (3 credit hours)
- CES 5606 Advanced Steel Structures (3 credit hours)
- CES 5706 Advanced Reinforced Concrete (3 credit hours)
- CES 6116 Finite Element Structural Analysis (3 credit hours)
- CES 6209 Dynamics of Structures (3 credit hours)
- CES 6220 Wind and Earthquake Engineering (3 credit hours)
- CES 6230 Advanced Structural Mechanics (3 credit hours)
- CES 6715 Prestressed Concrete Structures (3 credit hours)



# Graduate Certificate in Surface Water Modeling

## Description

College of Engineering and Computer Science Department of Civil and Environmental Engineering Graduate Certificate Coordinator: S. Kunnath, ENG II 211, (407) 823-0176. E-mail: [kunnath@mail.ucf.edu](mailto:kunnath@mail.ucf.edu)

In Florida, the conservation and management of our surface water resources is crucial. Course work for this graduate certificate will provide additional insight and an in-depth knowledge of the problem for local officials.

## Admission

Admission is open to those with a bachelor's degree from a regionally accredited institution. An application to the graduate certificate program and official transcripts must be submitted. Applicants are encouraged to apply online.

[Application Deadlines](#)

## Prerequisite

- CWR 4812C Water Resource Design (3 credit hours) or equivalent is required as a prerequisite.

## Required Courses—15 Credit Hours Minimum

- CWR 5545 Water Resources Engineering (3 credit credit hours)
- CWR 6125 Ground Water Hydrology (3 credit hours) OR
- CWR 6126 Groundwater Modeling (3 credit hours)
- CWR 6236 River Engineering and Sediment Transport (3 credit hours)
- CWR 6535 Modeling Water Resources Systems (3 credit hours)
- CWR 6539 Finite Differences/Elements in Surface Water Modeling (3 credit hours)

# Graduate Certificate in Systems Simulation for Engineers

## Description

College of Engineering and Computer Science Department of Industrial Engineering and Management Systems Graduate Program  
Coordinator: L. Malone, ENG II 312H, (407) 823-2833. E-mail: [lmalone@mail.ucf.edu](mailto:lmalone@mail.ucf.edu)

Discrete event simulation provides very powerful modeling capabilities to engineers. Simulation is particularly valuable because models of complex systems can be constructed and probabilistic or random forces can be represented in those models. The Graduate Certificate in Systems Simulation for Engineers provides students with the necessary background in probability and statistics, fundamental simulation modeling skills, essentials for designing and analyzing simulation experiments, and an introduction to an area of advanced simulation modeling.

## Admission

Admission is open to those with a bachelor's degree from a regionally accredited institution. An application to the graduate certificate program and official transcripts must be submitted. Applicants are encouraged to apply online.

[Application Deadlines](#)

## Required Courses—12 Credit Hours Minimum

- ESI 5219 Engineering Statistics (3 credit hours)
- ESI 5531 Discrete Systems Simulation (3 credit hours)
- )
- ESI 6217 Statistical Aspects of Digital Simulation (3 credit hours)
- ESI 6532 Object-oriented Simulation (3 credit hours)

# Graduate Certificate in Teaching English as a Foreign Language

## Description

College of Arts and Sciences Department of Foreign Languages and Literatures Graduate Program Coordinator: Dr. Keith Folse, CNH 409, (407) 823-4555. E-mail: [kfolse@mail.ucf.edu](mailto:kfolse@mail.ucf.edu)

English has become the gateway to many international and technical jobs, as well as for entrance into institutions of higher education, and the number of people interested in learning English as a second or third language is increasing steadily. With the rising demand for English instructors comes an increasing need for individuals qualified to teach English as a Foreign Language. The majority of overseas English language schools require their teachers to be certified in Teaching English as a Foreign Language (TEFL).

The TEFL certificate program provides students with specialized knowledge and skills to teach English as a Foreign Language in overseas settings. The program focuses on the fundamentals of EFL teaching principles and methodology, linguistics, materials/curriculum development, and testing. (Note: the TEFL Certificate Program is not designed for teachers seeking K-12 ESOL endorsement in Florida).

## Admission

Admission is open to those with a bachelor's degree from a regionally accredited institution. An application to the graduate certificate program and official transcripts must be submitted. Applicants are encouraged to apply online.

[Application Deadlines](#)

## Required Courses—12 Credit Hours Minimum

- TSL 5345 Methods of ESOL Teaching (3 credit hours)
- TSL 5940 Issues in TEFL (3 credit hours)
- TSL 6142 Critical Approaches to ESOL (3 credit hours)
- TSL 6250 Applied Linguistics in ESOL (3 credit hours)

# Graduate Certificate in Teaching Excellence

## Description

College of Education Graduate Program Coordinator: M. Hopkins, (407) 823-2039. E-mail: [hopkins@mail.cc.ucf.edu](mailto:hopkins@mail.cc.ucf.edu)

The College of Education offers a graduate certification program to support classroom teachers applying for National Board Certification. The dual purpose of this certificate is to provide experienced classroom teachers the opportunity to enhance their classroom teaching performance and to acquire the necessary knowledge and abilities to become certified by the National Board for Professional Teaching Standards (NBPTS).

## Admission

Applicants to this certificate program must have at least three years of classroom teaching experience. Admission is open to those with a bachelor's degree from a regionally accredited institution. An application to the graduate certificate program and official transcripts must be submitted. Applicants are encouraged to apply online.

[Application Deadlines](#)

## Required Courses—11 Credit Hours Minimum

- EDF 6233 Analysis of Classroom Teaching (3 credit hours)
- EDG 6236 Principles of Instruction and Learning (3 credit hours)
- EDG 6XXX Seminar on National Board Assessments (3 credit hours)
- LAE 5295 Writing Workshop I (2 credit hours)

# Graduate Certificate in Teaching Writing K-12

## Description

College of Education Graduate Program Coordinator: Dr. Donna Camp, (407) 823-2815. E-mail: [camp@pegasus.cc.ucf.edu](mailto:camp@pegasus.cc.ucf.edu)

The graduate certificate program in Teaching Writing K-12 provides advanced study in writing instruction for teachers who either have completed Master of Education degrees or who seek special training in the teaching of writing.

## Admission

Admission is open to those with a bachelor's degree from a regionally accredited institution. An application to the graduate certificate program and official transcripts must be submitted. Applicants are encouraged to apply online.

[Application Deadlines](#)

## Required Courses—15 Credit Hours

- LAE 5295 Writing Workshop I (3 credit hours)
- LAE 5495 Assessing Writing (3 credit hours)
- LAE 6792 CWFP Teacher/Researcher (3 credit hours)
- LAE 6936 Seminar in Language Arts Education (3 credit hours)
- LAE 6616 Trends in Language Arts Education (3 credit hours)

NOTE: LAE 6296, Writing Workshop II, will be available to students who are selected to participate in the invitational Summer Institute, supported by the National Writing Project grant. This course would be an option for teachers in the graduate certificate program who are accepted as Fellows in the Institute and could replace LAE 5295, Writing Workshop I, or preferably, LAE 6616, Trends in Language Arts Education.

# Graduate Certificate in Theoretical and Applied Ethics

## Description

College of Arts and Sciences Liberal Studies Graduate Program Graduate Program Coordinator: E. Vittes, CHN 201, (407) 823-2745. E-mail: [mls@mail.ucf.edu](mailto:mls@mail.ucf.edu)

The Graduate Certificate in Theoretical and Applied Ethics is designed to provide a specialized investigation of ethical theory and issues from a philosophical as well as a subject-specific point of view. This interdisciplinary graduate certificate focuses on specific areas of ethical inquiry in philosophy, humanities, the arts, sciences, health care, business, education, criminal justice, public administration, public relations, journalism, politics, and others.

Faculty in the Department of Philosophy teach core and selected elective courses. Other courses focused on particular areas of inquiry in business, health care, criminal justice, public administration, education, communication, political science, psychology, and women's studies are taught within the relevant departments and disciplines.

## Admission

Admission is open to those with a bachelor's degree from a regionally accredited institution. An application to the graduate certificate program and official transcripts must be submitted. Applicants are encouraged to apply online. Relevant experience with theoretical and applied ethics through course work at the undergraduate or graduate level or through professional experience working with ethical issues will be evaluated by the coordinator together with the certificate committee composed of faculty from the participating departments. Additionally, it is expected that applicants will have a grade point average of 3.0. However, the committee may grant exceptions where applications provide other indicators of preparedness.

[Application Deadlines](#)

## Requirements—15 Credit Hours Minimum

### Required Courses—6 Credit Hours

- PHI 5XXX Theoretical and Applied Ethics (3 credit hours)
- PHI 5XXX Knowledge, Responsibility and Society (3 credit hours)

### Elective Courses—9 Credit Hours

Students may choose to specialize in some specific academic discipline or tailor their own areas of concentration. Choose elective courses\* from the following list.

- ACG 6835 Seminar in Ethics and Professionalism in Accounting and Auditing
- BUL 6444 Law and Ethics
- CCJ 5105 Foundations of Law Enforcement
- CCJ 5205 Foundations of Corrections
- CCJ 5456 Administration of Justice
- CCJ 6217 Law and Social Control
- CCJ 6485 Issues in Justice Policy
- CCJ 6938 Leadership and Ethics
- CLP 6932 Ethical and Professional Issues in Mental Health Practice
- HSC 5595 AIDS: A Human Concern
- HUM 5XXX Theories and Methods of Humanities

- MHS 6780 Ethical and Legal Issues
- MMC 6202 Legal and Ethical Issues for Communication
- MMC 6606 Advertising and Society
- NGR 5746 Roles and Issues in Advanced Practice Nursing\*\*
- NGR 5XXX Care of Vulnerable Populations\*\*
- PAD 5041 Ethics and Values in Public Administration
- PHM 5035 Environmental Philosophy
- POT 6007 Seminar in Political Theory
- SPS 6593 Ethical and Legal Issues in School Psychological Services
- WST 5347 Research Seminar in Gender Issues

\* All elective courses have been approved for inclusion by the chair or director of the relevant program. However, students without the appropriate prerequisites to courses will need to obtain the consent of the instructor to enroll.

\*\* NGR courses are restricted to graduate students in nursing.

# Graduate Certificate in Training Simulation

## Description

College of Engineering and Computer Science Department of Industrial Engineering and Management Systems Graduate Program

Coordinator: L. Malone, ENG II 312H, (407) 823-2833. E-mail: [lmalone@mail.ucf.edu](mailto:lmalone@mail.ucf.edu)

Because of the tremendous growth in military and commercial training simulation, many people in this industry are facing the need for additional education. The Graduate Certificate in Training Simulation provides a fundamental understanding of the significant topics regarding systems, requirements, design, development, and use of training simulations.

## Admission

Admission is open to those with a bachelor's degree from a regionally accredited institution. An application to the graduate certificate program and official transcripts must be submitted. Applicants are encouraged to apply online.

[Application Deadlines](#)

## Required Courses—12 Credit Hours Minimum

- EIN 5255 Interactive Simulation (3 credit hours)
- EIN 5317 Training Systems Engineering (3 credit hours)
- EIN 6645 Modeling and Simulation of Real-Time Processes (3 credit hours)
- EIN 6649 Intelligent Tutoring Training System Design (3 credit hours)



# Graduate Certificate in Transportation Engineering

## Description

College of Engineering and Computer Science Department of Civil and Environmental Engineering Graduate Certificate Coordinator: S. Kunnath, ENG II 211, (407) 823-0176. E-mail: [kunnath@mail.ucf.edu](mailto:kunnath@mail.ucf.edu)

Transportation engineering is crucial for the Orlando area. As gridlock becomes more evident, more skilled professionals will be needed. The Graduate Certificate in Transportation Engineering was designed for professionals who are faced with solving transportation needs.

## Admission

Admission is open to those with a bachelor's degree from a regionally accredited institution. An application to the graduate certificate program and official transcripts must be submitted. Applicants are encouraged to apply online.

[Application Deadlines](#)

## Required Courses—12 Credit Hours Minimum

Choose four courses from the following list.

- CGN 6655 Regional Planning, Design, and Development (3 credit hours)
- ENV 5071 Environmental Analysis of Transportation Systems (3 credit hours)
- TTE 5204 Traffic Engineering (3 credit hours)
- TTE 5256 Traffic Operations (3 credit hours)
- TTE 5805 Geometric Design of Transportation Systems (3 credit hours)
- TTE 6270 Intelligent Transportation Systems (3 credit hours)
- TTE 6315 Traffic Safety Analysis (3 credit hours)
- TTE 6625 Mass Transportation Systems (3 credit hours)

# Graduate Certificate in Urban and Regional Planning

## Description

College of Health and Public Affairs Department of Public Administration Graduate Certificate Coordinator: K. Tom Liou, HPA II 338, (407) 823-2604. E-mail: [kliou@mail.ucf.edu](mailto:kliou@mail.ucf.edu)

The Graduate Certificate in Urban and Regional Planning is designed to enhance knowledge, skills, and career development in the field of community, urban, and regional planning. Planning has been identified as one of the major policy issues in Central Florida, which is considered one of the major growth areas in the state of Florida.

## Admission

Admission is open to those with a bachelor's degree from a regionally accredited institution. An application to the graduate certificate program and official transcripts must be submitted. Applicants are encouraged to apply online.

[Application Deadlines](#)

## Requirements—15 Credit Hours Minimum

### Required Courses—12 Credit Hours

- PAD 5336 Introduction to Urban Planning (3 credit hours)
- PAD 5337 Urban Design (3 credit hours)
- PAD 5338 Land Use and Planning Law (3 credit hours)
- PAD 6716 Information Systems for Public Managers and Planners (3 credit hours)

### Restricted Elective Course—3 Credit Hours

Choose one course from the following list.

- CGN 6655 Regional Planning, Design, and Development (3 credit hours)
- ECP 6605 Economics of Urban and Regional Problems (3 credit hours)
- PAD 5356 Managing Community and Economic Development (3 credit hours)
- PAD 6XXX Transportation Policy (3 credit hours)
- PAD 6353 Environmental Program Management Research (3 credit hours)
- PAD 6655 Regional Planning, Design, and System (3 credit hours)

# Graduate Certificate in Victim Assistance

## Description

College of Health and Public Affairs Department of Criminal Justice and Legal Studies Graduate Program Coordinator: K. Michael Reynolds, Ph.D., HPA 311, (407) 823-2943. E-mail: [kreynold@mail.ucf.edu](mailto:kreynold@mail.ucf.edu)

The Graduate Certificate in Victim Assistance is an interdisciplinary program that addresses strategies and approaches for treating the victims of crime. The graduate certificate provides practitioners with the knowledge and skills to be more effective in working with and advocating for victims. Courses are offered by the School of Social Work, Department of Sociology and Anthropology, and Department of Criminal Justice and Legal Studies.

## Admission

Admission is open to those with a bachelor's degree from a regionally accredited university. An application to the graduate certificate program and official transcripts must be submitted. Applicants are encouraged to apply online.

[Application Deadlines](#)

## Requirements—12 Credit Hours Minimum

Students must complete one course (3 credit hours) in each of the following four areas of study: Theory, Victim Issues, Service Delivery, and Legal/Social Policy. Course substitutions for these courses must be approved by the graduate program coordinator.

### Theory

Choose one course from the following list.

- CCJ 6051 Community Justice (3 credit hours)
- SYP 6XXX Sociological Perspectives on Victims (3 credit hours)

### Victim Issues

Choose one course from the following list.

- SOW 5655 Child Abuse: Treatment and Prevention (3 credit hours)
- SYP 6561 Child Abuse in Society (3 credit hours)
- SYP 6565 Elder Abuse and Neglect (3 credit hours)
- Special topics course as approved by adviser (rape, homicide, or stalking courses) (3 credit hours)

### Service Delivery

- CCJ 6938 Special Topics: Victims and the Criminal Justice System (3 credit hours)

### Legal/Social Policy

Choose one course from the following list.

- CCJ 6XXX Legal and Social Issues in Victim Services (3 credit hours)
- SYP 6563 Reactions to Domestic Violence (3 credit hours)

# Graduate Certificate in Wastewater Treatment

## Description

College of Engineering and Computer Science Department of Civil and Environmental Engineering Graduate Certificate Coordinator: S. Kunnath, ENG II 211, (407) 823-0176. E-mail: [kunnath@mail.ucf.edu](mailto:kunnath@mail.ucf.edu)

Development continues in the Central Florida area causing a strain on our wastewater facilities. More experienced professionals are needed to handle this growing concern. This graduate certificate program offers courses to help professionals update their knowledge of research and practice in the area of wastewater treatment.

## Admission

Admission is open to those with a bachelor's degree from a regionally accredited institution. An application to the graduate certificate program and official transcripts must be submitted. Applicants are encouraged to apply online.

[Application Deadlines](#)

## Required Courses—12 Credit Hours Minimum

- ENV 6016 Biological Treatment Systems in Environmental Engineering (3 credit hours)

And choose three courses from the following:

- ENV 5505 Sludge Management Operations in Environmental Engineering (offered every other year) (3 credit hours)
- ENV 6015 Physical/Chemical Treatment Systems in Environmental Engineering (3 credit hours)
- ENV 6519 Aquatic Chemical Processes (offered every other year) (3 credit hours)
- ENV 6558 Industrial Waste Treatment (3 credit hours)

# Graduate Certificate in World Studies Education

## Description

College of Education Graduate Program Coordinator: W. Gaudelli, (407) 823-0215. E-mail: [wgaudell@mail.ucf.edu](mailto:wgaudell@mail.ucf.edu)

The graduate certificate program in World Studies Education is intended for teachers and pre-service teachers. It provides them with content, pedagogy, and theoretical underpinnings unique to the teaching of world studies. The program addresses a current need in the field; namely, the lack of content area knowledge on the part of current teachers and the inability to implement content knowledge gained from college course work into secondary/middle school contexts. Social studies education majors are only required to take three courses that have global orientation. While this may be sufficient background for those teaching United States-oriented curricula, it is generally inadequate preparation for those whose primary teaching responsibility is related to World Studies. The World Studies graduate certificate program gives this significant population of teachers access to course work that was generally unavailable to them in their pre-service education.

## Admission

Admission is open to those with a bachelor's degree from a regionally accredited institution. An application to the graduate certificate program and official transcripts must be submitted. Applicants are encouraged to apply online.

[Application Deadlines](#)

## Required Courses—18 Credit Hours

### Political Science—6 Credit Hours

Select 2 courses.

- INR 6938 Issues in International Relations (3 credit hours)
- CPO 6938 Issues in Comparative Politics (3 credit hours)
- PUP 6938 Foreign Defense Policy (3 credit hours)
- CPO 6075 Comparative Political Economy (3 credit hours)
- INR 6039 International Political Economy (3 credit hours)

### History—6 Credit Hours

Select 2 courses.

- ASH 5408 Colloquium in Modern China (3 credit hours)
- ASH 5227 The Arab-Israeli Conflict (3 credit hours)
- LAH 5713 Latin American Relations (3 credit hours)
- AFH 5937 Historiography of Slavery in Africa (3 credit hours)

### Social Science Education—6 Credit Hours

- SSE 6636 Contemporary Social Studies Education (3 credit hours)
- SSE 5391 Problems in World Studies Education (3 credit hours)

# Courses

## Overview

Courses listed here include all approved UCF graduate courses as of the date this Graduate Catalog was published (June 2002).

**Availability of Courses.** The university does not offer all of the courses listed in this Graduate Catalog each academic year, academic semester, or term. Consult the "Class Schedule" at <https://connect.ucf.edu> for those courses offered each term.

## Understanding Course Info

### Classification of Courses

- **3000-4999. Junior- and senior-level courses (Upper-division) and are designed primarily for these and other advanced students.** When approved for inclusion in an individual program of graduate study by a supervisory committee approved by the Office of Graduate Studies, selected 4000-4999 courses may serve the needs of individual graduate students.
- **5000-5999. Beginning graduate and advanced undergraduate level courses.** Open to graduate students and those seniors who receive approval of the appropriate Dean(s).
- **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.) Students in 3+2 programs (combined bachelor's/master's programs) should check with their adviser before registering for 6000-level courses.
- **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 twenty-six participating nonpublic 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 recommends 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."

### Example of Course Identifier

Prefix	Level Code (first digit)	Century Digit (second digit)	Decade Digit (third digit)	Unit Digit (fourth digit)	Lab Code
SYG	1	0	1	0	
Sociology, General	Freshman level at this institution	Entry-level General Sociology	Survey Course	Social Problems	No laboratory component in this course

### 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 institutions that offer the course, with few exceptions. (Exceptions are listed below.)

For example, a survey course in social problems is offered by 31 different postsecondary institutions. Each participating institution uses "SYG\_010" to identify its social problems course. The level code is the first digit and represents the year in which students normally take this course at a specific institution. In the SCNS taxonomy, "SYG" means "Sociology, General," the century digit "0" represent "Entry-Level General Sociology," the decade digit "1" represents "Survey Course," and the unit digit "0" represents "Social Problems."

In science and other areas, a "C" or "L" after the course number is known as a lab indicator. The "C" represents a combined lecture and laboratory course that meets in the same place at the same time. The "L" represents a laboratory course or the laboratory part of a course, having the same prefix and course number without a lab indicator, which meets at a different time or place.

Transfer of any successfully completed course from one institution to another is guaranteed in cases where the course to be transferred is equivalent to one offered by the receiving institution. Equivalencies are established by the same prefix and last three digits and comparable faculty credentials 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 to the 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.

### 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.

### Authority for Acceptance of Equivalent Courses

State Board of Education Rule 6A-10.024(19), Florida Administrative Code, reads: "When a student transfers among postsecondary institutions that are fully accredited by a regional or national accrediting agency recognized by the United States Department of Education and 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 academically equivalent to courses offered at the receiving institution, including equivalency of faculty credentials, regardless of the public or nonpublic control of the previous institution. The award of credit may be limited to courses that are entered in the course numbering system. Credits so awarded shall satisfy institutional requirements on the same basis as credits awarded to native students."

### **Exceptions to the General Rule for Equivalency**

The following courses are exceptions to the general rule for course equivalencies and may not transfer. 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
- F. Courses not offered by the receiving institution.

College preparatory or 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 R. Dees in Academic Services, Millican Hall 210, Phone (407) 823-2691, or the Florida Department of Education, K-16 Articulation, 401 Turlington Building, Tallahassee, Florida 32399-0400. Special reports and technical information may be requested by calling telephone number (850) 488-6402 or SunCom 278-6402.

### **Special Courses**

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

	<b>Special Grad</b>	<b>Grad and Prof</b>
Directed Independent Studies	5907	6908
Directed Research	5917	6918
Special Topics/Seminars	5937	6938
Internships, Practica, Clinical Practice	5944	6946
Study Abroad	5957	6958
Research Report		6909
Treatise (Thesis or Research Report)	6971	
Thesis—Specialist		6973
Doctoral Research		7919
Doctoral Special Topics/Seminars		7939
Doctoral Dissertation		7980



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

### **Abbreviations in Course Descriptions**

- **PR** - Denotes a PREREQUISITE course that must be taken and passed prior to enrollment in the listed course.
- **CR** - Denotes a COREQUISITE course that 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 that shows hours of credit and contact hours.

*Example*

ECI 5215C      ECS-CEE 3(2,3)

ECI 5215C is offered by the College of Engineering and Computer Science (ECS) in the Civil and Environmental Engineering (CEE) Department, carries 3 hours of credit, but requires 5 contact hours, which consist of 2 hours in class and 3 hours laboratory or field work.

# Course Listing

## **ACG 5005 . Accounting Foundations**

1.5(1.5,0). PR: Acceptance to Graduate Study. Accounting and reporting from an investment and managerial decision-making perspective.  
BA-Accounting

## **ACG 5205 . Advanced Financial Accounting Topics**

3(3,0). PR: ACG 3111 with a grade of "C" or better. Accounting for business combinations and the preparation of consolidated financial statements. Accounting issues related to foreign operations. Also includes a study of current reporting topics.  
BA-Accounting

## **ACG 5206 . Seminar in Financial Reporting**

3(3,0). PR: Acceptance for graduate study and all accounting foundation courses. An in-depth study of advanced financial reports.  
BA-Accounting

## **ACG 5346 . Advanced Managerial Accounting**

3(3,0). PR: ACG 3361 with a grade of "C" or better and ECO 3411. Advanced and current techniques for generation and use of accounting information in managerial decision-making.  
BA-Accounting

## **ACG 5405 . Advanced Accounting Information Systems**

3(3,0). PR: ACG 4401. Design, analysis and evaluation of accounting information systems.  
BA-Accounting

## **ACG 5506 . Accounting for Governmental and Non-business Organizations**

3(3,0). PR: ACG 3501, ACG 3111 and acceptance for graduate study. Study of problems and methods of applying managerial accounting concepts in a nonprofit environment.  
BA-Accounting

## **ACG 5517 . Financial Accounting and Auditing for Governmental and Nonprofit Organizations**

3(3,0). PR: ACG 3501 or consent of Graduate Program Adviser. Financial accounting and reporting for funds and activities of governments and nonprofit organizations; financial audit of government and nonprofit organizations.  
BA-Accounting

## **ACG 5625 . Auditing and EDP**

3(3,0). 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.  
BA-Accounting

## **ACG 6255 . International and Multinational Accounting**

3(3,0). 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.  
BA-Accounting

## **ACG 6356 . Seminar in Cost Accounting**

3(3,0). PR: ACG 5346, graduate standing, and all foundation courses for the accounting program or equivalents. A study of current selected topics in cost and management accounting.  
BA-Accounting

**ACG 6415 . Seminar in Accounting Information Systems**

3(3,0). PR: ACG 5405 and ACG 6636. Study, audit, and control of enabling technologies affecting the accounting profession.  
BA-Accounting

**ACG 6425 . Managerial Accounting Analysis**

3(3,0). PR: CBA Masters Program of Study Foundation Core (not open to Accounting majors). Accounting as an information measurement system for internal planning and control.  
BA-Accounting

**ACG 6519 . Seminar in Governmental and Nonbusiness Accounting and Auditing**

3(3,0). 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.  
BA-Accounting

**ACG 6636 . Advanced Auditing Topics**

3(3,0). PR: Graduate standing and ACG 4651, STA 2023. Special topics relative to the standards, practices, and procedures followed in the audit function. Includes statistical sampling, advanced computer systems, advanced applications, and reporting problems.  
BA-Accounting

**ACG 6675 . Operational Auditing**

3(3,0). PR: Graduate standing and ACG 4651 or ACG 4XXX (Internal Auditing). In-depth study of the standards, principles, practices, and procedures followed in the internal audit function.  
BA-Accounting

**ACG 6685 . Seminar in Fraud Auditing**

3(3,0). PR: ACG 4651 and graduate standing. Theory and techniques relating to fraud auditing and fraud examination  
BA-Finance

**ACG 6696 . Seminar in Auditing**

3(3,0). PR: ACG 6636, graduate standing, and all foundation courses for the accounting program or equivalents. A study of current auditing topics.  
BA-Accounting

**ACG 6805 . Seminar in Accounting Theory**

3(3,0). PR: Graduate standing and all foundation courses for the accounting program or equivalents. An examination of the evolution of contemporary accounting theory with emphasis on current and future developments.  
BA-Accounting

**ACG 6835 . Seminar in Ethics and Professionalism in Accounting and Auditing**

3(3,0). PR: CBA Masters Program of Study Foundation Core Courses. This course focuses on why and how theories of the professions and theories of individual ethical decision-making are applicable to the practice of accounting.  
BA-Accounting

**ACG 7157 . Seminar in Financial Accounting Research**

3(3,0). 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.

BA-Accounting

**ACG 7399 . Seminar in Behavioral Accounting Research**

3(3,0). PR: Admission to doctoral program, ACG 7157, and C.I. Extensive study of the theoretical aspects and empirical literature related to accounting-based judgement/decision processes and the behavioral implications of accounting.

BA-Accounting

**ACG 7826 . Seminar in the Social and Organizational Context of Accounting**

3(3,0). PR: Instructor and Ph.D. Program Coordinator consent. This course provides the student with an appreciation for the body of accounting knowledge that investigates accounting as a practice carried out within social and organizational contexts.

BA-Accounting

**ACG 7885 . Research Foundations in Accounting**

3(3,0). PR: Instructor and Ph.D. Program Coordinator consent. This course provides doctoral students with an intellectual foundation in research and research methods that are applicable in the study of accounting.

BA-Accounting

**ACG 7887 . Accounting Research Forum**

1(1,0). 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.

BA-Accounting

**ACG 7888 . Seminar in Critical Accounting and AIS**

3(3,0). PR: Instructor and Ph.D. Program Coordinator consent. This course provides an in-depth understanding of the critical accounting and AIS literature and the knowledge and skills necessary to undertake scholarly research in the area.

BA-Accounting

**ACG 7915 . Directed Research in Accounting**

3(3,0). 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.

BA-Accounting

**ACG 7917 . Seminar in Research Methods in Accounting**

3(3,0). PR: Admission to doctoral program or C.I. Extensive coverage and critical analysis of accounting theory literature and research methods in accounting.

BA-Accounting

**AFA 5930 . Topics in African American Studies**

3(3,0). PR: graduate standing or C.I. This interdisciplinary seminar uses primary texts to examine the impact of black culture, aesthetic and philosophical ideas on 20th century American society.

AS-African American Studies

**AFH 5806 . The Historiography of Slavery in Africa**

3(3,0). PR: Graduate status of C.I. Course covers the central issues and controversies in the historiography of slavery in Africa.

AS-History

**AMH 5116 . Colloquium in U.S. Colonial History**

3(3,0). PR: Senior Standing or C.I. Reading and discussion of the literature on selected topics in U.S. history.  
AS-History

**AMH 5137 . Colloquium in U.S. Revolutionary Period**

3(3,0). PR: Senior Standing or C.I. Reading and class discussion of the literature on selected topics in the Revolutionary Era, 1763-1789.  
AS-History

**AMH 5149 . Colloquium in Early U.S. History, 1789-1815**

3(3,0). PR: Senior standing or C.I. Reading and class discussion of the literature on selected topics of the early national period.  
AS-History

**AMH 5169 . Colloquium Age of Jackson**

3(3,0). PR: Senior Standing or C.I. Intensive reading and class discussion on selected topics of the Jacksonian age.  
AS-History

**AMH 5176 . Colloquium in Civil War and Reconstruction**

3(3,0). PR: Senior Standing or C.I. Intensive reading and class discussion on selected topics of the Civil War and Reconstruction era.  
AS-History

**AMH 5219 . Colloquium in Late 19th Century U.S.**

3(3,0). PR: Senior Standing or C.I. Reading and class discussion of the literature on selected topics of late 19th-century U.S.  
AS-History

**AMH 5296 . Colloquium in 20th Century U.S.**

3(3,0). PR: Senior Standing or C.I. Reading and class discussion on selected topics in 20th-century U.S.  
AS-History

**AMH 5391 . Colloquium in U.S. Cultural History**

3(3,0). PR: Senior Standing or C.I. Students will read and discuss a common or diverse body of the significant literature in the field.  
AS-History

**AMH 5407 . Colloquium in American South**

3(3,0). PR: Senior Standing or C.I. Intensive reading and class discussion on selected topics of Southern history from colonial origins to the present.  
AS-History

**AMH 5446 . Colloquium in U.S. Frontier**

3(3,0). PR: Senior Standing or C.I. Reading and class discussion of the literature on selected topics of frontier history.  
AS-History

**AMH 5515 . Colloquium in U.S. Diplomatic History**

3(3,0). PR: Senior Standing or C.I. A survey of the historical literature of American foreign policy. May be repeated for credit when content is different  
AS-History

**AMH 5566 . Colloquium: Women in American History**

3(3,0). Intensive reading and class discussion on selected topics of Women in American History from colonial time to the present.

AS-History

**AMH 5937 . AP American History**

3(3,0). 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.

AS-History

**AMH 6429 . Seminar in Community and Local History**

3(3,0). PR: Graduate standing. This seminar will introduce students to historiography, methodology and first-hand experience on conducting a community history based on local and Church archives.

AS-History

**AMH 6591 . Seminar in Documentary Editing**

3(3,0). PR: Graduate standing. This course provides an introduction to the theory and practical skills involved in documentary editing.

AS-History

**AMH 6592 . Seminar in Oral History**

3(3,0). PR: Graduate standing. This course is designed to expose students to the use of oral history as a research technique and to provide experience in conducting professional oral history interviews.

AS-History

**AMH 6939 . Seminar in U.S. History**

3(3,0). May be repeated for credit when content is different

AS-History

**AML 5156 . Modern American Poetry**

3(3,0). 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.

AS-English

**ANG 5166 . Problems in Maya Studies**

3(3,0). PR: ANG 6168 or C.I. In-depth study of current methodological, theoretical, and/or topical problems in Maya Studies.

AS-Sociology & Anthropology

**ANG 5167 . Maya Hieroglyphs**

3(3,0). PR: ANG 6168 or CI. The study of Maya writing, the translation of Maya hieroglyphs, and the significance of translations to reconstructions of ancient Maya culture.

AS-Sociology & Anthropology

**ANG 5228 . Maya Iconography**

3(3,0). PR: ANG 6168 or CI. Study and interpretation of ancient Maya iconography as reflected in art, artifacts, and constructed features.

AS-Sociology & Anthropology

**ANG 6168 . The Ancient Maya**

3(3,0). PR: Bachelor's degree or C.I. Overview of the archaeology of the ancient Maya of Mexico, Belize, Guatemala, and upper Mexico  
AS-Sociology & Anthropology

**ANG 6324 . Contemporary Maya**

3(3,0). PR: Bachelor's degree or C.I. Overview of the cultures and peoples comprising the contemporary Maya of Central America  
AS-Sociology & Anthropology

**ANT 5165 . Field Research in Maya Studies**

3(3,0). PR: ANG 6168 or C.I. Practical application of method and theory during primary in-field research in the Maya area.  
AS-Sociology & Anthropology

**ANT 5166 . Problems in Maya Studies**

3(3,0). PR: ANG 6168 or C.I. In-depth study of current methodological, theoretical, and/or topical problems in Maya studies. May be repeated for credit.  
AS-Sociology & Anthropology

**ANT 5479 . Comparative Cultural Analysis**

3(3,0). The dynamics of cultural processes in a multi-ethnic setting  
AS-Sociology & Anthropology

**ARE 5251 . Art for Exceptionalities**

3(2,1). Concepts, principles, and methods of integrating art processes into the education of the physically, emotionally, and mentally handicapped.  
ED-Teaching & Learning Princ

**ARE 5255 . Arts in Recreation**

3(2,1). Art activities and experiences appropriate for use in playground, leisure services, occupational orientation and other recreational areas.  
ED-Teaching & Learning Princ

**ARE 5454 . Studio Experiences in Art Education**

3(3,0). PR: Graduate admission or C.I. Materials available for instruction in public schools will be explored in depth in relation to their appropriateness and productive qualities. May be repeated for credit.  
ED-Teaching & Learning Princ

**ARE 5648 . Contemporary Visual Arts Education**

3(3,0). PR: ARE 4443 or C.I. Continued study of current programs and innovations in public school Visual Arts Programs.  
ED-Teaching & Learning Princ

**ARE 6195 . Teaching Art Appreciation with Interdisciplinary Strategies**

3(2,1). 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).  
ED-Teaching & Learning Princ

**ARE 6666 . Arts Advocacy**

3(2,1). The study and development of plans to produce arts advocacy programs for the public school system.

ED-Teaching & Learning Princ

**ARE 6905 . Research Trends in Art Education**

3(3,0). PR: EDF 6481. This course will further prepare art education graduate students to identify and review landmark research and conduct relevant art education research. May be repeated for credit.

ED-Teaching & Learning Princ

**ARH 5478 . Contemporary Women Artists**

3(3,0). PR: 6 credits of art courses or C.I. An in-depth study on contemporary women artists from a feminist perspective.

AS-Art

**ARH 5933 . Seminar in African and African-American Arts**

3(3,0). PR: ARH 3520. Research on questions regarding continuities between African and African-American (including Latin-American) arts. Themes include signs and scripts, charms, and textiles.

AS-Art

**ARH 5934 . Orlando Art Exhibition**

3(3,0). 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.

AS-Art

**ART 5109C . Multi-Cultural Crafts Design**

3(2,1). The content of this course will include an appreciation for and the production of Western and Non-Western art forms.

AS-Art

**ART 5811C . The Professional Practice of Art**

3(3,1). PR: ART 2201C, ART 2203C, ART 2300C, ART 2301C- (no graduate level prerequisite) or C.I. Seminar class on political information pertaining to professional practices in the art world. Overview of inventory processing, accounting, and the marketing of art.

AS-Art

**ASH 5227 . The Arab-Israeli Conflict**

3(3,0). PR: Graduate Standing or C.I. This course examines the history of the Arab-Israeli conflict, placing particular emphasis on its origins in 19th century imperialism and Zionism.

AS-History

**ASH 5408 . Colloquium in Modern China**

3(3,0). PR: Graduate standing, Senior status, or C.I. Course explores works of scholarship in modern China including the rise of Communism, Chinese women and Sino-American relations.

AS-History

**BOT 5485C . Terrestrial Cryptogams**

3(2,3). PR: BOT 4303C or C.I. A lecture-laboratory survey course on the biodiversity and classification of terrestrial-cryptogams (bryophytes, ferns, and fern allies) with special emphasis on those found in Florida.

AS-Biology

**BOT 5623C . Plant Geography and Ecology**



4(3,3). PR: PCB 3034 or C.I. The study of the abiotic and biotic processes that control the distribution of terrestrial flora at local, landscape, and global scales.

AS-Biology

**BSC 5408L . Advanced Biology Laboratory Techniques**

3(0,9). 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.

AS-Biology

**BSC 5817 . Biology for AP Teachers**

3(3,0). Participants will perform and evaluate the 12 required labs, analyze the design and grading of the Exam, and develop a representative program.

AS-Biology

**BSC 6950 . Biological Research Resources**

3(3,0). PR: Graduate status. Research methodology including literature resources, problem conceptualization, research proposals, data collection, and analysis and presentation of findings.

AS-Biology

**BTE 6171 . Business Education Curriculum**

3(3,0). PR: Basic Teacher Certificate or C.I. Curriculum planning and development; objectives, innovations, problems, and issues in contemporary business programs.

ED-Teaching & Learning Princ

**BTE 6425 . Advanced Business Instruction Techniques**

3(3,0). PR: Graduate standing or C.I. Research, methods, and materials related to current practices in business education.

ED-Teaching & Learning Princ

**BTE 6426 . Office Simulation Techniques**

3(3,4). PR: Basic Teacher Certificate or C.I. Methods of office simulation for teachers at the developmental and performance levels.

ED-Teaching & Learning Princ

**BTE 6935 . Seminar in Business Education**

3(3,0). PR: Graduate standing or C.I. Current problems, issues, and trends in business education.

ED-Teaching & Learning Princ

**BTE 6946 . Practicum Business Education**

3(3,0). PR: Graduate standing. Techniques, materials, and instructional media; evaluation and new trends of instruction in all areas of business education.

ED-Teaching & Learning Princ

**BUL 5125 . Legal and Social Environment of Business**

3(3,0). PR: Admission to graduate program. Analysis of the legal and ethical environment of business, the effects of legislation and regulation on business activity, and the role of law and ethics in the decision-making process.

BA-Accounting

**BUL 6444 . Law and Ethics**

1.5(1.5,0). PR: CBA Masters Program of Study Foundation Core. Legal and ethical issues inherent in business decision making.  
BA-Accounting

**CAP 5015 . Multimedia Compression on the Internet**

3(3,0). PR: seniors and graduate students with interest in internet technology. Multimedia data; internet technology; entropy; compression methods; lossy compression; vector quantization; transform coding; wavelet video compression; model-based compression.  
ECS-Elect Engr & Computer Sci

**CAP 5415 . Computer Vision**

3(3,0). 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.  
ECS-Elect Engr & Computer Sci

**CAP 5512 . Evolutionary Computation**

3(3,0). PR: Graduate standing or C.I. This course covers the field of evolutionary computation, focusing on the theory and application of genetic algorithms.  
ECS-Elect Engr & Computer Sci

**CAP 5610 . Machine Learning**

3(3,0). PR: CAP 4630 or C.I. Origin/evaluation of machine intelligence; machine learning concepts and their applications in problem solving, planning and "expert systems;" symbolic role of human and computers.  
ECS-Elect Engr & Computer Sci

**CAP 5636 . Advanced Artificial Intelligence**

3(3,0). PR: CAP 4630. AI theory of knowledge representation, "expert systems," memory organization, problem solving, learning, planning, vision, and natural language.  
ECS-Elect Engr & Computer Sci

**CAP 5725 . Computer Graphics Systems I**

3(3,0). PR: COP 3530C or equivalent. Architecture of graphics processors; display hardware; principles of programming and display software; problems and applications of graphic systems.  
ECS-Elect Engr & Computer Sci

**CAP 6133 . Advanced Topics in Computer Security and Computer Forensics**

3(3,0). PR: COP 5611, COT 5405, CDA 5501. Advanced topics in computer security and forensics such as cryptography; automatic intrusion detection, advanced pattern matching, statistical techniques, firewalls, and vulnerability scanning.  
ECS-Elect Engr & Computer Sci

**CAP 6411 . Computer Vision Systems**

3(3,0). PR: CAP 5415. Recent systems contributing toward recognition, reasoning, knowledge representation, navigation, and dynamic scene analysis. Comparisons, enhancements, and integrations of such systems.  
ECS-Elect Engr & Computer Sci

**CAP 6412 . Advanced Computer Vision**

3(3,0). PR: CAP 5415. Computational theories of perception, shape from IX' techniques, multi-resolution image analysis, 3-D model based vision, perceptual organization, spatiotemporal model, knowledge-based vision systems.

ECS-Elect Engr & Computer Sci

**CAP 6613 . Utilizing Microcomputers in Education**

3(0). Instruction in microcomputers emphasizing applications of software in the classroom and for school recordkeeping.

ED-Ed Research, Tech & Lead

**CAP 6640 . Computer Understanding of Natural Language**

3(3,0). PR: CAP 5636. A study of the different approaches to build programs to "understand" natural language. The theory of parsing, knowledge representation, memory, and inference will be studied.

ECS-Elect Engr & Computer Sci

**CAP 6671 . Intelligent Systems**

3(3,0). 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.

ECS-Elect Engr & Computer Sci

**CAP 6676 . Knowledge Representation**

3(3,0). PR: CAP 5636. Topics covered include terminological languages, logicist approaches, ontologies, ontological and conceptual relativity, processes, intangibles, time, building large knowledge bases, and complexity analysis.

ECS-Elect Engr & Computer Sci

**CAP 6701 . Computer Graphic Systems II**

3(3,0). 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.

ECS-Elect Engr & Computer Sci

**CCJ 5015 . The Nature of Crime**

3(3,0). 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.

HPA-Criminal Justice/Legal St

**CCJ 5024 . Foundations of Law Enforcement**

3(3,0). PR: C.I. Examines police role in modern society and law enforcement policy.

HPA-Criminal Justice/Legal St

**CCJ 5040 . International Perspectives on Law and Justice**

6(6,0). PR: C.I. or graduate standing. Examination of the legal and criminal justice systems of other nations and territories through lecture, seminar, research and field visits.

HPA-Criminal Justice/Legal St

**CCJ 5073 . Data Management Systems for Crime Analysis**

3(3,0). PR: Graduate standing or C.I. This course is designed to provide the conceptual basis, understanding, and skills necessary for complex crime data manipulation.

HPA-Criminal Justice/Legal St

**CCJ 5406 . Research and Technology Implementation**

3(3,0). Changing roles of social and physical sciences as related to the objectives and administration of public safety agencies.  
HPA-Criminal Justice/Legal St

**CCJ 5456 . The Administration of Justice**

3(3,0). 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.  
HPA-Criminal Justice/Legal St

**CCJ 5467 . Justice and Safety System Manpower**

3(3,0). Processes essentials to administration to human resources in criminal justice and public safety agencies; structure and processes for acquisition, training, and maintenance of personnel.  
HPA-Criminal Justice/Legal St

**CCJ 5704 . Research Methods in Criminal Justice**

3(3,0). An examination of the philosophy and techniques of research as applied in the Criminal Justice field.  
HPA-Criminal Justice/Legal St

**CCJ 6051 . Community Justice**

3(3,0). PR: CCJ 5015. Examines the emergence of community justice as a major perspective in the U.S. punishment system.  
HPA-Criminal Justice/Legal St

**CCJ 6077 . Advanced Crime Mapping and Analysis in Criminal Justice**

3(3,0). PR: Crime Mapping and Analysis in Criminal Justice or C.I. Develop advanced mapping and analysis proficiency utilizing sophisticated spatial analysis techniques.  
HPA-Criminal Justice/Legal St

**CCJ 6106 . Policy Analysis in Criminal Justice**

3(3,0). This course is designed to familiarize students with the causes and consequences of public policy with an emphasis on criminal justice policy  
HPA-Criminal Justice/Legal St

**CCJ 6217 . Law and Social Control**

3(3,0). This course will examine the types of behavior the state has sought to control and the means employed to exert such control.  
HPA-Criminal Justice/Legal St

**CCJ 6362 . Death Penalty**

3(3,0). PR: Graduate standing or C.I. Examines death penalty policies throughout the U.S., their administration, and deterrent issues.  
HPA-Criminal Justice/Legal St

**CCJ 6485 . Issues in Justice Policy**

3(3,0). Examination of selected issues of public policy regarding the functions and roles of criminal justice agencies vis-a-vis other government departments or agencies and public purposes. May be repeated for credit.  
HPA-Criminal Justice/Legal St

**CCJ 6705 . Applied Criminal Justice Research**

3(3,0). Upon successful completion of this course the student will gain an understanding of the major philosophical, theoretical, and

conceptual approaches to evaluation research.

HPA-Criminal Justice/Legal St

**CCJ 6706 . Quantitative Methods and Computer Utilization in Criminal Justice**

3(3,0). Application of statistical software to quantitative and qualitative methods in Criminal Justice.

HPA-Criminal Justice/Legal St

**CCJ 6730 . Planned Change and Innovation in Criminal Justice**

3(3,0). This course will provide participants with an understanding of planned individual and organizational change so that they may become successful agents of such change.

HPA-Criminal Justice/Legal St

**CCJ 6934 . Criminal Justice, Crime, & Popular Culture**

3(3,0). PR: Graduate standing, CCJ 5456, or C.I. Explore how Criminal Justice System, Criminals, and Crime are portrayed in entertainment and news media and the effects portrayals have on society and Criminal Justice.

HPA-Criminal Justice/Legal St

**CCJ 6938 . Special Topics in Criminal Justice**

Variable. 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.

HPA-Criminal Justice/Legal St

**CCJ 6946 . Criminal Justice Practicum**

Variable. Students will undertake a significant research project in a criminal justice agency.

HPA-Criminal Justice/Legal St

**CCJ 7457 . Seminar in Criminal Justice Theory**

3(3,0). 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.

HPA-Criminal Justice/Legal St

**CCJ 7930 . Seminar in Criminal Justice Policy Analysis**

3(3,0). 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.

HPA-Criminal Justice/Legal St

**CDA 5106 . Advanced Computer Architecture I**

3(3,0). PR: CDA 4150. Instruction set architectures, processor implementation, memory hierarchy, pipelining, computer arithmetic, vector processing, and I/O.

ECS-Elect Engr & Computer Sci

**CDA 5110 . Parallel Architecture and Algorithms**

3(3,0). 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.

ECS-Elect Engr & Computer Sci

**CDA 5215 . Architecture and Design of VLSI**

3(3,0). PR: CDA 4150 or equivalent. Overview of VLSI technology. Logical design of basic subsystems; integrated system design tools; design of a VLSI computer system.  
ECS-Elect Engr & Computer Sci

**CDA 5501 . Computer Communication Networks Architecture**

3(3,0). PR: CDA 4150. Computer networks, layers, protocols and interfaces, local area networks networking.  
ECS-Elect Engr & Computer Sci

**CDA 5530 . Performance Models of Computers and Networks**

3(3,0). PR: Senior standing or beginning graduate student. Performance Models of Computer Systems and Networks using probability models and discrete event simulations. Queuing Theory and modeling tools  
ECS-Elect Engr & Computer Sci

**CDA 6107 . Advanced Computer Architecture II**

3(3,0). PR: CDA 5106. Multiprocessor systems; interconnection network; stack architectures; high-level language architecture; design languages; performance evaluation.  
ECS-Elect Engr & Computer Sci

**CDA 6211 . VLSI Algorithms and Architecture**

3(3,0). PR: CDA 5215. 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.  
ECS-Elect Engr & Computer Sci

**CDA 6520 . Computer Networks Design and Distributive Processing**

3(3,0). PR: CDA 5501 and COP 5611. Computer communications networks design considerations, network operating system, distributive processing.  
ECS-Elect Engr & Computer Sci

**CEG 5015 . Geotechnical Engineering II**

3(3,0). PR: CEG 4101C. Continuation of CEG 4101C with emphasis on shear strength and design factors for earth pressures, bearing capacity, and slope stability.  
ECS-Civil & Environmental

**CEG 5700 . Geo-Environmental Engineering**

3(3,0). PR: CEG 4101C. Geotechnical applications to environmental problems, groundwater flow, soil contamination and groundwater contaminate transport, geosynthetics and stability of landfill design, control of contaminated sites.  
ECS-Civil & Environmental

**CEG 6065 . Soil Dynamics**

3(3,0). PR: CEG 4101C. Comprehensive coverage in calculating the dynamic response of foundations, presenting a variety of contemporary techniques for fields and laboratory.  
ECS-Civil & Environmental

**CEG 6115 . Foundation Engineering**

3(3,0). PR: CEG 5015. Analysis and design of spread footings, mat foundations, retaining walls, sheeting and bracing systems and pile foundations.  
ECS-Civil & Environmental

**CEG 6317 . Advanced Geotechnical Engineering**

3(3,0). PR: CEG 5015. Mechanics of soils and models; elasticity and plasticity of soil bodies; strength of soils and stability of soil structures.

ECS-Civil & Environmental

**CEN 5016 . Software Engineering**

3(3,0). 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.

ECS-Elect Engr & Computer Sci

**CEN 6081 . Engineering Software Design in Distributed and Parallel Systems**

3(3,0). PR: EEL 4882 and EEL 4884C or EEL 5881. This course will focus on engineering software design, implementation, configuration and performance evaluation of distributed and parallel systems.

ECS-Elect Engr & Computer Sci

**CES 5325 . Bridge Engineering**

3(3,0). PR: CES 4605; CES 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.

ECS-Civil & Environmental

**CES 5606 . Advanced Steel Structures**

3(3,0). PR: CES 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.

ECS-Civil & Environmental

**CES 5706 . Advanced Reinforced Concrete**

3(3,0). PR: CES 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.

ECS-Civil & Environmental

**CES 5821 . Masonry and Timber Design**

3(3,0). PR: C.I. Structural properties of masonry and timber; design loads-codes and standards; analysis for axial loads, flexure and shear.

ECS-Civil & Environmental

**CES 6116 . Finite Element Structural Analysis**

3(3,0). PR: CES 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.

ECS-Civil & Environmental

**CES 6170 . Boundary Element Methods in Civil Engineering**

3(3,0). 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.

ECS-Civil & Environmental

**CES 6209 . Dynamics of Structures**

3(3,0). 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.

ECS-Civil & Environmental

**CES 6218 . Structural Stability**

3(3,0). PR: EML 5237 or equivalent. Analysis of structural elements, columns, frameworks, lateral stability. Introduction to the stability of plates. Energy and approximate methods.

ECS-Civil & Environmental

**CES 6220 . Wind and Earthquake Engineering**

3(3,0). PR: CES 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.

ECS-Civil & Environmental

**CES 6230 . Advanced Structural Mechanics**

3(3,0). PR: C.I. Review of biaxial bending and torsion; plate bending; theory of elasticity, visco-elasticity and plasticity; anisotropic elasticity and stability.

ECS-Civil & Environmental

**CES 6715 . Prestressed Concrete Structures**

3(3,0). PR: CES 4702 and CES 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.

ECS-Civil & Environmental

**CES 6840 . Composite Steel Concrete Structures**

3(3,0). PR: CES 5606 and CES 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.

ECS-Civil & Environmental

**CES 6910 . Research in Structural Engineering**

3(3,0). PR: C.I. Behavior and design of steel, concrete, or composite structures under cyclic, wind, earthquake, impact, or blast loading.

ECS-Civil & Environmental

**CGN 5320C . Geographic Information systems**

3(2,2). Programming theory and application of Geographic Information Systems to Civil Engineering projects.

ECS-Civil & Environmental

**CGN 5504C . Civil Engineering Materials**

3(2,2). PR: EGN 3365, EGN 3331, or C.I. Structure, properties, and applications of materials used in civil engineering including concrete, steel, asphalt, wood, soils, and composite materials.

ECS-Civil & Environmental

**CGN 5506C . Asphalt Concrete Mix Design**

3(2,2). PR: CEG 4101C. Properties of asphalt, aggregate and asphalt mixtures, Marshall mix design, Hveem mix design, pavement rehabilitation.

ECS-Civil & Environmental

**CGN 6655 . Regional Planning, Design, and Development**



3(3,0). Project course dealing with planning, design, and development of regional systems, including projections, case studies, design alternatives, environmental impact, etc.  
ECS-Civil & Environmental

**CGS 5131 . Computer Forensics I: Seizure and Examination of Computer Systems**

3(3,0). PR: Graduate Computer Science status or C.I. Legal issues regarding seizure and chain of custody. Technical issues in acquiring computer evidence. Popular file systems are examined. Reporting issues in the legal system.  
ECS-Elect Engr & Computer Sci

**CGS 5132 . Computer Forensics II: Network Security, Intrusion Detection, & Forensic Analysis**

3(3,0). PR: Computer Forensics I, or C.I. Computer network protocols and security, network intrusion detection and prevention, digital evidence collection and evaluation, and legal issues involved in network forensics analysis.  
ECS-Elect Engr & Computer Sci

**CHM 5225 . Advanced Organic Chemistry**

3(3,0). PR: CHM 2211. Theoretical and physical organic concepts of organic systems from the perspective of modern structural theory, thermodynamics, and kinetics.  
AS-Chemistry

**CHM 5235 . Applied Molecular Spectroscopy**

3(3,0). PR: CHM 3120C and CHM 2211. Determination of chemical structure through interpretation of UV. IR, NMR and Mass Spectra.  
AS-Chemistry

**CHM 5305 . Applied Biological Chemistry**

3(3,0). 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.  
AS-Chemistry

**CHM 5450 . Polymer Chemistry**

3(3,0). PR: CHM 2211. An introduction to the chemistry of synthetic polymers. Synthetic methods, polymerization mechanisms, characterization techniques, and polymer properties will be considered.  
AS-Chemistry

**CHM 5451C . Techniques in Polymer Science**

3(1,5). PR: CHM 2211 and CHM 3410. A laboratory and lecture course designed to introduce students to the major polymerization mechanisms along with polymer characterization and processing methods using modern instrumentation.  
AS-Chemistry

**CHM 5580 . Advanced Physical Chemistry**

3(3,0). CR: 3411 and PR: MAC 2313. Selected topics of thermodynamics, kinetics, quantum mechanics, and structure.  
AS-Chemistry

**CHM 6440 . Kinetics and Catalysis**

2(2,0). PR: CHM 3411 or equivalent. Classical kinetics with an emphasis on industrial applications and current catalysis methodologies.  
AS-Chemistry

**CHM 6710 . Applied Analytical Chemistry**

2(2,0). PR: CHM 2211, 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.

AS-Chemistry

**CHM 6711 . Chemistry of Materials**

3(3,0). PR: CHM 2211, CHM 4130C, and CHM 3411, or C.I. Structure and properties of chemical products, with an emphasis on the correlation between molecular form and the functional properties deemed desirable for the product.

AS-Chemistry

**CHM 6938 . Graduate Chemistry Seminar**

1(1,0). 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.

AS-Chemistry

**CHS 5503 . Topics in Forensic Science**

3(3,0). PR: C.I. Will include the history of Forensic Science and current issues such as Digital Evidence.

AS-Chemistry

**CHS 5518 . The Forensic Collection and Examination of Digital Evidence**

3(3,0). PR: Adv topics in Forensic Science. This course will cover the nature of Digital Evidence collection and examination under the constraints of Law and courtroom procedures.

AS-Chemistry

**CHS 5596 . The Forensic Expert in the Courtroom**

3(3,0). PR: CHS 3533C, CHS 6535, or CHS 6536. A study of the uses of technically and scientifically trained expert witnesses at trial.

AS-Chemistry

**CHS 6240 . Chemical Thermodynamics**

2(2,0). PR: CHM 3411 or equivalent. Classical and statistical thermodynamics with emphasis on industrial applications and estimation methods.

AS-Chemistry

**CHS 6251 . Applied Organic Synthesis**

2(2,0). PR: CHM 2211 and CHM 3411. A survey of chemical syntheses from both a product-oriented standpoint and a process-oriented standpoint. Relevant examples from the pharmaceutical and agricultural chemical industries.

AS-Chemistry

**CHS 6260 . Chemical Unit Operations and Separations**

2(2,0). PR: C. I. A study of the elements and dynamics that are fundamental to industrial separation methods and transport processes.

AS-Chemistry

**CHS 6261 . Chemical Process and Product Development**

2(2,0). 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.

AS-Chemistry

**CHS 6513 . QA & Bioinformation**

3(3,0). PR: C.I. and satisfaction of statistics and biology requirements. Principles of Quality Assurance a description of current industry wide standards and procedures for locating, evaluating, and processing information about DNA.

AS-Chemistry

**CHS 6535 . Forensic Analysis of Biological Materials**

2(2,0). 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.

AS-Chemistry

**CHS 6535L . Forensic Analysis of Biological Materials**

3(1,6). PR: CHS 6535, PCB 4524, C.I. and satisfaction of biology requirements. A laboratory course for forensic molecular biologists covering the procedures for recovering and typing DNA from evidentiary materials.

AS-Chemistry

**CHS 6536 . Forensic Analysis of DNA Data**

2(2,0). PR: C.I. and satisfaction of statistics and biology requirements. A lecture course for forensic scientists covering the analysis of laboratory derived DNA data and how they can be applied in an occupational context.

AS-Chemistry

**CHS 6613 . Current Topics in Environmental Chemistry**

3(3,0). PR: CHM 2045, CHM 2046, or the equivalent of a B.S. in biological, molecular, chemical or engineering sciences, or C.I.

Advanced principles of environmental chemistry, environmental law, current remediation technologies and industrial practices relating to the environment.

AS-Chemistry

**CJC 5020 . Foundations of Corrections**

3(3,0). PR: C.I. Provides an overview of correctional process in U.S., including philosophical foundations and contemporary practices.

HPA-Criminal Justice/Legal St

**CJJ 6020 . The Juvenile Justice System**

3(3,0). 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.

HPA-Criminal Justice/Legal St

**CLP 5004 . Psychology of Adult Adjustment**

3(3,0). PR: C.I. A survey of situations encountered during adulthood, including marriage, birth, parenthood, trauma, illness, death, etc. Effective adjustment.

AS-Psychology

**CLP 5166 . Advanced Abnormal Psychology**

3(3,0). Consideration of classification, causation, management and treatment of emotional disorders. Review of theories and research in the field. Lecture/Laboratory.

AS-Psychology

**CLP 5187 . Mental Health and Aging**

3(3,0). PR: Post-bac or Graduate standing or C.I. Introduction to assessment and intervention issues, practice and research related to

problems with cognitive and emotional functioning among older adults. May be repeated for credit.  
AS-Psychology

**CLP 6181 . Psychological Theories of Substance Abuse Treatment**

3(3,0). PR: Acceptance to Clinical Psychology Ph.D. program or C.I. The mechanisms responsible for, and the treatment of, substance tolerance and dependence. This course is intended for the Ph.D. in Clinical Psychology; in certain instances graduate students in other programs may enroll.

AS-Psychology

**CLP 6191 . Cross-Cultural Psychotherapy**

3(3,0). PR: Graduate admission and C.I. The theories, issues, and techniques of counseling within a multicultural environment.

AS-Psychology

**CLP 6195C . Introduction to Psychotherapy**

3(2,2). PR: Graduate admission and C.I. Counseling theory with experimental lab component including practice in specific techniques in counseling.

AS-Psychology

**CLP 6321 . Psychotherapy in Community Settings**

3(3,0). PR: Acceptance to Clinical Psychology Ph.D. program or C.I. Survey of the community agencies that deliver mental health/counseling services. Includes on-site visits to local agencies. This course is intended for the Ph.D. in Clinical Psychology; in certain instances graduate students in other programs may enroll.

AS-Psychology

**CLP 6441C . Individual Psychological Assessment I**

3(2,2). PR: Graduate admission and C.I. Theory and techniques of psychological assessment with emphasis on intake interviewing, cognitive and personality assessment, and report writing.

AS-Psychology

**CLP 6445C . Individual Psychological Assessment II**

3(2,2). PR: 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.

AS-Psychology

**CLP 6457C . Group Psychotherapy**

3(2,2). PR: Graduate admission and C.I. Group counseling: theory and practice. Experiential group laboratory.

AS-Psychology

**CLP 6458C . Behavior Therapy**

3(2,2). PR: C.I. and graduate standing. Introduction to the principles and procedures of behavior therapy as a clinical intervention approach. Includes practice in specific techniques.

AS-Psychology

**CLP 6459C . Human Sexuality, Marriage, and Sex Therapies**

3(2,2). PR: Graduate admission, and C.I. Human sexuality, theory and practice of specific techniques of marriage and sex therapy.

AS-Psychology

**CLP 6460C . Introduction to Child, Adolescent, and Family Therapies**

3(2,2). PR: Graduate admission, and C.I. Theories and practices of child, adolescent and family therapies. Includes practice in specific techniques.

AS-Psychology

**CLP 6491C . Treatment Development**

3(2,2). PR: Acceptance to Clinical Psychology Ph.D. program or C.I. Major preventative treatment approaches, including the appropriate uses of manualized/modular therapy. Students participate in a faculty member's treatment development program. This course is intended for the Ph.D. in Clinical Psychology; in certain instances graduate students in other programs may enroll.

AS-Psychology

**CLP 6932 . Ethical and Professional Issues in Mental Health Practices**

3(3,0). PR: Graduate admission, C.I. Examination of codes of ethics, laws, and professional standards in the mental health field.

AS-Psychology

**CLP 6943C . Clinical Practicum**

2(2,8). PR: Acceptance to Clinical Psychology Ph.D. program or C.I. Clinical activities performed in an approved university or community setting under faculty/staff supervision. This course is intended for the Ph.D. in Clinical Psychology; in certain instances graduate students in other programs may enroll. May be repeated for credit.

AS-Psychology

**CLP 6944 . Clinical Supervision Seminar/Practicum**

3(3,0). PR: Acceptance to Clinical Psychology Ph.D. program or C.I. The concepts and skills needed to be a clinical supervisor. Includes applications, ethics, and professional responsibilities in a multi-cultural context. This course is intended for the Ph.D. in Clinical Psychology; in certain instances graduate students in other programs may enroll.

AS-Psychology

**CLP 6949 . Predoctoral Internship**

2(0,40). PR: Acceptance to Clinical Psychology Ph.D. program or C.I. Placement in an approved setting on a full-time basis for one calendar year. Required of all clinical Ph.D. students. This course is intended for the Ph.D. in Clinical Psychology; in certain instances graduate students in other programs may enroll.

AS-Psychology

**COM 6046 . Interpersonal Communication**

3(3,0). PR: Graduate status. Survey of theoretical perspectives in interpersonal communication.

AS-Communication

**COM 6121 . Communication Management**

3(3,0). Analysis and development with reference to particular media. Organizational theory, structure, and behavior. Management principles and operations.

AS-Communication

**COM 6303 . Communication Research I**

3(3,0). Analysis of theory and methodology in communication research, with emphasis on persuasion, nonverbal communication, and interpersonal communication.

AS-Communication

**COM 6304 . Communication Research II**

3(3,0). PR: Statistics and COM 6303. Planning and implementation of research in persuasion, nonverbal communication, and interpersonal communication.

AS-Communication

**COM 6467 . Studies in Persuasion**

3(3,0). PR: Graduate status. Analysis of research and major theoretical perspectives in persuasive communication.

AS-Communication

**COM 6468 . Communication and Conflict**

3(3,0). Research seminar in the study of communication and conflict.

AS-Communication

**COM 6525 . Communication Strategy and Planning**

3(3,0). PR: C.I. Focus on the creation of communication strategies in conjunction with overall organizational goals, with emphasis on decision-making and management.

AS-Communication

**COP 5021 . Program Analysis**

3(3,0). PR: COP 4020 and COT 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.

ECS-Elect Engr & Computer Sci

**COP 5530 . Network Optimization**

3(3,0). PR: Graduate standing in Computer Science or Computer Engineering. Recent advances in the theory and computational techniques for optimal design and analysis of large networks for computers, communications, transportation, web and other applications.

ECS-Elect Engr & Computer Sci

**COP 5611 . Operating Systems Design Principles**

3(3,0). 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.

ECS-Elect Engr & Computer Sci

**COP 5711 . Parallel and Distributed Database Systems**

3(3,0). PR: COP 4710. Storage manager, implementation techniques for parallel DBMSs, distributed DBMS architectures, distributed database design, query processing, multidatabase systems.

ECS-Elect Engr & Computer Sci

**COP 6614 . Operating Systems Techniques**

3(3,0). PR: COP 5611. Techniques in the design and implementation of operating systems. Case studies of several experimental and commercial operating systems.

ECS-Elect Engr & Computer Sci

**COP 6615 . Operating Systems Theory**

3(3,0). PR: COP 5611. Scheduling and queuing theory, simulation, and performance evaluation of computer systems.

ECS-Elect Engr & Computer Sci

**COP 6621 . Compiler Construction**

3(3,0). PR: COP 5021, COT 5310. Techniques in the design and implementation of compilers. Optimization, code generation, error recovery, attributed grammars. A project is required.

ECS-Elect Engr & Computer Sci

**COP 6730 . Transaction Processing**

3(3,0). PR: COP 4710. Transaction models, transaction monitors, isolation concepts and lock manager implementation, log manager, transaction manager, file and buffer management, client-server computing.

ECS-Elect Engr & Computer Sci

**COP 6731 . Advanced Database Systems**

3(3,0). PR: COP 5711. Selected topics concerning object-oriented databases, multimedia databases, active databases, temporal databases, spatial databases, and information systems.

ECS-Elect Engr & Computer Sci

**COT 5310 . Formal Languages and Automata Theory**

3(3,0). PR: COP 4020 and COT 4210. Classes of formal grammars and their relation to automata, normal forms, closure properties, decision problems. LR(K) grammars.

ECS-Elect Engr & Computer Sci

**COT 5405 . Design and Analysis of Algorithms**

3(3,0). PR: COT 4210 and COT 4110. Classification of algorithms, e.g., recursive, divide-and-conquer, greedy, etc. Data structures and algorithm design and performance. Time and space complexity analysis.

ECS-Elect Engr & Computer Sci

**COT 5507 . Computational Methods/Applications**

3(3,0). PR: COT 4500. Computational solution techniques for algebraic equations, ODE and PDE Models of applications selected from science, engineering, applied mathematics, and computer science.

ECS-Elect Engr & Computer Sci

**COT 5510 . Computational Methods/Linear Systems**

3(3,0). PR: COT 4500 and MAS 3106. Mathematical models for linear systems, linear programming, the simplex method, integer and mixed-integer programming, introduction to nonlinear optimization and linearization.

ECS-Elect Engr & Computer Sci

**COT 5520 . Computational Geometry**

3(3,0). CR: COT 5405. Geometric searching, point location, convex hulls, proximity problems, Vononoi diagrams, spanning trees, triangulation, intersection arrangement applications.

ECS-Elect Engr & Computer Sci

**COT 6300 . The Theory of Parsing and Translation**

3(3,0). 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.

ECS-Elect Engr & Computer Sci

**COT 6410 . Computational Complexity**

3(3,0). 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.  
ECS-Elect Engr & Computer Sci

**COT 6415 . Complexity of Parallel Computation**

3(3,0). 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.  
ECS-Elect Engr & Computer Sci

**COT 6505 . Computational Methods/Analysis I**

3(3,0). PR: COT 5510. Analysis of direct and iterative solutions of systems of linear equations, eigenvalues and vectors and roots of nonlinear equations, error analysis.  
ECS-Elect Engr & Computer Sci

**CPO 5334 . Contemporary Politics of the Mayan Region**

3(3,0). PR: Senior, post-bac or graduate status. Analysis of issues affecting all peoples living in the contemporary Mayan region of southern Mexico, Belize, Guatemala, and El Salvador.  
AS-Political Science

**CPO 6075 . Comparative Political Economy**

3(3,0). PR: Graduate standing. Seminar in the political economy of advanced industrial societies, dealing with the interplay of citizens, governments, the economy, and political institutions.  
AS-Political Science

**CPO 6091 . Seminar in Comparative Politics**

3(3,0). 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.  
AS-Political Science

**CRW 5020 . Graduate Writing Workshop**

3(3,0). Student writers present their own work, receiving detailed analysis of its strengths and weaknesses from their fellow writers and from the teacher.  
AS-English

**CRW 5056 . Form and Theory of Nonfiction**

3(3,0). PR: Admission the M.A. program in English or Honors in the Major status. Studies in literary nonfiction from three perspectives: the critic, the practicing writer, and the theorist. Reading includes memoir, personal essay, criticism, and theory.  
AS-English

**CRW 5932 . Teaching Creative Writing**

3(2,1). PR: C.I. Creative writing practicum. May be repeated for credit.  
AS-English

**CRW 6025 . Advanced Graduate Writing Workshop**

3(3,0). PR: Admission to the Creative Writing specialization of the English M.A. program. Writing and revising in one established form. Advanced Graduate Writing Workshop may 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.  
AS-English



**CWR 5205 . Hydraulic Engineering**

3(3,0). PR: CWR 4101C and CWR 4203C. Concepts of fluid mechanics and hydrodynamics applied to natural and man-made flow of interest to civil and environmental engineering.

ECS-Civil & Environmental

**CWR 5545 . Water Resources Engineering**

3(3,0). 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.

ECS-Civil & Environmental

**CWR 6102 . Advanced Hydrology**

3(3,0). PR: CWR 4101C 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.

ECS-Civil & Environmental

**CWR 6125 . Groundwater Hydrology**

3(3,0). PR: CWR 4203C or equivalent. Theories of groundwater movement, geological factors, analysis and design techniques, etc. Emphasis on practical considerations.

ECS-Civil & Environmental

**CWR 6126 . Groundwater Modeling**

3(3,0). PR: CWR 6125. Review of contemporary computer-based groundwater flow models and their application to environmental engineering problems.

ECS-Civil & Environmental

**CWR 6235 . Open Channel Hydraulics**

3(3,0). PR: CWR 4203C or C.I. Free surface flow studies by empirical and theoretical methods for the design, operation, and management of open channels.

ECS-Civil & Environmental

**CWR 6236 . River Engineering and Sediment Transport**

3(3,0). PR: CWR 4203C and CWR 4101C. River morphology and regime with stabilization and modification of river courses. Sediment transport including control methods and modeling.

ECS-Civil & Environmental

**CWR 6535 . Modeling Water Resources Systems**

3(3,0). PR: CWR 4101C and CWR 4203C. Contemporary mathematical models for water quality and quantity considerations including computer-based hydraulic and hydrologic models.

ECS-Civil & Environmental

**CWR 6539 . Finite Differences/Elements in Surface Water Modeling**

3(3,0). PR: C.I. Theory, applications and error analysis for two commonly employed discretization methods as applied to surface water modeling.

ECS-Civil & Environmental

**CYP 6948C . Psychology Internship**

Variable. PR: Clinical psychology MA students. Supervised placement in community setting for 10-30 hours per week. May be repeated

for credit. Graded S/U.

AS-Psychology

**DEP 5057 . Developmental Psychology**

3(3,0). PR: Graduate admission or C.I. Psychological aspects of development including intellectual, social, and personality factors.

AS-Psychology

**EAB 5765 . Applied Behavior Analysis with Children and Youth**

3(3,0). PR: DEP 5057 and EXP 5445 or C.I. Advanced survey of principles, procedures, and techniques of applied behavior analysis, with special attention to applications with children and youth.

AS-Psychology

**EAS 5123 . Intermediate Aerodynamics**

3(3,0). PR: EAS 4134; CR: EML 5060. Aerodynamic characteristics of airfoils, finite wings, waves, wing-body combinations, viscous flow and flow instabilities. Airfoil design.

ECS-Mechanical/Matrls/Aerosp

**EAS 5157 . V/Stol Aerodynamics and Performance**

3(3,0). PR: EAS 4105; CR: EML 5060. Momentum theory, blade element theory, hover and forward flight, stability, aeroelasticity.

ECS-Mechanical/Matrls/Aerosp

**EAS 5302 . Direct Energy Conversion**

3(3,0). PR: EML 3101 and EML 4142. Direct methods of energy conversion; particular emphasis on fuel cells, thermoelectrics, thermionics, solar energy, photovoltaics and magnetohydrodynamics. Analysis and systems design.

ECS-Mechanical/Matrls/Aerosp

**EAS 5315 . Rocket Propulsion**

3(3,0). PR: EAS 4134 or EML 4703. Analysis and performance of rocket motors; selection and thermochemistry of chemical propellants; liquid and solid propellant rockets.

ECS-Mechanical/Matrls/Aerosp

**EAS 5407 . Mechatronic Systems**

3(3,0). PR: EML 3804C or EAS 3404C. Discrete control techniques for aerospace mechatronic systems. Controller design, test and evaluation applications.

ECS-Mechanical/Matrls/Aerosp

**EAS 6138 . Advanced Gas Dynamics**

3(3,0). PR: EML 5713. CR: EML 5060. Analysis of steady and unsteady transonic, supersonic and hypersonic flows. Shock waves, nozzles, diffusers, and high speed wind tunnels.

ECS-Mechanical/Matrls/Aerosp

**EAS 6185 . Turbulent Flow**

3(3,0). PR: EML 5060 and EML 5713. Phenomena and methods of characterizing turbulence; spatial and temporal velocity correlation; energy spectra; transition prediction; turbulent boundary layer equations; hot wire and LDV measurement techniques.

ECS-Mechanical/Matrls/Aerosp

**EAS 6405 . Advanced Flight Dynamics**

3(3,0). PR: EAS 4105 or equivalent. Aerodynamic principles as applied to stability and control of aerospace vehicles. Generalized vehicle performance. Small disturbance dynamic stability and control response.

ECS-Mechanical/Matrls/Aerosp

**EAS 6507 . Topics of Astrodynamics**

3(3,0). 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.

ECS-Mechanical/Matrls/Aerosp

**ECM 5135 . Engineering Math Analysis I**

3(3,0). PR: MAP 2302. Topics in advanced engineering mathematics, including systems of differential equations, phase plane, linear algebra, and vector differential calculus.

ECS-Elect Engr & Computer Sci

**ECM 5741C . Microcomputer-based Monitoring and Control Systems**

3(2,3). PR: EEL 3342C; EEL 4767C or C.I. Machine language programming; software development aids; systems design; interfacing considerations.

ECS-Elect Engr & Computer Sci

**ECM 6235 . Engineering Math Analysis II**

3(3,0). Advanced engineering math topics including Fourier series, partial differential equations, and complex variables.

ECS-Elect Engr & Computer Sci

**ECO 5005 . Economic Concepts**

3(3,0). PR: Acceptance into the graduate program. Introduction to micro and macro economic analysis.

BA-Economics

**ECO 5006 . Economic Foundations**

1.5(1.5,0). PR: Acceptance to Graduate Study. Introduction to Micro and Macro Economic Analysis.

BA-Economics

**ECO 5414 . Statistical Foundations**

1.5(1.5,0). PR: Acceptance to Graduate Study. Statistical theory and problems relating to business and economics, including time series and correlation theory, index number theory and statistical inference.

BA-Economics

**ECO 5415 . Statistics for Business and Economics**

3(3,0). 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.

BA-Economics

**ECO 6115 . Economic Analysis of the Firm**

3(3,0). PR: CBA Master's Program of Study Foundation Core. Commodity price and output determination; factor price determination and functional income distribution; analysis of different types of markets.

BA-Economics

**ECO 6206 . Aggregate Economic Conditions and Analysis**

3(3,0). PR: MAAE Foundations, ECO 3203, ECO 6XXX (Mathematical Economics), ECO 6416. An analysis of aggregate economic conditions including the determination of output, employment, and income levels.

BA-Economics

**ECO 6226 . Seminar in Money, Banking, and Monetary Policy**

3(3,0). PR: Graduate standing and ECO 5005 or equivalent. Study of the structural foundation and policy-making activities of the monetary authorities.

BA-Economics

**ECO 6305 . History of Economic Thought**

3(3,0). PR: Graduate standing and ECO 5005 or equivalent. A study of the leading ideas of the major contributors to the development of economic thought.

BA-Economics

**ECO 6416 . Applied Business Research Tools**

3(3,0). PR: CBA Master's Program of Study Foundation Core Courses. Multivariate methods and related tools applied to analyze business and economic data as an aid in decision-making.

BA-Economics

**ECO 6424 . Econometrics**

3(3,0). 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.

BA-Economics

**ECO 6433 . Business Cycles and Forecasting**

3(3,0). 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.

BA-Economics

**ECO 6505 . Public Finance and Fiscal Policy**

3(3,0). 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.

BA-Economics

**ECO 6705 . Seminar in International Economics**

3(3,0). PR: Graduate standing and ECO 6115 or equivalent. An inquiry into the theory of international trade and finance, commercial policy, and economic integration.

BA-Economics

**ECO 7116 . Microeconomic Theory**

3(3,0). PR: Graduate standing and ECO 6115 or equivalent. Advanced treatment of demand, production cost, market theory under varying competitive conditions.

BA-Economics

**ECO 7205 . Macroeconomic Theory**

3(3,0). PR: Graduate standing and master's-level macroeconomics. Includes sectoral components of the economy; fluctuation and

stabilization policies and special macro topics  
BA-Economics

**ECO 7423 . Applied Models I**

3(3,0). PR: Graduate standing, and ECO 6416 or equivalent. Advanced coverage of standard regression methods and models plus nonparametric statistics.

BA-Economics

**ECO 7425 . Applied Models II**

3(3,0). PR: Graduate standing and ECO 7423. Advanced treatment of sophisticated regression methods and models plus complex nonregression models.

BA-Economics

**ECO 7428 . Time Series**

3(3,0). PR: Graduate standing and ECO 6424. Advanced treatment of time series analytical techniques including vector autoregression, cointegration and nonstationarity.

BA-Economics

**ECP 6205 . Labor Economics**

3(3,0). 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.

BA-Economics

**ECP 6405 . Industrial Organization and Performance**

3(3,0). PR: Graduate standing and ECO 6115. A study of the performance of various types of market structure and practice relative to price and efficiency.

BA-Economics

**ECP 6605 . Economics of Urban and Regional Problems**

3(3,0). PR: Graduate standing and ECO 6115. Economic analysis of the problems arising from and associated with the growth and development of cities and regions.

BA-Economics

**ECP 6705 . Managerial Economics**

3(3,0). 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.

BA-Economics

**ECS 6006 . Seminar in Comparative Economic Systems**

3(3,0). 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.

BA-Economics

**ECS 6015 . Economic Development**

3(3,0). 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.

BA-Economics

**EDA 6061 . Organization and Administration of Schools**

3(3,0). PR: Basic Teacher Certificate or C.I. Introduction to and overview of educational administration including governance, finance communications and information management, personnel evaluation.

ED-Ed Research, Tech & Lead

**EDA 6106 . Trends in Educational Administration**

3(3,0). 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.

ED-Ed Research, Tech & Lead

**EDA 6232 . Legal Aspects of School Operation**

3(3,0). PR: Basic Teacher Certificate or C.I. Study of state and federal laws affecting the operation of public schools emphasizing individual rights and responsibilities of students, faculty, and administrators.

ED-Ed Research, Tech & Lead

**EDA 6240 . Educational Financial Affairs**

3(3,0). PR: Basic Teacher Certificate or C.I. Theoretical and practical approaches to managing school business affairs at central office and individual school levels.

ED-Ed Research, Tech & Lead

**EDA 6260 . Educational Systems Planning and Management**

3(3,0). PR: Basic Teacher Certificate or C.I. Application of current educational management and behavioral theory for systems approaches in schools and educational facilities.

ED-Ed Research, Tech & Lead

**EDA 6300 . Community School Administration**

3(3,0). 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.

ED-Ed Research, Tech & Lead

**EDA 6502 . Organization and Administration of Instructional Programs**

3(3,0). 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.

ED-Ed Research, Tech & Lead

**EDA 6540 . Organization and Administration of Higher Education**

3(3,0). 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.

ED-Ed Research, Tech & Lead

**EDA 6931 . Contemporary Issues in Educational Leadership**

3(3,0). A capstone course intended to stimulate inspection, analysis, and dialogue regarding contemporary issues and tensions facing educational leaders and educational systems.

ED-Ed Research, Tech & Lead

**EDA 7101 . Organizational Theory in Education**

3(3,0). PR: Advanced graduate status or C.I. Overview of sociological and behavioral theories that are applicable to administration of

various educational organizations.  
ED-Ed Research, Tech & Lead

**EDA 7192 . Educational Leadership**

4(4,0). 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.  
ED-Ed Research, Tech & Lead

**EDA 7195 . Politics, Governance, and Financing of Educational Organizations**

4(4,0). PR: Advanced graduate status or C.I. The study of policy development as a political process; governance issues; and financial issues in education.  
ED-Ed Research, Tech & Lead

**EDA 7205 . Planning, Research, and Evaluation Systems in Educational Administration**

4(4,0). PR: Advanced graduate status or C.I. The study of research and evaluation methodologies, system theory, and planning and design strategies in educational administration.  
ED-Ed Research, Tech & Lead

**EDA 7225 . Educational Personnel, Contracts, and Negotiations**

4(4,0). PR: Doctoral status, completion of a course in school law, and C.I. Readings, discussions and research pertaining to administration of educational personnel contracts and public sector educational law.  
ED-Ed Research, Tech & Lead

**EDA 7235 . Seminar in School Law**

3(3,0). 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.  
ED-Ed Research, Tech & Lead

**EDA 7236 . Legal Issues in Higher Education**

3(3,0). 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.  
ED-Ed Research, Tech & Lead

**EDA 7260 . Educational Facilities**

3(3,0). PR: C.I. Administration of educational facilities such as surveys, finance plans and specifications, equipment, contracts, construction procedures, maintenance and custodial services.  
ED-Ed Research, Tech & Lead

**EDA 7274 . Seminar: Applications of Technology to Educational Leadership**

3(4,0). PR: EDA 6260 or C.I. Study of administrative and leadership technology applications at the school building or district level.  
ED-Ed Research, Tech & Lead

**EDA 7930 . Seminar in School Administration**

3(3,0). PR: C.I. Discussion of problems in school administration, patterns of curriculum organization, and research projects.  
ED-Ed Research, Tech & Lead

**EDA 7943 . Field Project**

3(3,0). 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.

ED-Ed Research, Tech & Lead

**EDE 6205 . Elementary School Curriculum**

3(3,0). PR: Basic Teacher Certificate or C.I. Analysis of the forces which shape and contribute to the vertical and horizontal curriculum designs of elementary schools.

ED-Teaching & Learning Princ

**EDE 6933 . Elementary Education Seminar I**

2 (2,0). PR: Admission to graduate program or C.I. Overview of the M.A. in Elementary Education program's policies and expectations, and exploration of the teaching profession (professional organization, accomplished practices, publications, issues and terminology).

ED-Teaching & Learning Princ

**EDE 6935 . Elementary Education Seminar II**

1 (1,0). PR: EDE 6935 or C.I. As a culminating experience, this seminar provides students with the opportunity to synthesize what they have learned throughout their M.A. in Elementary Education program.

ED-Teaching & Learning Princ

**EDF 5245 . Preparation and Management of Classroom Instruction**

3(3,0). PR: C.I. Study of strategies for instructional planning and classroom management that result in optimum learning.

ED-Educational Studies

**EDF 6141 . Human Intelligence**

3(3,0). PR: Graduate standing and a course in learning. An examination of theory and research on human intelligence and its relation to learning and cognitive performance with emphasis on implications for educational and workplace settings.

ED-Educational Studies

**EDF 6155 . Lifespan Human Development and Learning**

3(3,0). Research in childhood, adolescent, and adult development relevant to contemporary American education. Emphasis on application of theory to educational practice.

ED-Educational Studies

**EDF 6206 . Challenges of Classroom Diversity**

3(3,0). PR: Graduate standing, EDF 6886 or C.I. An examination of factors which shape the curriculum in diverse classrooms with specific attention to learning, assessment and best practices appropriate for minority students.

ED-Educational Studies

**EDF 6216 . Motivation in Learning and Performance**

3(3,0). PR: Graduate standing. An examination of theory and research in learning and performance with an emphasis on practical applications for educational and work place settings.

ED-Educational Studies

**EDF 6233 . Analysis of Classroom Teaching**

3(3,0). PR: EDF 6481 or C.I. Analyses of effective teaching practices and their effect on classroom instruction and learning.

ED-Educational Studies



**EDF 6259 . Learning Theories Applied to Classroom Instruction and Management**

3(3,0). PR: Graduate standing. Study of strategies of classroom management that result in optimum learning and a minimum of behavior problems.

ED-Educational Studies

**EDF 6401 . Statistics for Educational Data**

3(3,0). PR: EDF 6481 or C.I. Design of educational evaluation; analysis of data, descriptive and inferential statistics; interpretation of results.

ED-Ed Research, Tech & Lead

**EDF 6432 . Measurement and Evaluation in Education**

3(3,0). 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.

ED-Ed Research, Tech & Lead

**EDF 6446 . Assessment of Learning**

3(3,0). PR: Graduate standing, knowledge of measure or C.I. Alternative assessment procedures in educational settings (i.e., performance, portfolio, and affective) as well as traditional testing will be discussed. Emphasis will be placed on use of appropriate procedures to answer the evaluation questions.

ED-Educational Studies

**EDF 6447 . Development and Validation of Educational Tests and Measures**

3(3,0). 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.

ED-Ed Research, Tech & Lead

**EDF 6481 . Fundamentals of Graduate Research in Education**

3(3,0). 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.

ED-Ed Research, Tech & Lead

**EDF 6486 . Research Design in Education**

3(3,0). 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.

ED-Ed Research, Tech & Lead

**EDF 6517 . Perspectives on Education**

3(3,0). PR: Graduate standing. A critical analysis of the conceptual and operative educational systems developed in the United States.

ED-Educational Studies

**EDF 6608 . Social Factors in American Education**

3(3,0). Analysis of general and specific aspects of American education as they relate to social and behavioral sciences.

ED-Educational Studies

**EDF 6809 . Introduction to Comparative and International Education**

3(3,0). PR: Graduate standing. Surveys the salient issues, perspectives and paradigms of comparative and international education, while introducing students to cross-national comparative research design.

ED-Educational Studies

**EDF 6884 . Education as A Cultural Process**

3(3,0). PR: Graduate standing, EDF 6886, or C.I. An analysis of the theoretical underpinnings of multicultural education with special emphasis on the cultural context of American education for minority groups.

ED-Educational Studies

**EDF 6886 . Multicultural Education**

3(3,0). A survey of multicultural education: analysis of the relationship between cultural transmission, cultural pluralism, and the learning process within American schools.

ED-Educational Studies

**EDF 7232 . Analysis of Learning Theories in Instruction**

3(3,0). PR: Advanced graduate standing or C.I. Analysis of theories and research relevant to understanding learning in educational settings.

ED-Educational Studies

**EDF 7403 . Quantitative Foundations of Educational Research**

3(3,0). PR: EDF 6401 or C.I. Examination of appropriate methods in applied educational contexts. Consideration of analysis strategies for educational data, emphasis on identification and interpretation of findings.

ED-Ed Research, Tech & Lead

**EDF 7463 . Analysis of Survey, Record, and Other Qualitative Data**

3(3,0). PR: EDF 6401. Applications of summative evaluation for education: interpretation of impact data, measurement scales, survey and record data.

ED-Ed Research, Tech & Lead

**EDF 7473 . Ethnography in Educational Settings**

3(3,0). PR: Admission to Doctoral program. Exploration and integration of theories and practices of naturalistic, field-based studies of educational settings, proceeding from conceptualization, through data collection and analysis, to results presentation.

ED-Ed Research, Tech & Lead

**EDF 7475 . Qualitative Research in Education**

3(3,0). 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.

ED-Ed Research, Tech & Lead

**EDG 5745 . Teaching the Non-English Student**

3(3,0). PR: C.I. Bilingual and non-linguistic instruction in curriculum areas in English as a second language.

ED-Educational Studies

**EDG 5941 . Clinical Practice**

2-8(0,11). 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.

ED-Educational Studies

**EDG 6046 . Contemporary Issues in Education**

3(3,0). An analysis of current trends in education and their impact on educational programs.

ED-Educational Studies

**EDG 6223 . Curriculum Theory and Organization**

3(3,0). An exploration and examination of the foundations, design, development, and organization of curriculum in K-Plus settings and professional's roles in curriculum decision-making.

ED-Educational Studies

**EDG 6224 . Curriculum Policy Analysis**

3(3,0). PR: Graduate standing. Overview and synthesis of major components of policy involving curriculum. Exploration of the relationship between curriculum policy and curriculum evaluation as parts of analysis.

ED-Educational Studies

**EDG 6236 . Principles of Instruction**

3(3,0). PR: EDF 6481 or C.I. The analysis and application of selected concepts and theories of learning in relation to curriculum design, classroom strategies, and instructional techniques.

ED-Educational Studies

**EDG 6253 . Curriculum Inquiry**

3(3,0). 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.

ED-Ed Research, Tech & Lead

**EDG 6285 . Evaluation of School Programs**

3(3,0). 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.

ED-Ed Research, Tech & Lead

**EDG 6327 . Techniques of Game Use in Education**

3(3,0). Analysis, development, and use of educational games as an approach to classroom teaching.

ED-Educational Studies

**EDG 6940 . Graduate Internship**

1-8(0,1-8). PR: Approval of Student Internship Office. Internship in an appropriate educational setting under the direction of a qualified field supervisor and/or a university supervisor. (May be repeated for credit.)

ED-Educational Studies

**EDG 7221 . Advanced Curriculum Theory**

3(3,0). PR: EDG 6223 or C.I. An analysis of the research base which supports the various dimensions of the curriculum field.

ED-Educational Studies

**EDG 7356 . Models of Teaching and Instructional Theory**

3(3,0). 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.

ED-Educational Studies

**EDG 7692 . Issues in Curriculum**

3(3,0). 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.

ED-Educational Studies

**EDH 5306 . Teaching Methods in Engineering**

1(1,0). PR: Graduate standing in an engineering discipline. This course will cover basic teaching pedagogy to help engineering students become better TA's and help students deliver better technical presentations.

ECS-Mechanical/Matrls/Aerosp

**EDH 6053 . The Community College in America**

3(3,0). PR: C.I. Study of the history, philosophy, goals, and mission of the community college. Functions, policies, practices to satisfy local needs.

ED-Ed Research, Tech & Lead

**EDH 6061 . Contemporary Problems in Community Colleges**

3(3,0). PR: EDH 6204 or C.I. Analysis of the critical issues facing community colleges today and in the near future.

ED-Ed Research, Tech & Lead

**EDH 6065 . History and Philosophy of Higher Education**

3(3,0). PR: C.I. Early European and American universities, both state and private. Also considers small and private junior and senior colleges.

ED-Ed Research, Tech & Lead

**EDH 6204 . Community College Organization, Administration, and Supervision**

3(3,0). PR: C.I. An analysis of the organizational structure and administrative functions of the community college as they relate to instruction and curriculum.

ED-Ed Research, Tech & Lead

**EDH 6215 . Community College Curriculum**

3(3,0). PR: C.I. Examination of the background, development, function, and goals of the curriculum of the community college.

ED-Ed Research, Tech & Lead

**EDH 6305 . Teaching and Learning in the Community College**

3(3,0). PR: EDF 7232. Focuses on teaching effectiveness in the community college.

ED-Ed Research, Tech & Lead

**EDH 6505 . Finance in Higher Education**

3(3,0). PR: Completion of Phase II of Education Professional Preparation or C.I. Fundamental considerations in the finance of institutions of higher education.

ED-Ed Research, Tech & Lead

**EDM 6047 . Understanding the Young Adolescent**

3(3,0). PR: Graduate standing. An exploration of the unique characteristics of adolescence: social, emotional, intellectual, physical and implications for education.

ED-Educational Studies

**EDM 6235 . Contemporary Issues of Middle Level Education**

3(3,0). PR: Graduate standing or C.I. Critical analysis of the contemporary educational issues that directly impact middle-level schools.  
ED-Educational Studies

**EDM 6321 . Middle Level Instruction**

3(3,0). PR: Graduate standing. Examination of new models for teaching including brain research, multiple intelligences, learning styles, cooperative learning appropriate for young adolescents.  
ED-Educational Studies

**EDM 6401 . Principles of Middle Level Education**

3(3,0). PR: Graduate standing. Development of a professional understanding of middle schools: rationale, organization, instructional strategies and characteristics of exemplary middle schools.  
ED-Educational Studies

**EDP 6056 . Advanced Educational Psychology**

3(3,0). PR: Graduate admission and C.I. Principles of educational psychology for teaching, intervention, and educational services in schools.  
ED-Child, Family & Comm Serv

**EDS 5356 . Supervision of Professional Laboratory Experiences**

3(2,1). PR: C.I. Study of the undergraduate professional laboratory experiences program, with emphasis on the role and responsibilities of the Teacher Education Associate or Supervising Teacher.  
ED-Ed Research, Tech & Lead

**EDS 6053 . Trends in Educational Supervision**

3(3,0). PR: Basic supervision course or C.I. Examination and analysis of the trends, issues, and problems in educational supervision.  
ED-Ed Research, Tech & Lead

**EDS 6100 . Leadership**

3(3,0). 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.  
ED-Ed Research, Tech & Lead

**EDS 6123 . Educational Supervisory Practices I**

3(3,0). 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.  
ED-Ed Research, Tech & Lead

**EDS 6130 . Educational Supervisory Practices II**

3(3,0). 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.  
ED-Ed Research, Tech & Lead

**EDS 7111 . Administration and Supervision of Staff Development**

3(2,1). PR: Basic Teacher Certificate or C.I. Role and procedures for the supervisor or administrator in staff development. Assessment of staff development needs and delivery systems are stressed.  
ED-Ed Research, Tech & Lead

**EEC 5205 . Programs and Trends in Early Childhood Education**

3(3,0). 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.

ED-Child, Family & Comm Serv

**EEC 5206 . Organization of Instruction in Early Childhood Education**

3(3,0). PR: Regular Certificate or C.I. Organization in instruction relating to language arts, social sciences, mathematics, health and physical education, problems relating to reading readiness and cognition (K-3). Concurrent laboratory experiences.

ED-Child, Family & Comm Serv

**EEC 5208 . Creative Activities in Early Childhood**

3(3,0). PR: Regular Certificate or C.I. Organization of instruction and methods for creative activities involving music, art, literature and educational toys, integration of activities, and basic skills curriculum (K-3). Concurrent laboratory experience.

ED-Child, Family & Comm Serv

**EEC 6268 . Play Development, Intervention, and Assessment**

3(3,0). Explores play development, facilitation, intervention, and assessment.

ED-Child, Family & Comm Serv

**EEC 6406 . Guiding and Facilitating Social Competence**

3(3,0). Provides students with techniques to facilitate and guide the behavior and emotional growth of young children.

ED-Child, Family & Comm Serv

**EED 6071 . Behavior Disorders in Schools**

3(3,0). PR: Basic Teacher Certificate or C.I. Assessment analysis of behavior disorders, cause and effects, identification and theories.

ED-Child, Family & Comm Serv

**EED 6226 . Theory and Application for EH**

3(3,0). 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.

ED-Child, Family & Comm Serv

**EEL 5173 . Linear Systems Theory**

3(3,0). PR: EEL 3657. Models and properties of linear systems, transformation, controllability and observability, control and observer designs, MFD, and realization theory.

ECS-Elect Engr & Computer Sci

**EEL 5245C . Power Electronics**

3(2,1). PR: EEL 4309C. Principles of power electronics, power semiconductor devices, inverter topologies, switch-mode and resonant dc-to-dc converters, cyclo-converters, applications.

ECS-Elect Engr & Computer Sci

**EEL 5332C . Thin Film Technology**

3(2,1). PR: EEL 3306 or equivalent. Presents the various thin film deposition techniques for the fabrication of microelectronic, semiconductor, and optical devices.

ECS-Elect Engr & Computer Sci

**EEL 5352 . Semiconductor Material and Device Characterization**

3(3,0). 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.

ECS-Elect Engr & Computer Sci

**EEL 5353 . Semiconductor Device Modeling and Simulation**

3(3,0). PR: EEL 3307C. Large signal and small signal model development for semiconductor diodes, BJTs, and MOSFETs. Parameter extraction, numerical algorithm, and SPICE simulation are included.

ECS-Elect Engr & Computer Sci

**EEL 5355C . Fabrication of Solid-State Devices**

4(3,3). PR: EEL 3306. Fabrication of microelectronic devices, processing technology, ion implantation and diffusion, device design, and layout. Laboratory includes device processing technology.

ECS-Elect Engr & Computer Sci

**EEL 5357 . CMOS Analog and Digital IC Design**

3(3,0). PR: EEL 3306 and EEL 4309C. 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.

ECS-Elect Engr & Computer Sci

**EEL 5370 . Operational Amplifiers**

3(3,0). PR: EEL 4309C. Ideal and non-ideal Op-Amps. Linear applications. Active RC and switched-capacitor filters. Non-linear and other functional circuits. Frequency stability and compensation of Op-Amps.

ECS-Elect Engr & Computer Sci

**EEL 5432 . Satellite Remote Sensing**

3(3,0). 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.

ECS-Elect Engr & Computer Sci

**EEL 5434 . Microwave Circuits and Devices**

3(3,0). PR: EEL 4436C or EEL 5555C. Planar transmission lines; passive microwave circuits; active circuit design using Gunn, IMPATT, FETS, RTDS, etc.; microwave integrated circuits.

ECS-Elect Engr & Computer Sci

**EEL 5462C . Antenna Analysis and Design**

3(3,1). PR: EEL 3470 or equivalent. Fundamentals of antennas; dipoles, loops, arrays, apertures, and horns. Analysis and design of various antennas.

ECS-Elect Engr & Computer Sci

**EEL 5513 . Digital Signal Processing Applications**

3(3,0). PR: EEL 4750. The design and practical consideration for implementing Digital Signal Processing Algorithms including Fast Fourier Transform techniques, and some useful applications.

ECS-Elect Engr & Computer Sci

**EEL 5517 . Surface Acoustic Wave Devices and Systems**

3(3,0). 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.  
ECS-Elect Engr & Computer Sci

**EEL 5542 . Random Processes I**

3(3,0). PR: EEL 3552C and STA 3032. Elements of probability theory, random variables, and stochastic processes.  
ECS-Elect Engr & Computer Sci

**EEL 5547 . Introduction to Radar Systems**

3(3,0). PR: EEL 3552C. Introduction to Pulse and CW Radar Systems. Chirp Radar Systems. Tracking Radar. Noise in Radar Systems.  
ECS-Elect Engr & Computer Sci

**EEL 5555C . RF and Microwave Communications**

3(2,2). RF and microwave active circuits microstrip amplifier, oscillator, and mixer design and fabrication. Receiver design, noise, familiarization with network and spectrum analyzers  
ECS-Elect Engr & Computer Sci

**EEL 5630 . Digital Control Systems**

3(3,0). PR: EEL 3657. Real-time digital control system analysis and design, Z-transforms, sampling and reconstruction, time and frequency response, stability analysis, digital controller design.  
ECS-Elect Engr & Computer Sci

**EEL 5704 . Computer Aided Logical Design**

3(3,0). PR: EEL 4767C. Design, analysis and synthesis of sequential logic circuits and systems. Data path and controller design using a hardware description language.  
ECS-Elect Engr & Computer Sci

**EEL 5708 . High Performance Computer Architecture**

3(3,0). PR: EEL 4767C. Engineering of high performance computer systems. Memory, processor and control sub-systems design tradeoffs. Virtual and cache memory. Pipelining, vector computing.  
ECS-Elect Engr & Computer Sci

**EEL 5741C . Microcomputer-based Monitoring and Control Systems**

3(2,3). PR: EEL 3342C, EEL 4767C, or C.I. Machine language programming; software development aids; systems design; interfacing considerations.  
ECS-Elect Engr & Computer Sci

**EEL 5762 . Performance Analysis of Computer and Communication Systems**

3(3,0). PR: EEL 4767C, STA 3032. Stochastic modeling and discrete-event simulation; Markov chains; networks of queues; SemiMarkov models; application to multiprocessor systems, switching and multi-user communications.  
ECS-Elect Engr & Computer Sci

**EEL 5771C . Engineering Applications of Computer Graphics**

3(2,3). PR: EGN 3420 or C.I. Computer graphics in engineering applications. Laboratory assignments.  
ECS-Elect Engr & Computer Sci

**EEL 5820 . Image Processing**



3(3,0). 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.  
ECS-Elect Engr & Computer Sci

**EEL 5825 . Pattern Recognition**

3(3,0). 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.  
ECS-Elect Engr & Computer Sci

**EEL 5860 . Software Requirements Engineering**

3(3,0). PR: Graduate standing or C.I. Excellent oral and written communication skills. Excellent problem solving skills. In-depth study of software requirements engineering within a process centered framework. methods for requirements elicitation, analysis, description, and validation. Formal and informal specification.  
ECS-Elect Engr & Computer Sci

**EEL 5874 . Expert Systems and Knowledge Engineering**

3(3,0). 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.  
ECS-Elect Engr & Computer Sci

**EEL 5881 . Software Engineering I**

3(3,0). PR: EGN 3420, EEL 4851C or C.I. Design, implementation, and testing of computer software for Engineering applications.  
ECS-Elect Engr & Computer Sci

**EEL 5891 . Continuous System Simulation I**

3(3,0). PR: EEL 3657 or C.I. Use of state-space techniques, numerical integration, and CSSL programs. Laboratory assignments.  
ECS-Elect Engr & Computer Sci

**EEL 6064 . Architecture and Design of Software Intensive Systems**

3(3,0). PR: Graduate standing or C.I.; and EEL 4851C or equivalent; and EEL 4884C or EEL 5881. In-depth study of software architecture and design of engineering complex software-intensive systems. Theory and practice.  
ECS-Elect Engr & Computer Sci

**EEL 6065 . Formal Approaches to Specification of Software-Intensive Systems**

3(3,0). PR: Graduate standing or C.I.; and discrete math and matrix algebra (equivalent to STA 3032, EGN 3420, and EEL 4832); and EEL 5881 or EEL 5860. Issues and current research in formal specification and verification of software-intensive systems. mathematical models and formalisms. Projects, presentations, analysis of literature.  
ECS-Elect Engr & Computer Sci

**EEL 6208 . Advanced Machines**

3(3,0). 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 operation of electric machines with solid state drives.  
ECS-Elect Engr & Computer Sci

**EEL 6246 . Power Electronics II**

3(3,0). PR: EEL 5245C. Advanced topics in power electronics, soft-switching techniques, small-signal modeling of PWM and resonant

converters, control techniques, power factor correction circuits.  
ECS-Elect Engr & Computer Sci

**EEL 6255 . Advanced Power Systems Analysis**

3(3,0). PR: EEL 4216 or C.I. Continuation of EEL 4216. Topics to include symmetrical and unsymmetrical fault analysis, power system estimation and control and power system stability.  
ECS-Elect Engr & Computer Sci

**EEL 6269 . Advanced Topics in Power Engineering**

3(3,0). PR: EEL 6255. A current topic will be discussed such as power system transients, system protection, T&D, and dielectric engineering.  
ECS-Elect Engr & Computer Sci

**EEL 6338 . Advanced Topics in Microelectronics**

3(3,0). PR: C.I. Covers advanced topics in microelectronics such as semiconductor device physics, semiconductor device fabrication, and semiconductor device modeling.  
ECS-Elect Engr & Computer Sci

**EEL 6354 . Advanced Semiconductor Device I**

3(3,0). PR: EEL 3306. First course in advanced semiconductor device physics and modeling. Main stream devices including junctions diode, bipolar transistor, and metal-oxide field-effect transistor.  
ECS-Elect Engr & Computer Sci

**EEL 6371 . Advanced Electronics I**

3(3,0). 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.  
ECS-Elect Engr & Computer Sci

**EEL 6372 . Advanced Topics in Electronics**

3(3,0). PR: EEL 6371 or C.I. Advanced and current topics in electronics such as power electronics and semiconductor integrated circuits.  
ECS-Elect Engr & Computer Sci

**EEL 6463 . Antenna Analysis and Design II**

3(3,0). PR: EEL 5462C. Moment method, GTD, aperture antennas, reflectors, frequency independent antennas and microstrip antennas.  
ECS-Elect Engr & Computer Sci

**EEL 6488 . Electromagnetic Fields**

3(3,0). PR: EEL 3470 or C.I. Maxwell's equations. Boundary conditions. Propagation, reflection, and refraction of waves. Guided waves. Radiation.  
ECS-Elect Engr & Computer Sci

**EEL 6492 . Advanced Topics in Electromagnetics and Microwaves**

3(3,0). PR: C.I. Advanced and current topics in EM fields, antennas, and microwaves.  
ECS-Elect Engr & Computer Sci

**EEL 6502 . Adaptive Digital Signal Processing**

3(3,0). PR: EEL 5513 or C.I. Wiener filtering, Least Mean Square and Recursive Least Squares based algorithms, adaptive prediction and identification with applications such as echo cancellation, etc.  
ECS-Elect Engr & Computer Sci

**EEL 6504 . Communications Systems Design**

3(3,0). PR: EEL 6530. Information and coding theory. Modem design. Binary and M-ary modulations. Intersymbol interference and pulse shaping. DS and FS spread-spectrum systems.  
ECS-Elect Engr & Computer Sci

**EEL 6505 . Multidimensional Digital Processing**

3(3,0). PR: EEL 5513 or C.I. Multidimensional signals and systems. Two-dimensional transforms and filters. Image processing applications.  
ECS-Elect Engr & Computer Sci

**EEL 6530 . Communication Theory**

3(3,0). 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.  
ECS-Elect Engr & Computer Sci

**EEL 6537 . Detection and Estimation**

3(3,0). PR: EEL 6543. Use of hypothesis testing (Bayes, Minimax, Neyman-Pearson) and estimation theory (Bayes, Maximum-likelihood) for detecting or estimating signals in noise. Application in communications and radar.  
ECS-Elect Engr & Computer Sci

**EEL 6543 . Random Processes II**

3(3,0). PR: EEL 5542. Stochastic processes. Mean-squared estimation. Queueing theory. Spectral estimation. Applications to communications and radar systems.  
ECS-Elect Engr & Computer Sci

**EEL 6558 . Advanced Topics in Digital Signal Processing**

3(3,0). PR: C.I. Advanced and current topics in digital signal processing, such as neural network, spectral analysis, speech processing.  
ECS-Elect Engr & Computer Sci

**EEL 6564 . Statistical Optics with Applications**

3(3,0). PR: OSE 5041 and EEL 5542, or C.I. Characterization of random optical waves with applications in communications, turbulence scattering, and imaging.  
ECS-Elect Engr & Computer Sci

**EEL 6590 . Advanced Topics in Communications**

3(3,0). PR: C.I. Advanced and current topics in communications, such as coding theory, information theory, spread spectrum, etc.  
ECS-Elect Engr & Computer Sci

**EEL 6616 . Adaptive Control**

3(3,0). PR: EEL 5173. System identification and adaptive control design, including identification algorithms, MRAC, STR, and stochastic adaptive control. Lyapunov stability and input-output stability.  
ECS-Elect Engr & Computer Sci

**EEL 6617 . Fundamentals of Modern Multivariable Control**

3(3,0). 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.

ECS-Elect Engr & Computer Sci

**EEL 6619 . Nonlinear Robust Control and Applications**

3(3,0). PR: EEL 5173 and EEL 6621. Stability, performance and robustness of nonlinear systems with uncertainties, Lyapunov-based designs, recursive designs and nonlinear optimal designs.

ECS-Elect Engr & Computer Sci

**EEL 6621 . Nonlinear Control Systems**

3(3,0). 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.

ECS-Elect Engr & Computer Sci

**EEL 6662 . Design of Robot Control Systems**

3(3,0). PR: EEL 5173. Coordinate transformation, differential equation of motion, trajectory planning, trajectory control, classical controls, advanced controls, force control, constrained motions, and redundancy

ECS-Elect Engr & Computer Sci

**EEL 6671 . Modern and Optimal Control Systems**

3(3,0). PR: EEL 5173. The optimal control problem. Necessary conditions for constrained minimums in finite dimensional space. Application to discrete time control problems. Pontryagin conditions and Hamilton-Jacobi equations. Computational considerations.

ECS-Elect Engr & Computer Sci

**EEL 6674 . Optimal Estimation for Control**

3(3,0). 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.

ECS-Elect Engr & Computer Sci

**EEL 6680 . Advanced Topics in Modern Control Systems**

3(3,0). PR: C.I. Introduces students to present-day issues in control systems analysis, design, and implementation.

ECS-Elect Engr & Computer Sci

**EEL 6707 . Parallel Processing**

3(3,0). 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.

ECS-Elect Engr & Computer Sci

**EEL 6708 . Computer Systems Design**

3(3,0). PR: EEL 5704 or C.I. Study of digital systems and computer architecture using digital design language. Specification and design of computer systems. Comparison of software and hardware solutions.

ECS-Elect Engr & Computer Sci

**EEL 6743C . Microcomputer Applications Design**

3(2,3). PR: EEL 5741C or C.I. Advanced applications of microcomputer systems. Design of systems and software to implement a case study in microcomputer usage.

**EEL 6763 . Current Topics in Parallel Processing**

3(3,0). 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.

ECS-Elect Engr & Computer Sci

**EEL 6769 . Parallel Knowledge Processing Systems**

3(3,0). PR: EEL 5762 and EEL 5874 and EEL 6707 or C.I. Design and performance of computer architectures supporting parallel reasoning techniques, including concurrency in search algorithms, genetic algorithms, semantic networks, marker-propagation, and rule-based systems.

ECS-Elect Engr & Computer Sci

**EEL 6785 . Computer Network Design**

3(3,0). PR: EEL 4768C or C.I. Network types and network protocols. Design of networks and analysis of their performance.

ECS-Elect Engr & Computer Sci

**EEL 6812 . Introduction to Neural Networks**

3(3,0). PR: EEL 5825 or C.I. Artificial neural network theory, models, and architectures. Neurobiological basis, learning theory, applications, and hardware implementation issues.

ECS-Elect Engr & Computer Sci

**EEL 6823 . Image Processing II**

3(3,0). 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.

ECS-Elect Engr & Computer Sci

**EEL 6843 . Machine Perception**

3(3,0). 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.

ECS-Elect Engr & Computer Sci

**EEL 6845 . Intelligent Control**

3(3,0). PR: C.I. Design and development of intelligent machine systems; decision theory; intelligence modeling; neural models; advanced techniques in intelligent control.

ECS-Elect Engr & Computer Sci

**EEL 6857 . Engineering Data Reduction**

3(3,0). PR: C.I. Digital analysis of multidimensional data. Applications of multidimensional orthogonal transforms.

ECS-Elect Engr & Computer Sci

**EEL 6875 . Engineering of Artificial Intelligence Systems**

3(3,0). 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.

ECS-Elect Engr & Computer Sci

**EEL 6876 . Current Topics in Artificial Intelligence in Engineering Systems**

3(3,0). 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.

ECS-Elect Engr & Computer Sci

**EEL 6878 . Modeling and Artificial Intelligence**

3(3,0). 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 .

ECS-Elect Engr & Computer Sci

**EEL 6883 . Software Engineering II**

3(3,0). PR: EEL 5881 or equivalent; C.I. Continuation of EEL 5881. Emphasis on term projects and case studies.

ECS-Elect Engr & Computer Sci

**EEL 6885 . Software Engineering Quality Assurance Methods**

3(3,0). PR: EEL 5881, EEL 6883. Methods for verification and validation of software quality, including software engineering metrics and models.

ECS-Elect Engr & Computer Sci

**EEL 6886 . Software Testing Theory**

3(3,0). PR: Graduate standing or C.I.; and Probability and Statistics; Calculus through Differential Equations; Numerical Methods and Matrix Algebra; Data Structures and Algorithms; C or C++ programming. Issues and current research in testing software-intensive systems. Application of mathematics, statistics, and operations research to software test; test automation; projects and analysis of literature.

ECS-Elect Engr & Computer Sci

**EEL 6887 . Software Engineering Life-Cycle Control**

3(3,0). PR: EEL 5881, EEL 6883. Issues in software development life-cycle control including project cost and time estimation, methods and models, manpower allocation, and system configuration management.

ECS-Elect Engr & Computer Sci

**EEL 6893 . Continuous System Simulation II**

3(3,0). PR: EEL 5891. Continuation of EEL 6426 including advanced features of Continuous Simulation Languages such as user-defined macros, linear analysis package, sampled data systems. A simulation study term project is required.

ECS-Elect Engr & Computer Sci

**EEL 6895 . Current Issues in Real-Time Simulation**

3(3,0). PR: EEL 5771C, EEL 5891. Design considerations in real-time, computer-based, training simulator systems. Laboratory assignments.

ECS-Elect Engr & Computer Sci

**EEL 6897 . Software Development for Real-Time Engineering Systems**

3(3,0). PR: EEL 5881, EEL 6883. Issues associated with developing software for real-time systems, including parallel processing, task synchronization, and task scheduling.

ECS-Elect Engr & Computer Sci

**EES 5605 . Outdoor Noise Control**

3(3,0). PR: C.I. Community noise evaluation and control, legislative standards, instrumentation and measurement, abatement methods, and noise modeling.

ECS-Civil & Environmental

**EEX 5051 . Exceptional Children in the Schools**

3(3,0). PR: Senior standing or C.I. Characteristics, definitions, educational problems, and appropriate educational programs for the exceptional children in schools.

ED-Child, Family & Comm Serv

**EEX 5702 . Planning Curriculum for Pre-kindergarten Children with Disabilities**

3(3,0). Focus on curriculum planning; developmentally appropriate practices and implementation of individualized instruction for pre-kindergarten children with disabilities.

ED-Child, Family & Comm Serv

**EEX 5750 . Communication with Parents and Agencies**

3(3,0). Presentation of methods of interacting with community agencies, supporting and collaborating with families, developing a case management system, and facilitating program transition.

ED-Child, Family & Comm Serv

**EEX 6017 . Typical and Atypical Applied Child Development**

3(3,0). Focus on the stages and sequence of development and the impact of disabilities and biomedical risk factors on learning and development.

ED-Child, Family & Comm Serv

**EEX 6061 . Instructional Strategies PREK-6**

3(3,0). 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.

ED-Child, Family & Comm Serv

**EEX 6065 . Instructional Strategies 6-12**

3(3,0). 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.

ED-Child, Family & Comm Serv

**EEX 6107 . Teaching Spoken and Written Language**

3(3,0). Diagnosis and remediation of spoken and written language problems found in the exceptional populations. Overview of alternative methods of communication.

ED-Child, Family & Comm Serv

**EEX 6224 . Observation and Assessment of Young Children**

3(3,0). Study of formal and informal observation and assessment.

ED-Child, Family & Comm Serv

**EEX 6266 . Assessment and Curriculum Prescriptions for the Exceptional Population**

3(3,0). Addresses contemporary assessments and models for assessing exceptional children. Also addresses curriculum and prescription.

ED-Child, Family & Comm Serv

**EEX 6342 . Seminar?Critical Issues in Special Education**

3(3,0). PR: EEX 5051. An examination of research and current literature dealing with some of the critical issues in all areas of special education.

ED-Child, Family & Comm Serv

**EEX 6524 . Organization and Collaboration in Special Ed**

3(3,0). PR: C.I. Addresses evaluation, assessment, personnel resource, grant writing, and other administrative issues. Presents collaborative models of intervention and service delivery.

ED-Child, Family & Comm Serv

**EEX 6612 . Methods of Behavioral Management**

3(3,0). Analysis of the principles of behavior management and precision teaching and application of these principles to the solving of classroom management problems.

ED-Child, Family & Comm Serv

**EEX 6863 . Supervised Teaching Practicum with Exceptional Children**

2-7(12-40). PR: Bachelor's degree, approved program, and C.I. Supervised observation and teaching of an exceptional student.

ED-Child, Family & Comm Serv

**EGC 6437 . Advanced Counseling Techniques**

3(3,0). PR: MHS 6400, MHS 6401, or C.I. A presentation of advanced techniques, approaches and strategies to counseling and psychotherapy. Includes an experiential component.

ED-Child, Family & Comm Serv

**EGI 6051 . Understanding the Gifted/Talented Student**

3(3,0). A study of characteristics of the gifted/talented students; theories and research; identification procedures; special problems; educational forces.

ED-Child, Family & Comm Serv

**EGI 6245 . Program Planning and Methodology for Gifted/Talented Students**

4(4,0). A study of organization, curriculum, strategies, and activities for the gifted/talented student; diagnostic teaching; learning-teaching styles; instructional materials; individualized instruction.

ED-Child, Family & Comm Serv

**EGI 6246 . Education of Special Populations of Gifted Students**

3(3,0). Focuses on needs of gifted subgroups, including females, minorities, handicapped, and students with learning and emotional problems. S.E.

ED-Child, Family & Comm Serv

**EGI 6305 . Theory and Development of Creativity**

3(3,0). This course focuses on the concept of creativity and explores various means of integrating creative strategies and instructional content areas.

ED-Child, Family & Comm Serv

**EGN 5035 . Topics in Technological Development**

3(3,0). PR: C.I. Selected topics in the technological development of western civilization including the weight-driven clock, steam engine, electric light, etc.



**EGN 5720 . Internal Combustion Engine Analysis and Optimization**

3(2,3). 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.

ECS-Industrial & Management

**EGN 5840 . Small Rocket Applications for Teachers**

3(3,0). 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.

ECS-College-ECS

**EGN 5855C . Metrology**

3(2,2). PR: EIN 4391C or C.I. Advanced topics in inspection and measurement with applications in engineering and manufacturing.

ECS-Industrial & Management

**EGN 5858C . Introduction to Rapid Prototyping**

3(2,2). 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.

ECS-Industrial & Management

**EGN 6721C . Experimental Methods for High Performance Engine Manufacturing**

3(2,3). PR: EGN 5270C; ESI 6247; STA 5205 OR STA 6207; or C.I. This course examines the unique problems encountered when one-off manufacturing of high performance engines due to the high level of component interaction.

ECS-Industrial & Management

**EIN 5108 . The Environment of Technical Organizations**

3(3,0). PR: Graduate status or CI; EGN 4624 recommended. Presentation and investigation into the principles required to transform technologists into managers focusing on engineers, scientists, and other professionals providing services in technically-oriented organizations.

ECS-Industrial & Management

**EIN 5117 . Management Information Systems I**

3(3,0). 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.

ECS-Industrial & Management

**EIN 5140 . Project Engineering**

3(3,0). PR: Graduate standing or C.I. Role of engineer in project management with emphasis on project life cycle, quantitative and qualitative methods of cost, schedule, and performance control.

ECS-Industrial & Management

**EIN 5248C . Ergonomics**

3(2,2). PR: C.I. Applications of anthropometry, functional anatomy, mechanics, and physiology of musculoskeletal system concepts in the engineering design of industrial tools, equipments, and workstations.

ECS-Industrial & Management

**EIN 5251 . Human-Computer Interaction: Usability Evaluation**

3(3,0). Usability paradigms/principles; cognitive walkthroughs; heuristic, review-based, model-based, empirical and storyboard evaluation; techniques; query techniques; laboratory techniques; and field study approaches.

ECS-Industrial & Management

**EIN 5255 . Interactive Simulation**

3(3,0). PR: Post-Baccalaureate status or C.I. Introduction to significant topics relative to the development and use of simulators for knowledge transfer in the technical environment.

ECS-Industrial & Management

**EIN 5317 . Training System Design**

3(3,0). PR: Seniors, post-bac or graduate standing or C.I. How human performance deficiencies should be addressed from a systems design point of view. Manpower, personnel, and training considerations will be examined.

ECS-Industrial & Management

**EIN 5356 . Cost Engineering**

3(3,0). Cost estimation and control of engineering systems throughout the product life cycle.

ECS-Industrial & Management

**EIN 5368C . Integrated Factory Automation Systems**

3(2,2). PR: EIN 4391C or C.I. Automated material handling systems, industrial robots, automated guided vehicles, automated storage and retrieval systems, economics, justification.

ECS-Industrial & Management

**EIN 5381 . Engineering Logistics**

3(3,0). Study of the logistics life cycle involving planning, analysis and design, testing, production, distribution, and support.

ECS-Industrial & Management

**EIN 5388 . Forecasting**

3(3,0). PR: ESI 5219. Industrial applications of forecasting methods with emphasis on microcomputer-based packages.

ECS-Industrial & Management

**EIN 5392C . Manufacturing Systems Engineering**

3(2,2). PR: EIN 4391C or C.I. The integration of manufacturing technologies and information processing concepts into a system for controlling the manufacturing enterprise.

ECS-Industrial & Management

**EIN 5415C . Tool Engineering and Manufacturing Analysis**

3(2,2). PR: EIN 4411C. Tool materials and design, tolerance technology, theory of metal cutting, and machineability.

ECS-Industrial & Management

**EIN 5602C . Expert Systems in Industrial Engineering**

3(2,2). Overview of basic concepts, architecture and construction of expert systems in IE. Intelligent simulation training systems, case studies and problems. Laboratory exercises.

ECS-Industrial & Management

**EIN 5607C . Computer Control of Manufacturing Systems**

3(2,2). 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.

ECS-Industrial & Management

**EIN 5936 . Seminar in Industrial Engineering: Doctoral Research**

1(1,0). PR: C.I. Essential topics for doctoral research including research areas, skills, funding, proposals, ethics, mentors, seminars, societies, conferences, presentations, interviewing, grants, and publishing.

ECS-Industrial & Management

**EIN 6215 . System Safety Engineering and Management**

3(3,0). PR: C.I. Occupational injury and accident statistic. Accident investigation and prevention methods. Hazard analysis. Occupational safety and health standards and regulations. Product safety and liability.

ECS-Industrial & Management

**EIN 6249C . Biomechanics**

3(2,2). 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.

ECS-Industrial & Management

**EIN 6258 . Human Computer Interaction**

3(2,2). Computer task analysis, human-computer design guidelines and history, usability testing, next generation user interfaces, human-virtual environment interaction.

ECS-Industrial & Management

**EIN 6264C . Industrial Hygiene**

3(2,2). 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.

ECS-Industrial & Management

**EIN 6270C . Work Physiology**

3(2,2). PR: EIN 5248C 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.

ECS-Industrial & Management

**EIN 6322 . Engineering Management**

3(3,0). PR: EIN 5117, EIN 5356, and EIN 5140. Capstone investigation and analysis of topics for improving engineering enterprises in national and international competitive environments. Quantitative engineering tools/methods will be used.

ECS-Industrial & Management

**EIN 6330 . Quality Control in Automation**

3(3,0). 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.

ECS-Industrial & Management

**EIN 6336 . Production and Inventory Control**

3(3,0). 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.  
ECS-Industrial & Management

**EIN 6339 . Operations Engineering**

3(3,0). PR: ESI 5219, ESI 5316, or C.I. Methods and models for design, management, and control of operational processes in engineering and technical organizations. Includes considerations of quality, productivity, performance, benchmarking, constraints, and strategy.  
ECS-Industrial & Management

**EIN 6357 . Advanced Engineering Economic Analysis**

3(3,0). PR: EGN 3613; STA 3032 or equivalent. Topics include measuring economic worth, economic optimization under constraints. Analysis of economic risk and uncertainty, foundations of utility functions.  
ECS-Industrial & Management

**EIN 6398 . Advanced and Nontraditional Manufacturing Processes**

3(3,0). PR: EIN 4391C or C.I. Latest methods and developments in manufacturing process engineering.  
ECS-Industrial & Management

**EIN 6399 . Concurrent Engineering**

3(3,0). Elements of concurrent engineering and its applications. Topics include quality function deployment, design for manufacturability, and design for assembly.  
ECS-Industrial & Management

**EIN 6417 . Precision Engineering**

3(3,0). PR: EGN 5855C or CI. Designing for high precision, machine accuracy, error reduction, thermal effects, coordinate measuring machines, and machine calibration with laser interferometry.  
ECS-Industrial & Management

**EIN 6418C . Electronics Manufacturing**

3(3,0). PR: EIN 4391C or C.I. Electronics fabrication and assembly, FMS and CAD/CAM in electronics, information and control systems, micromachining with lasers, and surface mount technology.  
ECS-Industrial & Management

**EIN 6425 . Scheduling and Sequencing**

3(3,0). Basic problems, models and techniques of scheduling. Emphasis on general job-shop scheduling problems. Analytical, graphical and heuristic methods are examined.  
ECS-Industrial & Management

**EIN 6524 . Simulation Modeling Paradigms**

3(3,0). PR: ESI 5219 and one of ESI 5531, ESI 6546 or EIN 6645. Modeling techniques and designs for simulation, conditions for use, and implementation algorithms. Introduction to modeling theory and formalisms for computer simulation.  
ECS-Industrial & Management

**EIN 6529 . Simulation Design and Analysis**

3(3,0). 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.  
ECS-Industrial & Management

**EIN 6603 . Readings in Expert Systems/AI in Industrial Engineering**

3(3,0). PR: EIN 5602C or equivalent. Reading and discussing current topics in expert systems/AI as applied to IE. Current literature in intelligent simulation training systems.

ECS-Industrial & Management

**EIN 6645 . Modeling and Simulation of Real-Time Processes**

3(3,0). PR: EIN 5255. Mathematical modeling and computer simulation of engineering and scientific systems. Examination of hardware, software, and solution methods for real-time systems

ECS-Industrial & Management

**EIN 6647 . Intelligent Simulation**

3(2,2). PR: EIN 6645 and EIN 6649C. The range of architectures and technologies relative to the simulation of intelligent processes.

ECS-Industrial & Management

**EIN 6649C . Intelligent Tutoring Training System Design**

3(2,2). PR: EIN 5317. A systems approach to building intelligent tutoring within training systems. Emphasis on removing the human instructor from the content training.

ECS-Industrial & Management

**EIN 6930 . Manufacturing Engineering Seminar**

3(3,0). PR: C.I. Presentation of latest manufacturing engineering technological advancements and related topics.

ECS-Industrial & Management

**EIN 6933 . Systems Acquisition**

3(3,0). What the engineer needs to know about the systems acquisition process when dealing with government contracting agencies.

ECS-Industrial & Management

**EIN 6934 . Contract Negotiations**

3(3,0). PR: EIN 6933. A seminar on the contract negotiation phase of systems acquisition for the United States Government; Contract Formulation and Acquisition Process Management is emphasized.

ECS-Industrial & Management

**EIN 6935 . Advanced Ergonomics Topics**

3(3,0). PR: C.I. Seminar treatment of selected advanced topics in ergonomics.

ECS-Industrial & Management

**EIN 6936 . Seminar in Advanced Industrial Engineering**

3(3,0). Topical seminar. Potential topic areas include quality function deployment, axiomatic design, design quality, benchmarking, re-engineering processes.

ECS-Industrial & Management

**ELD 6248 . Instructional Strategies for Students with Learning Disabilities**

3(3,0). Instructional strategies for students with specific learning disabilities to include development, implementation, and evaluation of individualized educational plans and adaptation of curriculum and materials.

ED-Child, Family & Comm Serv

**ELD 6944 . Diagnostic Learning-Disabilities Laboratory**

1(0,1). CR: ELD 6112 (Foundations and Diagnosis of LD). A laboratory designed for individual competence measurement of testing-evaluation skills.

ED-Child, Family & Comm Serv

**EMA 5060 . Polymer Science and Engineering**

3(3,0). PR: EGN 3365. Structure and properties of polymers, preparation and processing of polymers, mechanical properties, use in manufacturing and high-tech applications.

ECS-Mechanical/Matrls/Aersp

**EMA 5104 . Intermediate Structure and Properties of Materials**

3(3,0). PR: EGN 3365. Fundamentals of dislocation theory, metallurgical thermodynamics and diffusion. Phase transformations, strengthening mechanisms and fracture. Introduction to engineering polymers, ceramics, and composites.

ECS-Mechanical/Matrls/Aersp

**EMA 5106 . Metallurgical Thermodynamics**

3(3,0). PR: EGN 3343 and EGN 3365. Laws of thermodynamics, phase equilibria, reactions between condensed and gaseous phases, reaction equilibria in condensed solution and phase diagrams.

ECS-Mechanical/Matrls/Aersp

**EMA 5108 . Surface Science**

3(3,0). 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.

ECS-Mechanical/Matrls/Aersp

**EMA 5140 . Introduction to Ceramic Materials**

3(3,0). PR: EGN 3365. Uses, structure, physical and chemical properties, and processing of ceramic materials. Discussions will include recent developments for high technology applications.

ECS-Mechanical/Matrls/Aersp

**EMA 5317 . Materials Kinetics**

3(3,0). PR: Materials Thermodynamics. Topics include Arrhenius law, free energy, Johnson-Mehl equations, homogenous vs. heterogeneous reactions, mixing, electrodeposition, thermal analysis in kinetics. Graded S/U.

ECS-Mechanical/Matrls/Aersp

**EMA 5326 . Corrosion Science and Engineering**

3(3,0). PR: EGN 3365. Electrochemical principles and applications to detecting and monitoring corrosion processes. Various forms of corrosion, their causes and control. Techniques of corrosion protection.

ECS-Mechanical/Matrls/Aersp

**EMA 5504 . Modern Characterization of Materials**

3(2,2). 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.

ECS-Mechanical/Matrls/Aersp

**EMA 5505 . Scanning Electron Microscopy**

3(2,2). 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  
ECS-Mechanical/Matrls/Aersp

**EMA 5517 . Advanced Materials Characterization by Ion Beam Analysis**

3(2,2). PR: EMA 5504 or C.I. Principle of interactions between ion beam and solid materials; sputtering and scattering theories; fundamentals and applications of secondary ion mass and Rutherford Backscattering spectrometric. May be repeated for credit.  
ECS-Mechanical/Matrls/Aersp

**EMA 5584 . Biomaterials**

3(3,0). PR: EGN 3365. Properties of natural biological materials and their relation to microstructure, biocompatibility, specific applications in orthopedic, cardiovascular, visual, neural, and reconstruction implants.  
ECS-Mechanical/Matrls/Aersp

**EMA 5586 . Photovoltaic Solar Energy Materials**

3(3,0). PR: EGN 3365. Materials properties basic to photovoltaics, structures, homojunction, heterojunction, and surface barrier solar cells, AMDS-ID modeling of c-Si, GaAs bulk and a-Si:H, CIGS, and CdTe thin film solar cells. May be repeated for credit.  
ECS-Mechanical/Matrls/Aersp

**EMA 5587C . Characterization and Reliability of PV Cells**

3(2,2). PR: EGN 3365. Photovoltaic characterization of solar cells, dark and light I-V, C-V, and quantum efficiency, physics of failure of microelectronic devices, solder bonds, encapsulation, PV module reliability.  
ECS-Mechanical/Matrls/Aersp

**EMA 5610 . Laser Materials Processing**

3(3,0). 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.  
ECS-Mechanical/Matrls/Aersp

**EMA 5705 . High Temperature Materials**

3(3,0). PR: EMA 5104. Desired material properties for high temperature applications, physical metallurgy of such materials, corrosion, hot corrosion and oxidation properties, aero- and land-based gas turbine requirements.  
ECS-Mechanical/Matrls/Aersp

**EMA 6126 . Physical Metallurgy**

3(3,0). PR: EMA 5104 or EMA 3124. Analytical methods in crystallography, dislocation theory, annealing, solid solutions, phases and phase diagrams, ferrous and non-ferrous alloy systems.  
ECS-Mechanical/Matrls/Aersp

**EMA 6129 . Solidification and Microstructure Evolution**

3(3,0). 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.  
ECS-Mechanical/Matrls/Aersp

**EMA 6130 . Phase Transformation in Metals and Alloys**

3(3,0). 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.  
ECS-Mechanical/Matrls/Aersp

**EMA 6136 . Diffusion in Solids**

3(3,0). PR: EMA 5104 and EML 5060 or C.I. Fundamental equations and mechanisms of diffusion. Diffusion in metallic, ionic, and semiconducting materials with emphasis on measurement techniques.

ECS-Mechanical/Matrls/Aersp

**EMA 6149 . Imperfections in Crystals**

3(3,0). 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.

ECS-Mechanical/Matrls/Aersp

**EMA 6515 . X-ray and Auger Electron Spectroscopic Techniques**

3(3,0). PR: EMA 5108 or EMA 5504. A hands on course on x-ray and auger spectroscopy. Topics will include theory on XPS, AES, instrumentation, vacuum science, data interpretation and analysis charge referencing.

ECS-Mechanical/Matrls/Aersp

**EMA 6516 . X-Ray Diffraction and Crystallography**

3(3,0). 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.

ECS-Mechanical/Matrls/Aersp

**EMA 6518 . Transmission Electron Microscopy**

3(3,0). PR: EMA 5104 or C.I. An introduction to the theory and operation of a transmission electron microscope. Electron diffraction techniques, contrast from images, analytical microscopy, and specimen preparation.

ECS-Mechanical/Matrls/Aersp

**EMA 6605 . Materials Processing Techniques**

3(3,0). 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.

ECS-Mechanical/Matrls/Aersp

**EMA 6626 . Mechanical Metallurgy**

3(3,0). 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.

ECS-Mechanical/Matrls/Aersp

**EMA 6628 . Materials Failure Analysis**

3(3,0). PR: EMA 5104. Comprehensive overview of the general procedures for failure analysis, failure theories, causes of failure, fractography of different failures, and modern analytical tools.

ECS-Mechanical/Matrls/Aersp

**EME 5050 . Fundamentals of Technology for Educators**

3(3,0). PR: Post-bac or C.I. Designed to provide participants with an introduction to the field of educational technology content with emphasis on using and integrating technology in K-12 to improve the teaching and learning process.

ED-Ed Research, Tech & Lead

**EME 5051 . Technologies of Instruction & Information Management**

3(3,0). PR: Acceptance into Ed Media program or C.I. Theories and practices in utilizing instructional media and information



technologies. Emphasis on new and emerging technologies and their effects on the school and media program.  
ED-Teaching & Learning Princ

**EME 5052 . Electronic Resources for Education**

3(3,0). PR: EME 5051 or C.I. Study and application of electronic resources available for education including techniques for locating, evaluating, and integrating them into the classroom.

ED-Ed Research, Tech & Lead

**EME 5054 . Instructional Systems Technology: A Survey of Applications**

3(3,0). 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.

ED-Ed Research, Tech & Lead

**EME 5056 . Communication for Instructional Systems-Process**

3(3,0). Principles of written and oral communications for instructional technologists; development of assertiveness and interpersonal skills; conducting training programs for employees; creating hard copy materials.

ED-Ed Research, Tech & Lead

**EME 5057 . Communication for Instructional Systems-Application**

3(3,0). PR: EME 5056. Applications of technology, communications theory, platform skills, and instructional design to the effective presentation of training programs and instruction.

ED-Ed Research, Tech & Lead

**EME 5208 . Production Techniques for Instructional Settings**

3(3,0). PR: Acceptance into Ed Media Program or C.I. Skills in producing instructional materials. Emphasis on graphic, audio, video, and photographic skills and the application of instructional and communication theories.

ED-Teaching & Learning Princ

**EME 5225 . Media for Children and Young Adults**

3(3,0). PR: Acceptance into Ed Media Program or C.I. Survey of materials for children's and young adults' informational and recreational needs; analysis, evaluation, and utilization of print and non-print materials.

ED-Teaching & Learning Princ

**EME 5408 . Computer Applications in Instructional Systems**

3(3,0). PR: EME 2040 or C.I. Introduction to applications for the design, production, and management of interactive courseware within instructional systems.

ED-Ed Research, Tech & Lead

**EME 5810 . Teaching and Learning with Technology**

1(1,0). Overview of technologies for teaching and for learning. Practical strategies for using technology in the classroom. (May be repeated 3 times for credit.)

ED-Teaching & Learning Princ

**EME 6053 . Current Trends in Instructional Technology**

3(3,0). PR: EME 6613. Survey of current trends and issues of importance to the field of instructional technology.

ED-Ed Research, Tech & Lead

**EME 6058 . Current Trends in Educational Media**

3(3,0). PR: C.I. Survey of current trends and issues of importance to the field of educational media.  
ED-Teaching & Learning Princ

**EME 6062 . Research in Instructional Technology**

3(3,0). 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.  
ED-Teaching & Learning Princ

**EME 6105 . Collection Development Policies and Procedures**

3(3,0). PR: Acceptance into Ed Media program or C.I.I. Principles of collection development for the school library media center. Acquisition, weeding, inventory, and maintenance procedures. Emphasis on intellectual freedom and evaluation of the collection.  
ED-Teaching & Learning Princ

**EME 6207 . Multimedia Instructional Systems I**

3(3,0). PR: EME 5408 or C.I. Creation of instructional content using computer-based graphic, audio, video, design, and authoring tools. Discussion of design and production issues. Requires digital production skills  
ED-Ed Research, Tech & Lead

**EME 6209 . Multimedia Instructional Systems II**

3(3,0). PR: EME 6207. Advanced skills in computer-based graphic, audio, and video production. Integration of media into instructional packages. Application of instructional development skills and working with clients.  
ED-Teaching & Learning Princ

**EME 6313 . Media Systems Design**

3(3,0). PR: EME 5054, EME 6613. Principles of communication, learning theory, and research in instructional technology applied to the design of mediated instructional messages.  
ED-Ed Research, Tech & Lead

**EME 6405 . Application Software for Educational Settings**

3(3,0). PR: EME 5051 or EME 5052 or C.I. 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.  
ED-Ed Research, Tech & Lead

**EME 6457 . Distance Education: Technology Process Product**

3(3,0). 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.  
ED-Ed Research, Tech & Lead

**EME 6507 . Multimedia in the Classroom**

3(3,0). PR: EME 6405 or C.I. Emphasis on the elements and applications of multimedia programs for use by K-12 students and teachers. Includes authoring, design, delivery systems, hardware, software.  
ED-Ed Research, Tech & Lead

**EME 6602 . Integrating Technology into the Curriculum**

3(3,0). PR: EME 5051; EME 6405 or C.I. 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.

ED-Ed Research, Tech & Lead

**EME 6605 . Role of the Media Specialist in Curriculum and Instruction**

3(3,0). PR: Acceptance into Ed Media Program or C.I. Development of skills in instruction and instructional design. Emphasis on teaching, consultation, and media skills and curricular involvement of the media specialist.

ED-Teaching & Learning Princ

**EME 6607 . Planned Change in Instructional Technology**

3(3,0). PR: EME 6705 or EME 6706. In-depth study of the processes of planned change and adoption/rejection of innovations in educational settings.

ED-Ed Research, Tech & Lead

**EME 6613 . Instructional System Design**

3(3,0). 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.

ED-Ed Research, Tech & Lead

**EME 6705 . Administration of Instructional Systems**

3(3,0). PR: EME 5408, EME 6613. Provides opportunities for students to examine parameters, problems, and areas of importance in the management of instructional systems.

ED-Ed Research, Tech & Lead

**EME 6706 . Administrative Principles in Media Centers**

3(3,0). PR: Acceptance in Ed Media program or C.I. 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.

ED-Teaching & Learning Princ

**EME 6707 . Technology Coordinator in the Schools**

3(3,0). PR: EME 5051, EME 6405, or C.I. 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.

ED-Ed Research, Tech & Lead

**EME 6805 . Organization of Media and Information**

3(3,0). PR: Acceptance into Ed Media program or C.I. Methods for organizing print and non-print media, with instruction in cataloging and classification, using standard bibliographic tools and procedures. May be repeated for credit.

ED-Teaching & Learning Princ

**EME 6807 . Information Sources and Services**

3(3,0). PR: Acceptance into Ed Media program or C.I. Development of skills in identifying appropriate information sources for school media centers, providing reference services, and teaching research skills and search strategies.

ED-Teaching & Learning Princ

**EME 6940 . Theory into Practice in Educational Technology**

3(3,0). PR: Completion of all core courses in educational technology. Practicum in facilitating the utilization of instructional media and information technologies.

**EML 5025C . Engineering Design Practice**

3(2,2). PR: C.I. The course is designed to familiarize students with basic CAD/CAM solid modeling techniques in a project oriented environment. Students will construct part models, drawings, and assemblies. Use of in-house software.

ECS-Mechanical/Matrls/Aersp

**EML 5060 . Mathematical Methods in Mechanical, Materials and Aerospace Engineering**

3(3,0). PR: MAP 2302. Vector field theory, generalized coordinates, complex variables, contour integration and LaPlace and Fourier transforms and inversions, variable coefficient ODEs and solution of PDEs for governing equations of heat transfer, ideal fluid flow, and mechanics.

ECS-Mechanical/Matrls/Aersp

**EML 5066 . Computational Methods in Mechanical, Materials and Aerospace Engineering**

3(3,0). 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.

ECS-Mechanical/Matrls/Aersp

**EML 5105 . Gas Kinetics and Statistical Thermodynamics**

3(3,0). PR: EAS 4134 or EML 4703. Molecular and statistical viewpoint of gases and thermodynamics; Boltzmann collision integral, partition functions, non-equilibrium flows. Applications in thermo-fluid systems.

ECS-Mechanical/Matrls/Aersp

**EML 5131 . Combustion Phenomena**

3(3,0). PR: EML 4703, EML 3101. Physical and chemical aspects of combustion phenomena. Rate processes, chemical kinetics, structure, propagation and stability of premixed and diffusion flames.

ECS-Mechanical/Matrls/Aersp

**EML 5152 . Intermediate Heat Transfer**

3(3,0). PR: EML 4142, EML 5713, EML 5060. An intermediate-level course dealing with heat and mass diffusion, boundary layer problems, and radiation from real bodies. Emphasis on combined modes, numerical methods.

ECS-Mechanical/Matrls/Aersp

**EML 5211 . Continuum Mechanics**

3(3,0). PR: EML 3500 or EML 4703 or EAS 4200 or C.I. Introduction to tensors; deformation and strain; stress; balance laws, applications in Newtonian fluid dynamics and isotropic linear elasticity.

ECS-Mechanical/Matrls/Aersp

**EML 5224 . Acoustics**

3(3,0). PR: EML 4220. CR: EML 5060. Elements of vibration theory and wave motion; radiation, reflection, absorption, and transmission of acoustic waves; architectural acoustics; control and abatement of environmental noise pollution; transducers.

ECS-Mechanical/Matrls/Aersp

**EML 5228C . Modal Analysis**

3(3,0). 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.

ECS-Mechanical/Matrls/Aersp

**EML 5237 . Intermediate Mechanics of Materials**

3(3,0). PR: EML 3500, EML 5060. Elements of elasticity. Failure theories. Bending and torsion. Thin plates. Energy principles. Thick-walled cylinders. Applications to design.

ECS-Mechanical/Matrls/Aersp

**EML 5245 . Tribology**

3(3,0). PR: EGN 3365, EGN 3331 and EML 3701. Principles of fluid film lubrication (liquid and gas, journal and thrust bearings), contact mechanics (rolling element bearings), design of bearings and load bearing surfaces, friction and wear of materials, tribotesting.

ECS-Mechanical/Matrls/Aersp

**EML 5271 . Intermediate Dynamics**

3(3,0). PR: EML 3321. Dynamics of particles, rigid bodies, and distributed mass systems. Hamilton's principle. Lagrange's equations. Numerical methods. Mechanisms.

ECS-Mechanical/Matrls/Aersp

**EML 5311 . System Control**

3(3,0). 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.

ECS-Mechanical/Matrls/Aersp

**EML 5402 . Turbomachinery**

3(3,0). 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.

ECS-Mechanical/Matrls/Aersp

**EML 5532C . Computer-Aided Design for Manufacture**

3(2,3). 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.

ECS-Mechanical/Matrls/Aersp

**EML 5546 . Engineering Design with Composite Materials**

3(3,0). PR: EML 5237. 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.

ECS-Mechanical/Matrls/Aersp

**EML 5572 . Probabilistic Methods in Mechanical Design**

3(3,0). PR: EML 3500, STA 3032. Uncertainty modeling in design. Use of probabilistic mathematics to assess strength, stiffness, toughness, and stability. Applications.

ECS-Mechanical/Matrls/Aersp

**EML 5605 . Applied HVAC Engineering**

3(3,0). PR: EML 4600. Applications of HVAC systems design with the objective of optimizing energy efficiency, humidity control, ventilation and indoor air quality. May be repeated for credit.

ECS-Mechanical/Matrls/Aersp

**EML 5606 . HVAC Systems Engineering**

3(3,0). PR: EML 3101, EML 4142, EML 3034. Heating, ventilation, air-conditions and refrigeration principles, system design and

analysis. May be repeated for credit.  
ECS-Mechanical/Matrls/Aersp

**EML 5713 . Intermediate Fluid Mechanics**

3(3,0). PR: EML 4703. CR: EML 5060. Fluid kinematics; conservation equations; Navier-Stokes equations; boundary layer flow, inviscid flow, circulation and vorticity; low Reynolds number flow; turbulence.  
ECS-Mechanical/Matrls/Aersp

**EML 6062 . Boundary Element Methods in Engineering**

3(3,0). 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.  
ECS-Mechanical/Matrls/Aersp

**EML 6067 . Finite Elements in Mechanical, Materials, and Aerospace Engineering I**

3(3,0). PR: EML 5237 or EML 5713. Finite element analysis of thermomechanical response of aerospace and mechanical components and structures. Plates and shells. Vibrations. Composite materials. Minimum weight design. CAD interface. Introduction to codes.  
ECS-Mechanical/Matrls/Aersp

**EML 6068 . Finite Elements in Mechanical, Materials, and Aerospace Engineering II**

3(3,0). PR: EML 6067 or C.I. Advanced finite element applications to aerospace and mechanical components and structures. Rotating systems. Fracture mechanics. Aeroelasticity. Buckling. Impact. Use of codes.  
ECS-Mechanical/Matrls/Aersp

**EML 6085 . Research Methods in MMAE**

3(3,0). PR: EML 5060 and EML 5211. Research project is a MMAE option under supervision of an advisor. A project report is due at the end of the semester. May be repeated for credit.  
ECS-Mechanical/Matrls/Aersp

**EML 6104 . Classical Thermodynamics**

3(3,0). 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.  
ECS-Mechanical/Matrls/Aersp

**EML 6124 . Two-Phase Flow**

3(3,0). PR: EML 5152. Introduction to two-phase flow and boiling heat transfer. General transport equations and models for analyzing two-phase systems. Emphasis placed on liquid-vapor systems.  
ECS-Mechanical/Matrls/Aersp

**EML 6144 . Boiling and Condensation Heat Transfer**

3(3,0). PR: EML 4142 or C.I. Phase changes heat transfer including boiling and condensation. Phenomenological treatment of pool boiling, two-phase flow, and convective boiling. Filmwise and dropwise condensation. Applications.  
ECS-Mechanical/Matrls/Aersp

**EML 6154 . Conduction Heat Transfer**

3(3,0). 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.  
ECS-Mechanical/Matrls/Aersp

**EML 6155 . Convection Heat Transfer**

3(3,0). 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.

ECS-Mechanical/Matrls/Aerosp

**EML 6157 . Radiation Heat Transfer**

3(3,0). PR: EML 5152 or C.I. Radiation properties of surfaces and analysis of radiative heat transfer between black, gray, non-gray and non-diffuse surfaces. Multimode problems.

ECS-Mechanical/Matrls/Aerosp

**EML 6158 . Gaseous Radiation Heat Transfer**

3(3,0). PR: EML 6157. Development of Radiative Transfer Equation, radiative properties of gases, and solutions to gaseous radiation problems.

ECS-Mechanical/Matrls/Aerosp

**EML 6223 . Advanced Vibrational Systems**

3(3,0). PR: EML 4220, EML 5271 or C.I. Discrete and distributed parameter systems. Introduction to nonlinear and random vibrations. Concepts of modern dynamic analysis.

ECS-Mechanical/Matrls/Aerosp

**EML 6226 . Analytical Dynamics**

3(3,0). PR: EML 5271. Kane method for kinematics and dynamics of particle and rigid bodies is developed and contrasted with Newton and Lagrange methods. Multibody dynamics.

ECS-Mechanical/Matrls/Aerosp

**EML 6227 . Nonlinear Vibration**

3(3,0). PR: EML 5060 and EML 5271. 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.

ECS-Mechanical/Matrls/Aerosp

**EML 6305C . Experimental Mechanics**

3(2,2). PR: EML 4304, EML 5237. Selected topics in strain measurements, photoelasticity, holographic interferometry; laser speckle measurement; acoustic emission, measurement of correlation and coherence functions.

ECS-Mechanical/Matrls/Aerosp

**EML 6547 . Engineering Fracture Mechanics in Design**

3(3,0). PR: EML 5237 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.

ECS-Mechanical/Matrls/Aerosp

**EML 6653 . Theory of Elasticity**

3(3,0). PR: EML 5237. Review of stress and strain; solution by tensor stress and potential functions, axisymmetric problems; wave propagation.

ECS-Mechanical/Matrls/Aerosp

**EML 6712 . Mechanics of Viscous Flow**

3(3,0). PR: EML 5060, EML 5713. Principal concepts and methods for viscous fluid motion. Incompressible and compressible boundary layer analysis for laminar and turbulent flows.  
ECS-Mechanical/Matrls/Aerosp

**EML 6725 . Computational Fluid Dynamics and Heat Transfer I**

3(3,0). PR: EML 5152 or C.I. Finite Difference methods; error and stability analysis; applications to model equations and further developments; matrix methods.  
ECS-Mechanical/Matrls/Aerosp

**EML 6726 . Computational Fluid Dynamics and Heat Transfer II**

3(3,0). 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.  
ECS-Mechanical/Matrls/Aerosp

**EML 6808 . Analysis and Control of Robot Manipulators**

3(3,0). PR: EML 4312, EML 5271, or C.I. Kinematics and dynamics of multibody systems, especially robot manipulators. Design and control of robot manipulators.  
ECS-Mechanical/Matrls/Aerosp

**EMR 6365 . Teaching Students with Mental Disabilities**

3(3,0). 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.  
ED-Child, Family & Comm Serv

**ENC 5214 . Production and Publication Methods**

3(3,0). Theory and practice of production and publication methods for technical writers.  
AS-English

**ENC 5216 . Editing Professional Writing**

3(3,0). PR: Graduate status or C.I. The study of major issues in editing, including levels of edit, grammar and mechanics, visuals, style, and the impact of technology  
AS-English

**ENC 5219 . Graphics in Technical Writing**

3(3,0). A study of the creation and editing of graphics in technical documents.  
AS-English

**ENC 5237 . Writing for the Business Professional**

3(3,0). PR: Graduate status or C.I. A study of the major document designs for professionals in business, focusing on audience, purpose, style, arrangements, and content.  
AS-English

**ENC 5245 . Teaching Professional Writing**

3(3,0). Prepares students to determine writing needs of professional discourse communities, analyze those needs, and design in-house or freelance writing programs to address those needs.  
AS-English



**ENC 5256 . Gendered Rhetoric**

3(3,0). PR: Graduate status or C.I. Questions women's and men's linguistic choices, the influence of medium and discipline of discourse, and consequences of status, power, and oppression.

AS-English

**ENC 5276 . Writing/Consulting: Theory & Practice**

3(3,0). PR: Graduate status or C.I. The theory and practice of assessing and responding to writing as a collaborator (as opposed to evaluator).

AS-English

**ENC 5306 . Persuasive Writing**

3(3,0). Theory and practice of writing persuasively.

AS-English

**ENC 5337 . Modern Rhetorical Theory**

3(3,0). With special attention to the rhetor-audience relationship, the course studies history and practice of modern rhetorical theory.

AS-English

**ENC 5344 . Proposal Writing**

3(3,0). Theory and practice of writing proposals.

AS-English

**ENC 5425 . Hypertext Theory and Design**

3(3,0). PR: Post-bac standing or C.I. Theoretical and practical study of the uses and premises of hypertext.

AS-English

**ENC 5427 . Hypertext**

3(3,0). PR: Senior or graduate standing. A study of the theory and practice of computer-driven hypertext.

AS-English

**ENC 5705 . Theory and Practice in Composition**

3(2,1). PR: Senior standing or C.I. Intensive study of theories of composition, with practical experience in the writing laboratory and in composition classes.

AS-English

**ENC 6217 . Technical Writing**

3(3,0). Study of language, style, mechanics, graphics, and management necessary for technical editing.

AS-English

**ENC 6244 . Teaching Technical Writing**

3(3,0). The techniques and theories of teaching technical writing.

AS-English

**ENC 6261 . Technical Writing, Theory and Practice**

3(3,0). A study of major trends in technical communication theory and the practices this theory generates.

AS-English

**ENC 6292 . Project Management for Technical Writers.**

3(3,0). Managing a writing project from inception to production; planning, budgeting, personnel, writing, and editing.

AS-English

**ENC 6296 . Computer Documentation**

3(3,0). The theory and practice of producing software documentation from planning through production.

AS-English

**ENG 5009 . Methods of Bibliography and Research**

3(3,0). Bibliographical, library and systematic approaches to research at the graduate level in language and literature.

AS-English

**ENG 5018 . Literary Criticism**

3(3,0). PR: Graduate standing or C.I. Historical survey of major critics from classical antiquity to the modern era.

AS-English

**ENL 5237 . Eighteenth Century Studies**

3(3,0). Reading, analysis, and discussion of literature in English:1660-1880.

AS-English

**ENL 5250 . The Victorian Age: Poetry**

3(3,0). PR: Graduate standing or C.I. Poets of the Victorian period, including Tennyson, the Brownings, Arnold, Hopkins, Hardy, the Rossettis, Emily Bronte, and others.

AS-English

**ENL 5256 . Victorian Literature**

3(3,0). PR: Graduate Standing or C.I. A study of the major prose works and selected poetry of British Victorian writers.

AS-English

**ENL 5335 . Studies in Shakespeare**

3(3,0). PR: Senior standing or C.I. A selection of representative plays, with emphasis on Shakespeare's development as an artist: aesthetics of dramatic literature.

AS-English

**ENL 5347 . The Age of Milton**

3(3,0). PR: Senior standing or C.I. Emphasis on the non-dramatic works of John Milton. Selections from the non-dramatic works of other 17th-century figures.

AS-English

**ENL 6217 . Gender and the Medieval Text**

3(3,0). PR: Graduate status or C.I. Introduction to Medieval studies and gender studies together. Readings in middle and modern English.

AS-English

**ENV 5071 . Environmental Analysis of Transportation Systems**

3(3,0). PR: CWR 3201; EGN 3704. Prediction and abatement of pollution from transportation sources. Analysis techniques and environmental laws.

**ENV 5116C . Air Pollution Monitoring**

3(2,3). PR: C.I. Air Pollution sampling techniques, equipment, and monitor siting. Emphasis on theory and direct applications in air pollution monitoring.

ECS-Civil & Environmental

**ENV 5334 . Characterization of Hazardous Waste Sites**

3(3,0). 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.

ECS-Civil & Environmental

**ENV 5335 . Hazardous Waste Management**

3(3,0). PR: EGN 3704 or C.I. Engineering planning and analysis associated with the handling, storage, treatment, transportation, and disposal of hazardous wastes.

ECS-Civil & Environmental

**ENV 5410 . Drinking Water Treatment**

3(3,0). PR: ENV 4561. Drinking water treatment using existing and newly developed processes. Fe, Mn, As, NO<sub>3</sub>, DBP<sub>3</sub>, SOCs and other contaminants using oxidation, membranes, ion exchange, precipitation, sorption, and other processes.

ECS-Civil & Environmental

**ENV 5505 . Sludge Management Operations in Environmental Engineering**

3(3,0). PR: ENV 4561. Theory and design of sludge management operations and processes in environmental engineering, including stabilization dewatering and ultimate disposal.

ECS-Civil & Environmental

**ENV 6015 . Physical/Chemical Treatment Systems in Environmental Engineering**

3(3,0). 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.

ECS-Civil & Environmental

**ENV 6016 . Biological Treatment Systems in Environmental Engineering**

3(3,0). PR: EES 4111C and ENV 4561 or C.I. Theory and design of biological operations and processes in environmental engineering using the latest technologies.

ECS-Civil & Environmental

**ENV 6046 . Membrane Mass Transfer**

3(3,0). 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.

ECS-Civil & Environmental

**ENV 6055 . Fate and Transport of Subsurface Contaminants**

3(3,0). PR: EES 4111C, EES 4202C, CWR 6125. Principal concepts and modeling of the physical, chemical, and biological transport and transformation processes for subsurface contaminants.

ECS-Civil & Environmental

**ENV 6058 . Particle Processes in Aquatic Systems**

3(3,0). PR: EES 4202 or equivalent. Concepts of colloidal and interfacial processes in aquatic systems with their applications to environmental engineering.

ECS-Civil & Environmental

**ENV 6106 . Theory and Practice of Atmospheric Dispersion Modeling**

3(3,0). PR: C.I. Atmospheric composition and dynamics. Engineering methods of mathematical modeling, both for point source and mobile source. Current computer models will be used.

ECS-Civil & Environmental

**ENV 6126 . Design of Air Pollution Controls**

3(3,0). Current methods for engineering design and performance analysis of air pollution control equipment to include scrubbers, baghouses, electrostatic precipitators, VOC incinerators, others.

ECS-Civil & Environmental

**ENV 6336 . Site Remediation and Hazardous Waste Treatment**

3(3,0). 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.

ECS-Civil & Environmental

**ENV 6347 . Hazardous Waste Incineration**

3(3,0). Theory and applications of design and operations of hazardous waste incinerators. Includes detailed consideration of air pollution control equipment

ECS-Civil & Environmental

**ENV 6504L . Unit Operation and Processes Laboratory**

3(1,6). PR: ENV 6015 or equivalent. Bench and small pilot plant experimentation with sedimentation, coagulation, sorption gas-stripping, oxidation ion-exchange, etc. in water, waste-water industrial waste, or hazardous waste treatment.

ECS-Civil & Environmental

**ENV 6515L . Biological Unit Operations and Processes Laboratory**

3(1,6). PR: ENV 6016. Unit operations laboratory for biological processes in wastewater treatment, drinking water and remediation including obtaining biokinetic parameters in treatability studies biostability.

ECS-Civil & Environmental

**ENV 6519 . Aquatic Chemical Processes**

3(3,0). 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.

ECS-Civil & Environmental

**ENV 6558 . Industrial Waste Treatment**

3(3,0). PR: ENV 4561. Theories, methods, unit operations of management, reduction, treatment, disposal of industrial wastes.

ECS-Civil & Environmental

**ENV 6616 . Receiving Water Impacts**

3(3,0). 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 . Physical and Sociological Implications of Handicapping Conditions**

3(3,0). Overview of physical and sociological factors which may contribute to delayed learning or physical impairments in the exceptional populations. Physical interventions and first-aid practices are examined.

ED-Child, Family & Comm Serv

**ESE 5214 . Secondary School Curriculum Improvement I**

3(3,0). PR: Regular Certificate or C.I. Secondary School self studies for curriculum projects, accreditation reports, or staff development.

ED-Teaching & Learning Princ

**ESE 6235 . Curriculum Design**

3(3,0). PR: Basic Teacher Certificate or C.I. Goal analysis, task analysis, needs assessment, and writing performance objectives for developing courses of study.

ED-Educational Studies

**ESE 6416 . Curriculum Evaluation**

3(3,0). PR: ESE 6235 or an equivalent curriculum course.

ED-Educational Studies

**ESI 5219 . Engineering Statistics**

3(3,0). PR: C.I. Discrete and continuous probability distributions, hypothesis testing, regression, nonparametric stats and ANOVA.

ECS-Industrial & Management

**ESI 5227 . Total Quality Improvement**

3(3,0). PR: STA 3032 or equivalent. Quality improvement (QI) tools and techniques, advanced QI techniques, quality improvement systems, total quality management concepts and implementation, planning and management tools, and case studies.

ECS-Industrial & Management

**ESI 5236 . Reliability Engineering**

3(3,0). PR: ESI 4234 or equivalent, or C.I. Reliability theory and modeling approaches. Topics include: failure data analysis, maintainability, reliability standards (DOD), software reliability, reliability in design, and electronic systems reliability.

ECS-Industrial & Management

**ESI 5315 . Research Foundations for IE and OR Modeling**

3(3,0). PR: MAP 2302; ESI 5219 or equivalent; ESI 4312; and C.I. Research foundations for IE/OR modeling, including constructive analysis of published research, methods of proof, research foundations in decision theory, optimization, and related areas.

ECS-Industrial & Management

**ESI 5316 . Operations Research**

3(3,0). PR: STA 3032. Methods of operations research, including formulation for models and derivation of solutions; linear programming, network models queueing theory, simulation, and nonlinear optimization techniques.

ECS-Industrial & Management

**ESI 5359 . Risk Assessment and Management**

3(3,0). PR: ESI 5219 or STA 3032. Problems and complexities involved in risk assessment and management. Selected methodologies are

illustrated through realistic applications in engineering and the sciences.

ECS-Industrial & Management

**ESI 5419C . Engineering Applications of Linear and Nonlinear Optimization**

3(2,2). PR: ESI 4312 or ESI 5316. Course covers linear and nonlinear optimization applications in production planning, staffing, engineering design, distribution networks, and other engineering areas. Focuses on practicing OR analysts.

ECS-Industrial & Management

**ESI 5451 . Network Based Project Planning, Scheduling, and Control**

3(3,0). PR: ESI 4312 or ESI 5316. Probabilistic and deterministic approaches for planning, scheduling, and controlling complex, large-scale projects. PERT, CPM, resource leveling, risk analysis.

ECS-Industrial & Management

**ESI 5531 . Discrete Systems Simulation**

3(3,0). PR: STA 3032. Methods for performing discrete systems simulation, including network modeling, will be treated.

ECS-Industrial & Management

**ESI 6217 . Statistical Aspects of Digital Simulation**

3(3,0). PR: ESI 5219 or C.I. Statistical issues in digital simulation including input data analysis, pseudorandom number generation, experimental design, and simulation output analysis.

ECS-Industrial & Management

**ESI 6224 . Quality Management**

3(3,0). PR: STA 3032 or equivalent or C.I. Philosophy and concepts of quality management, organization for quality, quality cost, quality audits and corrective actions, tools and techniques for improvement.

ECS-Industrial & Management

**ESI 6225 . Quality Design and Control**

3(3,0). PR: STA 3032 or equivalent. Concepts and methods for quality design and control, including statistical process control (SPC), control charts, process capability, product and process design and improvement, Taguchi methods, case studies. May be repeated for credit.

ECS-Industrial & Management

**ESI 6247 . Experimental Design and Taguchi Methods**

3(3,0). PR: STA 3032 or ESI 4234. Introduction to Taguchi Concepts and Methodologies, use of design of experiments for quality design and improvement.

ECS-Industrial & Management

**ESI 6336 . Queueing Systems**

3(3,0). PR: ESI 5219. Analysis of queueing systems and waiting line problems using analytical and Monte Carlo methods. Laboratory assignments.

ECS-Industrial & Management

**ESI 6358 . Decision Analysis**

3(3,0). PR: ESI 4312 or ESI 5316. Classical Bayesian analysis; utility and its measurement; multiattribute utility methods; influence diagrams; Analytic Hierarchy Process; behavioral aspects; simulation.

ECS-Industrial & Management

**ESI 6427 . Linear Programming and Extensions**

3(3,0). PR: ESI 4312 or ESI 5316. Simplex and Revised Simplex Method; interior-point methods; duality; large-scale optimization; decomposition algorithms; upper bounds; linearization; parametric LP; goal programming.  
ECS-Industrial & Management

**ESI 6437 . Nonlinear Mathematical Programming and Dynamic Programming**

3(3,0). PR: ESI 4312 or ESI 5316. Optimal conditions and algorithms for unconstrained and constrained nonlinear problems. Introduction to dynamic programming approach to multistage problems.  
ECS-Industrial & Management

**ESI 6448 . Network Analysis and Integer Programming**

3(3,0). PR: ESI 6427. Modeling and solution methods for problems that can be formulated in terms of flow in networks and for discrete optimization problems.  
ECS-Industrial & Management

**ESI 6529 . Advanced Systems Simulation**

3(3,0). PR: ESI 5531. Combined networks discrete and continuous simulation, applications, statistical analysis and comparison of simulation languages.  
ECS-Industrial & Management

**ESI 6532 . Object-oriented Simulation**

3(2,2). Object-oriented modeling and development techniques for building large process-based discrete event simulation models. Concurrency in discrete event simulation. Object-oriented simulation environment.  
ECS-Industrial & Management

**ESI 6546 . Process Simulation**

3(3,0). PR: MAP 2302. Basic principles of steady state and dynamic process simulation. Software and hardware trends. Math approaches using ordinary differential equations and differential-algebraic equations.  
ECS-Industrial & Management

**ESI 6551C . Systems Engineering**

3(2,2). PR: ESI 4312 or ESI 5316. Integration and application of systems science, operations research, systems methodologies, and systems management for the design, production, and maintenance of efficient, reliable systems.  
ECS-Industrial & Management

**ESI 6921 . Seminar in Advanced Operations Research**

3(3,0). PR: ESI 6427 or C.I. Topical seminar. Potential topic areas include tabu search, genetic algorithms, simulated annealing, neural networks. Analytic Hierarchy Process, and methods for large-scale optimization.  
ECS-Industrial & Management

**ESI 6941 . Operations Research Practicum**

6(2,10). PR: C.I. Involves full-time participation and experience in an organization conducting operations research analyses.  
ECS-Industrial & Management

**EUH 5247 . Colloquium in Europe from 1919-1939**

3(3,0).  
AS-History

**EUH 5285 . Colloquium in Europe Since World War II**

3(3,0).

AS-History

**EUH 5371 . Colloquium in Spanish History**

3(3,0).

AS-History

**EUH 5546 . Colloquium: British History**

3(3,0). 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.

AS-History

**EUH 5579 . Colloquium in Soviet Russia**

3(3,0). PR: Senior standing or C.I. Reading and class discussion of the literature on selected topics in Russian history, 1911-present.

AS-History

**EUH 5595 . Colloquium in Czarist Russia**

3(3,0). PR: Senior standing or graduate status. Selected topics on the literature of Russia under the Czars prior to 1917.

AS-History

**EUH 5608 . Colloquium European Intellectual History**

3(3,0). PR: Senior standing or C.I. Reading and class discussion of the literature on selected topics of European intellectual history.

AS-History

**EUH 6939 . Seminar in European History**

3(3,0). May be repeated for credit when content is different.

AS-History

**EVR 5930 . Seminar in Conservation Issues**

1(1,0). PR: CI. Contemporary topics stressing a broad base of conservation issues will be the focus of this seminar series. May be repeated for credit, as course content will differ.

AS-Biology

**EVT 5260 . Cooperative Programs in Vocational Education**

2-4(2-4,0). 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.

ED-Teaching & Learning Princ

**EVT 5561 . Student Guidance in the Vocational Program**

2-3(2-3,0). PR: Basic Teacher Certificate or C.I. Achievement of skills used by teachers as they gather student data, confer with students, and help students plan for employment or further education.

ED-Teaching & Learning Princ

**EVT 5817 . Management of Vocational Programs**



2-4(2-4,0). 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.  
ED-Teaching & Learning Princ

**EVT 6264 . Administration in Vocational Education**

3(3,0). 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.  
ED-Teaching & Learning Princ

**EVT 6265 . Supervision in Vocational Education**

3(3,0). PR: Basic Teacher Certificate or C.I. Supervisory techniques for planning and implementing improvement of staff, curriculum, and personal relations in vocational education.  
ED-Teaching & Learning Princ

**EVT 6267 . Vocational Program Planning, Development, and Evaluation**

2-4(2-4,0). PR: Basic Teacher Certificate or C.I. Achievement of selected teacher competencies related to program objectives, courses of study, long-range plans, and techniques for evaluating vocational program effectiveness.  
ED-Teaching & Learning Princ

**EVT 6664 . School/Community Relations for Vocational Education**

2-4(2-4,0). PR: Basic Teacher Certificate or C.I. Achievement of proficiency in the use of media techniques to promote the vocational program. Development and maintenance of productive relationships between school and community groups.  
ED-Teaching & Learning Princ

**EXP 5067 . Human Factors and Aging**

3(3,0). PR: Post-bac, Graduate status, or C.I. An overview of issues related to enhancing quality of life of elderly through the implementation of basic human factors principles in environmental and task design.  
AS-Psychology

**EXP 5208 . Sensation and Perception**

3(3,0). PR: C.I. A study involving human information processing with regard to physical and psychological variables in sensory and perceptual phenomena.  
AS-Psychology

**EXP 5256 . Human Factors I**

3(3,0). Survey of human factors literature. Introduction to topics including human capabilities and human interfaces with human-machine systems.  
AS-Psychology

**EXP 5445 . Psychology of Learning and Motivation**

3(3,0). PR: DEP 5057 or C.I. Examination of theories and research concerning the acquisition and retention of behavior, as well as motivational factors which influence learning and behavior.  
AS-Psychology

**EXP 6116 . Visual Performance**

3(3,0). PR: EXP 5208 or C.I. The psychology, physics and physiology of vision with an emphasis on the human visual response and applications of vision research.

AS-Psychology

**EXP 6126 . Psychoacoustics**

3(3,0). PR: Graduate standing. The psychology, physics, and physiology of hearing and the auditory system.

AS-Psychology

**EXP 6255 . Human Performance**

3(3,0). PR: C.I. Human performance dimensions and concepts of assessment of human capabilities; performance acquisition, information processing and decision making; applications of principles to the understanding of stress and performance effectiveness.

AS-Psychology

**EXP 6257 . Human Factors II**

3(3,0). PR: EXP 5256 (HFI). The second in the series of basic human factors courses involving an in-depth examination of issues.

AS-Psychology

**EXP 6258 . Human Factors III**

3(3,0). PR: EXP 5256, EXP 6257. The third in the series of basic human factors courses. Current topics in human factors, exchange of information on practical field experience in human factors.

AS-Psychology

**EXP 6506 . Human Cognition and Learning**

3(3,0). PR: EXP 3404 and EXP 3513. Research and theory relating to attention, memory, problem solving, and reasoning.

AS-Psychology

**EXP 6541 . Advanced Human-Computer Interaction**

3(3,0). PR: EIN 6258 or C.I. Principles and guidelines of advanced human-computer interaction as they apply to a variety of complex Human-Machine Systems.

AS-Psychology

**EXP 6938 . Teaching Seminar**

3(3,0). PR: C.I. Orientation to and supervision in teaching assigned courses.

AS-Psychology

**EXP 6946 . Human Factors Internship**

8(0,12). PR: EXP 5256, EXP 6257, PSY 6216, PSY 6217, EXP 6255, or C.I. 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.

AS-Psychology

**FIL 5609 . Film and Internet Business**

3(3,0). PR: C.I. Survey of the business of financing and distributing films. Explores various, including feature films, short films, television documents and the Internet.

AS-Motion Picture Technology

**FIN 5405 . Financial Concepts**

3(3,0). 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.

BA-Finance

**FIN 5407 . Financial Foundations**

1.5(1.5,0). PR: Acceptance to Graduate Study, ACG 5005 and ECO 5006. Effects of financial decisions upon the firm, interrelationships of these effects and alternatives available to financial managers in making these financial decisions.

BA-Finance

**FIN 6314 . Management of Financial Institutions**

3(3,0). 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.

BA-Finance

**FIN 6406 . Strategic Financial Management**

3(3,0). PR: MBA Professional Core I. Emphasis on the theory and analytical techniques associated with the major financial decisions of corporate management, including risk analysis, capital budgeting, short- and long-term financial management.

BA-Finance

**FIN 6425 . Asset Management and Financial Decisions**

3(3,0). PR: Graduate standing and FIN 6406. Considers the interrelated decision-making process of asset allocations, corporate fundraising, dividend policies, and market maximization.

BA-Finance

**FIN 6475 . Business Valuation**

3(3,0). PR: Graduate standing and FIN 6406. Theory and practice of estimating the value of small, closely held businesses.

BA-Finance

**FIN 6515 . Analysis of Investment Opportunities**

3(3,0). PR: Graduate standing and FIN 6406. Deals with the theory and tools of analysis required in the management of financial assets.

BA-Finance

**FIN 6536 . Seminar in Investments**

3(3,0). PR: Graduate standing, FIN 6406, and FIN 6515. Analysis of options, futures, and other derivative securities and their use in hedging strategies. Other topics include institutional equity and bond portfolio management techniques.

BA-Finance

**FIN 6605 . International Financial Management**

3(3,0). PR: ECO 6416, FIN 6406. The theory of finance as applied to the operations of multinational firms and international capital markets.

BA-Finance

**FIN 7807 . Corporate Finance Theory**

3(3,0). 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.

BA-Finance

**FIN 7811 . Seminar in Financial Markets and Institutions**

3(3,0). 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.

BA-Finance

**FIN 7816 . Investment Theory**

3(3,0). PR: Admission to business doctoral program, FIN 7807, QMB 7565, and C.I. Extensive coverage of theoretical and empirical literature dealing with modern investment thought, portfolio theory, capital market equilibrium, and related topics.

BA-Finance

**FIN 7915 . Directed Research in Finance**

3(3,0). PR: FIN 7811, 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.

BA-Finance

**FIN 7930 . Seminar in Finance**

3(3,0). PR: FIN 7811, FIN 7816, and C.I. Study of private sector financial theory, policy, empires, and decision making.

BA-Finance

**FLE 5335 . Foreign Language Methods at the Elementary Level**

3(3,0). PR: C.I. or FLE 4333 or FLE 5870, EDG 4323 or EDG 6236, and fluency in target language and English. Methods of planning and teaching foreign language at the elementary level. The emphasis is on teaching communicatively and on integrating culture in the K-6 classroom. May be repeated for credit.

ED-Teaching & Learning Princ

**FLE 5870 . Methods of Teaching Foreign Languages**

3(3,0). PR: Graduate Standing or C.I. This course introduces prominent theories and applied research in the field of second language acquisition. It also offers guidance in the practical matters of teaching lower division language courses at university and community college levels.

AS-Foreign Languages

**FLE 5875 . Computer Application in Teaching Foreign Languages**

3(3,0). PR: Graduate Standing or C.I. Survey, analysis, and evaluation of computer software and Internet materials for teaching foreign languages.

AS-Foreign Languages

**FSS 6365 . Management of Food Service Operations**

3(3,0). 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.

UCF-Hospitality Management

**GEB 5941 . Professional Business Practicum**

1.5(1.5,0). PR: Acceptance to Graduate Study. The practicum is to provide a professional business work experience for students entering the MBA program without such experience.

BA-College-BA

**GEB 6115 . Entrepreneurship**

3(3,0). PR: Graduate standing. Seminar on topics concerning the entrepreneurial process in small and large organizations, including needs assessment, sources and methods of innovation, financing, and barriers to entrepreneurship.  
BA-Marketing

**GEB 6365 . International Business Analysis**

3(3,0). PR: MBA Professional Core I. Extensive coverage of international business environment with emphasis on the functional operation of multinational firms.  
BA-Finance

**GEB 6895 . Business Analysis**

1.5(1.5,0). PR: CBA Masters Program of Study Foundation Core. Emphasis on analytical techniques suited for business analysis and decision-making. Includes topics on forecasting, working capital management, and small business finance.  
BA-Finance

**GEB 6897 . Managing Challenges in Service Organizations**

1.5(1.5,0). PR: Admission to MBA program. Course explores the challenge of managing service organizations. Topics include: customer expectations, satisfaction, loyalty, retention, strategy, research, promotion, staffing, and service delivery systems.  
BA-Marketing

**GEB 7910 . Research Methods in Business**

3(3,0). 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.  
BA-Economics

**GEB 7932 . Business Ph.D. Foundations**

3(3,0). PR: Admission to the Ph. D. Program. A multidisciplinary introduction to doctoral-level study of business administration.  
BA-Economics

**GEY 5007 . Women and Healthy Aging**

3(3,0). PR: Graduate standing or senior undergraduate. The examination of the health promotion opportunities and bio-psycho-social challenges of women as they age.  
HPA-Nursing

**GEY 5600 . Physiology of Aging**

3(3,0). PR: BSC 2010C or PCB 3703C or PET 4351 or equivalent. The purpose of this course is to develop the student's understanding of the effects of human aging on various body systems.  
ED-Teaching & Learning Princ

**GEY 5648 . Gerontology: An Interdisciplinary Approach**

3(3,0). PR: Post-baccalaureate or graduate status or C.I. The study of aging will be presented from an interdisciplinary and multidisciplinary approach spanning the social sciences and health.  
AS-Psychology

**HFT 6245 . Managing Hospitality and Guest Services Organizations**

3(3,0). PR: Graduate standing. Analysis of the unique problems of managing organizations in hospitality and guest services industry.  
UCF-Hospitality Management

**HFT 6251 . The Management of Lodging Operations**

3(3,0). PR: Acceptance into the graduate program. Presentation and analysis of the unique management techniques applicable in the diverse segments of the lodging industry.

UCF-Hospitality Management

**HFT 6710 . International Tourism Management**

3(3,0). 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.

UCF-Hospitality Management

**HFT 7258 . Strategies & Tactics: Lodging**

3(3,0). 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.

UCF-Hospitality Management

**HFT 7546 . Strategies & Tactics: Guest Service Management**

3(3,0). 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.

UCF-Hospitality Management

**HFT 7715 . Strategies & Tactics: Travel & Tourism**

3(3,0). 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.

UCF-Hospitality Management

**HFT 7876 . Strategies & Tactics: Foodservice**

3(3,0). 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.

UCF-Hospitality Management

**HIM 6288 . Health Care Coding and Diagnosis**

3(3,0). PR: Graduate status. Analysis and use of ICD and CPT coding procedures.

HPA-Health Professions

**HIS 5067 . Introduction to Public History**

3(3,0). PR: Graduate standing. Examine and discuss the practice of history in museums, archives, documentary editing, historical publication, media, historical societies, and government agencies.

AS-History

**HIS 5158 . Classic and Contemporary Historical Thought**

3(3,0). PR: Graduate Standing. Course will explore work of important historians influenced by social theory to gain an understanding of their main concepts.

AS-History

**HIS 6159 . Historiography**

3(3,0). Selected topics in the study of history. May be repeated for credit with consent of instructor.

AS-History

**HIS 6905 . History Capstone Class**

3(3,0). PR: Satisfactory completion of 21 - 24 hours of graduate level course work. Advanced historiographical and bibliographical readings for preliminary exams and submission of a research plan for thesis topic.

AS-History

**HIS 6942 . Internship**

3(3,0). 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.

AS-History

**HIS 6945 . Internship in Historical Editing and Publishing**

3(3,0). PR: Graduate standing. Introduction to the fundamentals of historical editing, with emphasis on the processing and publication of historical documents and articles.

AS-History

**HIS 6946 . Teaching Practicum**

3(3,0). Student observation, participation, direction, and leadership in a college survey course

AS-History

**HSA 5177 . Foundations of Health Care Finance**

3(3,0). PR: Admission to graduate program in HSA or C.I. Preparatory course for graduate students who are not prepared to take the required health care finance course.

HPA-Health Professions

**HSA 5197 . ICD9 Coding for Health Services Administrators**

3(3,0). PR: HSC 6636, B.S. in Health related field, or C.I. Emphasis on developing basic skills to facilitate an understanding of the coding process and the compliance issues relevant to the process. May be repeated for credit.

HPA-Health Professions

**HSA 5198 . Health Care Computer Applications**

3(3,0). PR: Graduate status. Overview of health information systems, with an emphasis on computer applications. Discussion of software and hardware requirements.

HPA-Health Professions

**HSA 5258 . CPT Coding for Health Services Administrators**

3(3,0). PR: HSC 6636 or C.I., or BS in Health-related field. Emphasis on developing skills to facilitate an understanding of CPT Coding process and the compliance issues relevant to the process.

HPA-Health Professions

**HSA 6108 . Health Care Organization and Management II**

3(3,0). PR: HSA 6185, HSA 5148, HSC 6911. Emphasis on planning, development, marketing approaches, and problem solving using computer methods.

HPA-Health Professions

**HSA 6112 . International Health Systems**

3(3,0). PR: Graduate status. Survey of health care systems in developed and developing countries.

HPA-Health Professions

**HSA 6119 . Health Care Organization and Management**

3(3,0). PR: HSC 6911. Planning, development, and marketing methods.

HPA-Health Professions

**HSA 6126 . Principles of Managed Care**

3(3,0). PR: PHC 6160. Components of managed care, contract requirements, provider practice patterns, and financing elements

HPA-Health Professions

**HSA 6128 . Health Care Services Management**

3(3,0). PR: Graduate Status. Conceptization and development of customer service in health care organizations. The focus is on the links between theory and practical applications.

HPA-Health Professions

**HSA 6185 . Health Care Human Resources**

3(3,0). PR: Graduate status. Study of health care organizations, including modern management, human performances, and leadership.

HPA-Health Professions

**HSA 6189 . Health Care Coding and Diagnosis**

3(3,0). PR: Graduate standing. Analysis and use of ICD and CPT coding procedures.

HPA-Health Professions

**HSA 6385 . Health Care Quality Management**

3(3,0). PR: Graduate status. Mechanisms of enhancing quality of service and care.

HPA-Health Professions

**HSA 6505 . Risk Management in Health Care**

3(3,0). PR: Graduate status. Course explores risk management and its specific applications to the health services field. Focus: insurance; quality assurance; dispute resolution; clinical records management.

HPA-Health Professions

**HSA 6508 . Principles of Practice Management**

3(3,0). Studies the various models of practice organization and delivery. Emphasis is on risk management as it applies to medical practices

HPA-Health Professions

**HSA 6510 . Special Issues in Practice Management**

3(3,0). PR: HSA 6508, HSA 6119, or PHC 6160. Methods of dealing with market-driven and government-initiated changes in medical practices.

HPA-Health Professions

**HSA 6511 . Health Care Leadership**

3(3,0). PR: Graduate Status or CI. Practical applications of leadership theory in health services organizations.

HPA-Health Professions

**HSA 6754 . Health Care Statistical Tools**

3(3,0). PR: Graduate status. Computer-based course focusing on statistical quality tools, such as cause and effect diagrams, pareto and



control charts, and root cause analysis, used in the management of healthcare organizations.

HPA-Health Professions

**HSA 6815 . Practicum in Health Care Management**

2-6(0,20). PR: Graduate status or C.I. Supervised practicum in health care institution management.

HPA-Health Professions

**HSA 6925 . Capstone in HSA**

3(3,0). PR: Graduate status. Case analysis approach to solving current health services administration problems and issues. Prepares students for comprehensive examination experience.

HPA-Health Professions

**HSC 5595 . AIDS: A Human Concern**

3(3,0). 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.

HPA-Health Professions

**HSC 6175 . Advanced Trends in Health Care Finance Theory**

3(3,0). PR: CI or PHC 6160. Public health funding philosophies; evolving market strategies of insurers and managed care organizations; macroeconomic implication of alternative financing policies.

HPA-Health Professions

**HSC 6247 . Community Health Education**

3(3,0). Development and evaluation of community health education programs within voluntary health organizations. HMOs, hospitals, and academic institutions.

HPA-Health Professions

**HSC 6306 . Organization and Management of Health Science Programs**

3(3,0). 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.

HPA-Health Professions

**HSC 6412 . Epidemiology**

3(3,0). PR: Graduate status or C.I. A study of the distribution and determinants of diseases and injuries in human populations.

HPA-Health Professions

**HSC 6568 . Issues in Geriatric Health Care**

3(3,0). Identification of the health care needs of the elderly and the services required to meet them. Analysis of the current issues, problems, and trends in geriatric health.

HPA-Health Professions

**HSC 6636 . Issues and Trends in the Health Professions**

3(3,0). Exploration of current status, issues, problems, and future trends in the practice and education of health professions.

HPA-Health Professions

**HSC 6815 . Practicum in Health Science Education**

2-6(0,20). PR: Graduate status or C.I. Supervised practicum in academic, clinical, or community instructional program.  
HPA-Health Professions

**HSC 6911 . Scientific Inquiry in the Health Profession**

3(3,0). PR: Graduate status or C.I. Research design and statistical evaluation in health professions.  
HPA-Health Professions

**HSC 7930 . Special Issues in Health Services Administration**

3(3,0). PR: Admission to Ph.D. program or C.I. Selected problems in health services administration. Course may be repeated with different content. May be repeated for credit.  
HPA-Health Professions

**HSC 8118 . Advanced Health Care Organization Theory**

3(3,0). PR: Admission to Ph.D. program or C.I. New theories of health care management, emphasizing organizational structure, health care leadership, and information management in health care decision-making.  
HPA-Health Professions

**HUN 5937 . Nutrition and Exercise Physiology**

3(3,0). This course correlates human nutrition with exercise physiology. Nutritional concepts are related to human performance and fitness  
HPA-Health Professions

**IDS 5145 . Interdisciplinary course in simulation**

3(3,2). PR: Calculus, matrix algebra, probability and statistics, high-level programming language. An interdisciplinary course on simulation with hands-on experience in discrete event modeling, continuous modeling and shared virtual world. May be repeated for credit.  
ECS-College-ECS

**IDS 6308 . Ways of Knowing**

3(3,0). PR: Admission to the Master's program in Liberal Studies. Theoretical models of knowledge as exemplified by various disciplines and interdisciplinary activity. Focus on epistemological issues raised in part and present works.  
AS-Liberal Studies

**IDS 6351 . Critical Thinking and Writing**

3(3,0). PR: IDS 6308 and IDS 6669. Focus on refining critical understanding of interdisciplinary research and organization and presentation of interdisciplinary ideas, building on first two core courses.  
AS-Liberal Studies

**IDS 6669 . Interdisciplinary Approaches to Research**

3(3,0). PR: IDS 6308. Interdisciplinary survey of methodologies used in academic disciplines. Basic concepts, research paradigms, and contemporary issues explored.  
AS-Liberal Studies

**IDS 6933 . Seminar in Teaching Mathematics and Science**

3(3,0). PR: Graduate standing and valid Florida Teaching Certificate or C.I. This course is designed so that graduate students may study specific areas related to curriculum, instruction, and assessment in mathematics and science education. (May be repeated for credit.)  
ED-Teaching & Learning Princ

**IDS 6934 . Using Technology in Mathematics and Science**

3(2,1). 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.

ED-Teaching & Learning Princ

**IDS 6937 . Reflecting on Instruction of Mathematics and Science**

3(3,0). 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.

ED-Teaching & Learning Princ

**IDS 6939 . Reforming Curriculum in Mathematics and Science Education**

3(3,0). PR: Graduate standing and valid Florida Teaching Certificate or C.I. Emphasizes the reform movement including technology, history of curriculum, curriculum theory, and standards documents.

ED-Teaching & Learning Princ

**IDS 7500 . Seminar in Educational Research**

1-3(1-3,0). PR: Admission into doctoral program in Education or C.I. An examination of education related research initiatives. May be repeated for credit.

ED-Teaching & Learning Princ

**IDS 7501 . Issues and Research in Education**

3(3,0). PR: Admission to Ph.D. in Education or C.I. An examination of major issues impacting education and related practical and methodological issues in research.

ED-Teaching & Learning Princ

**IDS 7502 . Case Studies in Research Design**

3(3,0). PR: Admission into the Ph.D. in Education. A critical analysis of educational research design.

ED-Teaching & Learning Princ

**IDS 7690 . Frontiers in Biomolecular Sciences**

3(3,0). PR: Admission to Biomolecular Sciences Ph.D. program. Cross-disciplinary biomolecular research seminar, collaboration between chemistry, biology, and molecular biology and microbiology. May be repeated for credit.

HPA-Molecular & Microbiology

**IDS 7691C . Structure-Function-Relationships of Biomolecules I**

4(3,1). PR: Admission to Biomolecular Sciences Ph.D. program. First semester of a two semester sequence with lectures and literature discussion of structure-function relationships of action and functions of biomolecules presented from an interdisciplinary perspective.

HPA-Molecular & Microbiology

**IDS 7692L . Experiments in Biomolecular Sciences**

3(3,0). PR: Admission to Biomolecular Sciences Ph.D. program. Interdisciplinary collaboration between chemistry, biology, and molecular and microbiology involving laboratory rotation in one to three labs. May be repeated for credit. Graded S/U.

HPA-Molecular & Microbiology

**IDS 7693C . Structure-Function Relationships of Biomolecules II**

4(3,1). PR: Admission to Ph.D. in Biomolecular Sciences and IDS 7691C. Second semester of a two-semester sequence with lectures and literature discussion of structure-function relationships of action and functions of biomolecules presented from an interdisciplinary

perspective.  
HPA-Molecular & Microbiology

**INP 5825 . Human-computer Interface (HCI) design: A team approach**

3(3,0). PR: Graduate standing or C.I. Interdisciplinary approach to human-computer interface design, including behavior, engineering, computer science, and instructional aspects. Tools and techniques for team development and the evaluation of software for usability.  
AS-Psychology

**INP 6058 . Job and Task Analysis**

3(3,0). PR: C.I. A review of current theory and practice in the collection, quantification, analysis, manipulation and summarization of position, job and task data.  
AS-Psychology

**INP 6088 . Applied Problems in Industrial/Organizational Psychology**

3(3,0). PR: Admission to I/O Psychology Master's Program or C.I. A review of applied behavioral problems recurrent in the professional practice of industrial/organizational psychology Graded S/U.  
AS-Psychology

**INP 6094 . Current Topics in Industrial/Organizational Psychology**

3(3,0). PR: Admission into the I/O Psych. MS Program or C.I. A review of the theoretical and empirical literature relevant to selected topics in Industrial/Organizational Psychology.  
AS-Psychology

**INP 6215 . Assessment Centers and Leadership**

3(3,0). PR: Graduate admission and C.I. Survey of assessment center technology and application with emphasis on leadership theory and practice.  
AS-Psychology

**INP 6317 . Organizational Psychology and Motivation**

3(3,0). PR: Graduate admission and C.I. Review of theories, research and application of psychological principles to organizational settings and human motivation.  
AS-Psychology

**INP 6605 . Training and Performance Appraisal**

3(3,0). PR: Graduate admission and C.I. Survey of theories, research and practice in the areas of industrial/organizational training and performance appraisal.  
AS-Psychology

**INP 6946 . Industrial Psychology Practicum I**

3(1,6). PR: Graduate admission and C.I. Supervised placement in an applied setting.  
AS-Psychology

**INP 6947 . Industrial Psychology Practicum II**

3(3,0). PR: Graduate admission and C.I. Supervised research in industry. May be repeated for credit.  
AS-Psychology

**INP 7071 . Research Methods in Industrial-Organizational Psychology**

3(3,0). PR: Admission to the doctoral I/O Psychology program and PSY 6216. A review of research methodology in organizational settings, focusing on hypothesis testing, quasi-experimental designed, non-experimental designs, and sampling procedures.  
AS-Psychology

**INP 7075 . Current Theory and Research in Industrial and Organizational Psychology**

2(2,0). PR: Ph.D. student in Psychology or closely-related discipline. Critical analysis of current theory and research published in the periodical scientific literature germane to the field of Industrial and Organizational Psychology. May be repeated for credit.  
AS-Psychology

**INP 7214 . Industrial Psychology I**

3(3,0). PR: Admission to the doctoral I/O Psychology program. Review of the theoretical and practical issues and the research literature related to criterion development and personnel selection.  
AS-Psychology

**INP 7251 . Industrial Psychology II**

3(3,0). PR: Admission to the doctoral I/O Psychology program. Review of the theoretical and practical issues and the research literature related to retaining, theory and program design/evaluation and performance appraisal/feedback.  
AS-Psychology

**INP 7310 . Organizational Psychology I**

3(3,0). PR: Admission to the doctoral I/O Psychology program. Review of the theoretical and practical issues and research literature related to work motivation theory, attitude theory, and decision theory.  
AS-Psychology

**INP 7311 . Organizational Psychology II**

3(3,0). PR: Admission to the doctoral I/O Psychology program. Review of the theoretical and practical issues and research literature related to small group theory and process and organization theory.  
AS-Psychology

**INP 7919 . Directed Doctoral Study in Industrial - Organization Psychology**

3(3,0). PR: Admission to the doctoral I/O Psychology program. Directed study in areas of organization development theory, career development theory, consumer behavior, individual assessment, or other relevant topics in I/O psychology. May be repeated for credit.  
AS-Psychology

**INR 6007 . Seminar in International Politics**

3(3,0). Introduces the student to the advances in international relations theory and research through a broad sampling of approaches and methods.  
AS-Political Science

**INR 6039 . International Political Economy**

3(3,0). PR: Graduate or post-bac status. A survey of major themes, concepts, theories, and methods of international political economy, which also entails policy discussion and applications.  
AS-Political Science

**INR 6086 . International Public Policy**

3(3,0). PR: Graduate standing. Examines endogenous and exogenous variables involved in selected issues in the arena of international

public policy.  
AS-Political Science

**ISM 5020 . MIS Foundations**

1.5(1.5,0). PR: Acceptance to Graduate Study. Information systems are an integral part of modern organizations. This course provides an introduction to information systems from an organizational and managerial perspective.

BA-Management Inform. System

**ISM 5021 . Introduction to Management Information Systems**

3(3,0). PR: Acceptance into the graduate program. Designed to provide the student with the fundamentals of business data processing and management information systems used by organizations in a modern society.

BA-Management Inform. System

**ISM 5123 . Concepts of Systems Analysis and Design**

3(3,0). PR: Completion of ISM 5021 and Graduate Standing. Using a traditional life-cycle approach, the course introduces practical tools and techniques for organizational analysis and the subsequent design of an information system.

BA-Management Inform. System

**ISM 6121 . Advanced Information Systems Analysis and Design**

3(3,0). PR: MS/MIS Technical Foundation Core and CBA Master's Program of Study Foundation Core. This course covers advanced topics of information systems development, including analysis of system requirements, design, implementation and operation.

BA-Management Inform. System

**ISM 6217 . Advanced Database Administration**

3(3,0). PR: MS/MIS Technical Foundation Core and CBA Masters Program of Study Foundation Core. This course covers various database technologies in business organizations, including database systems, multidatabase systems, data warehousing, data mining, and object-oriented databases.

BA-Management Inform. System

**ISM 6227 . Management of Telecommunications**

3(3,0). PR: MS/MIS Technical Foundation Core and CBA Masters Program of Study Foundation Core. This course will focus on the strategic management of networks (voice, video, image, and data). coverage includes network management systems, LANs and the internet.

BA-Management Inform. System

**ISM 6305 . Information Resources Management**

3(3,0). PR: CBA Masters Program of Study Foundation Core. This course provides an investigation of issues relevant to effectively managing IT activities and the challenges facing IT managers and some potential solutions to deal with them.

BA-Management Inform. System

**ISM 6367 . Strategic Information Systems**

1.5(1.5,0). PR: MBA Professional Core I. This course concerns the strategic deployment and management of information technology (IT) within today's complex business organizations.

BA-Management Inform. System

**ISM 6395 . Seminar - Management Information System**

3(3,0). PR: ISM 6305, ISM 6121, and graduate standing. This seminar covers theoretical foundations and current research directions in

management information systems. Topics include organizational and managerial processing; systems design, development and implementation.

BA-Management Inform. System

**ISM 6407 . Decision Support Systems**

1.5(1.5,0). PR: CBA Masters Program of Study Foundation Core. This course addresses several aspects of organizational decision-making, including management science and decision support systems.

BA-Management Inform. System

**ISM 6485 . Electronic Commerce**

3(3,0). PR: MS/MIS Technical Foundation Core and CBA Masters Program of Study Foundation Core. This course will provide an understanding of electronic commerce, including an overview of the infrastructure and technologies, comparative analysis of markets, e-commerce applications, and website development.

BA-Management Inform. System

**ISM 6537 . Quantitative Models for Business Decisions**

3(3,0). PR: MS/MIS Technical Foundation Core and CBA Masters Program of Study Foundation Core. Quantitative techniques useful for the solution of business problems. Mathematical model building to aid the decision-making process is stressed.

BA-Management Inform. System

**ISM 6539 . Service Organizations and Operations Management**

3(3,0). PR: MS/MIS Technical Foundation Core and CBA Masters Program of Study Foundation Core. In-depth study of the unique characteristics, challenges, and quantitative techniques associated with managing organizations in the service sector.

BA-Management Inform. System

**ISM 6930 . Seminar in Management Information Systems**

3(3,0). PR: MS/MIS Technical Foundation Core and CBA Masters Program of Study Foundation Core. This course will focus on current MIS topics of technological and management relevance.

BA-Management Inform. System

**ISM 7027 . Systems Support of Organizational Decision Making**

3(3,0). PR: Graduate standing and permission of instructor. This course focuses on support systems for organizational decision-making, including knowledge management systems.

BA-Management Inform. System

**ISM 7029 . Organizational Impacts of Information Technology**

3(3,0). PR: Doctoral standing and C.I. Examination of impact of IT, IT-based innovation, and IT management in organizations.

BA-Management Inform. System

**ISM 7909 . Comprehensive Research Project**

3(3,0). PR: Graduate standing and permission of instructor. This course allows students to conduct a research project of limited scope from idea to execution to manuscript preparation.

BA-Management Inform. System

**ISM 7916 . Seminar on Behavioral Information Systems Research**

3(3,0). PR: Graduate standing and permission of instructor. This research seminar focuses on research in the use of information technology by individuals, groups, and organizations.

BA-Management Inform. System

**ISM 7936 . Seminar on Technical Information Systems Research**

3(3,0). PR: Graduate standing and permission of instructor. This research seminar focuses on current research in the technical fields of Information Systems. It covers both research areas and research methods.

BA-Management Inform. System

**ISM 7939 . Theoretical Foundations for Information Systems Research**

3(3,0). PR: Graduate standing and permission of instructor. This course is a Ph.D. seminar on using theory in information systems research.

BA-Management Inform. System

**LAE 5195 . CFWP Teacher Consultant**

3(3,0). PR: C.I. This course is designed for Fellows of the CFWP Summer Institute who will plan, practice, and present writing in-service components to public schools.

ED-Teaching & Learning Princ

**LAE 5295 . Writing Workshop I**

1-3(1-3,0). PR: C.I. Students will engage in exploration and practice of effective writing strategies. May include teaching small groups of students. May be repeated for credit.

ED-Teaching & Learning Princ

**LAE 5319 . Methods of Elementary School Language Arts**

3(3,0). PR: EDG 4323. Principles, procedures, organization and current practices in reading, writing, listening, and talking.

ED-Teaching & Learning Princ

**LAE 5337 . Literacy Strategies for Middle and Secondary Teaching**

3(3,0). PR: Graduate standing or C. I. Designed to assist teachers and graduate students in understanding the adolescent learner. This course will examine theory, strategies, research, resources and implementation options for effective middle and secondary literacy programs.

ED-Teaching & Learning Princ

**LAE 5338 . Teaching Writing in Middle and High School**

3(3,0). PR: EDG 6236 or C.I. Techniques and methods in teaching dialects, semantics, and the various grammars within the context of writing.

ED-Teaching & Learning Princ

**LAE 5346 . Methods of Teaching English Language Arts**

3(3,0). PR: EDG 6236 or C.I. Designed for alternative certification and Masters of Arts students to explore the strands, methods and materials related to school curriculum in teaching English.

ED-Teaching & Learning Princ

**LAE 5367 . English Composition and Literature for Teachers of Advanced Placement**

3(3,0). PR: Graduate standing and C.I. A two-week summer institute for secondary school teachers preparing to teach Advanced Placement courses.

AS-English



**LAE 5415 . Children's Literature in Elementary Education**

3(3,0). 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.

ED-Teaching & Learning Princ

**LAE 5465 . Literature for Adolescents**

3(3,0). PR: Senior standing or C.I. Selecting and evaluating books for adolescents with emphasis on the use of literature in the development of young people.

ED-Teaching & Learning Princ

**LAE 5495 . Assessing Writing**

3(3,0). PR: C.I. Students will explore a variety of strategies for assessing students' writing including holistic scoring, primary trait scoring, and portfolio assessment.

ED-Teaching & Learning Princ

**LAE 6296 . Writing Workshop II**

3(3,0). PR: C.I. This course is designed for Fellows in CFWP Summer Institute. Students research topics about writing and participate in writing response groups.

ED-Teaching & Learning Princ

**LAE 6366 . Studies in Adolescent Literature**

3(3,0). Analysis of major works in genre, examination of criticism, instructional strategies, and research in teaching adolescent literature.

ED-Teaching & Learning Princ

**LAE 6417 . Investigation in Children's Literature**

3(3,0). PR: A previous survey course in children's literature. Learning through the utilization of children's literature; literature analysis and evaluation; storytelling; visual and reference materials.

ED-Teaching & Learning Princ

**LAE 6616 . Trends in Language Arts Education**

3(3,0). PR: Basic Teacher Certificate or C.I. Historical development and trends; English usage systems; materials; instructional strategies.

ED-Teaching & Learning Princ

**LAE 6637 . Research in Teaching English**

3(3,0). Examination and interpretation of major research in English education. Design of models for research in language instruction in secondary schools.

ED-Teaching & Learning Princ

**LAE 6792 . CFWP Teacher/Researcher**

3(3,0). PR: C.I. Teachers who have completed a NWP Summer Institute will examine classroom research methods and trends, and design a study to conduct the following year.

ED-Teaching & Learning Princ

**LAE 6936 . Seminar in Language Arts Education**

3(3,0). PR: Graduate standing or C.I. Provides classroom teachers with opportunities to conduct in-depth explorations of timely topics related to teaching language and literacy.

ED-Teaching & Learning Princ

**LAH 5713 . Colloquium in U.S.-Latin American Relations**

3(3,0). PR: Senior Standing and C.I. The course will analyze U.S.-Latin American relations from an historical perspective. It will be presented through readings and discussion of selected materials.

AS-History

**LAH 6938 . Seminar in Latin American History**

3(3,0). May be repeated for credit when content is different.

AS-History

**LEI 6443 . Recreation**

3(2,1). A comprehensive study of public, private, and school recreation programs.

ED-Teaching & Learning Princ

**LIN 5137 . Linguistics**

3(3,0). PR: Senior or graduate standing or C.I. Modern linguistic theories and studies focusing on language acquisition and development, contemporary American English, semantics, and para-linguistics.

AS-English

**LIN 5675 . English Grammar and Usage**

3(3,0). PR: Graduate Status and C.I. An overview of modern grammar, including structural, transformational and rhetorical grammar, along with an examination of controversial usage.

AS-English

**LIN 6932 . Problems in Linguistics**

3(3,0). PR: LIN 5137. Study of the application of linguistics to various aspects of teaching and communication.

AS-English

**LIT 5028 . Form and Theory of Short Story**

3(3,0). PR: Graduate status or C.I. Evolving forms and theories of short fiction and the implications of form and theory.

AS-English

**LIT 5039 . Studies in Contemporary Poetry**

3(3,0). English language poetry from 1945 to the present. Emphasis will be on American poets, but others such as English or Australian will be included.

AS-English

**LIT 5097 . Studies in Contemporary Fiction**

3(3,0). PR: Senior standing or C.I. Fiction in the last 20 years in the United States and Britain. May be repeated for credit when content is different.

AS-English

**LIT 5250 . The Victorian Age: Poetry**

3(3,0). PR: Graduate standing or C.I. Poets of the Victorian period, including Tennyson, the Brownings, Arnold, Hopkins, Hardy, the Rossettis, Emily Bronte, and others.

AS-English

**LIT 5269 . Nineteenth-Century Essays**

3(3,0). PR: Graduate standing or C.I. English non-fiction prose of the 19th century.

AS-English

**LIT 5309 . Popular Culture and Media**

3(3,0). PR: Graduate standing or C.I. Study of contemporary media and the literature of popular culture.

AS-English

**LIT 5366 . The Romantic Revolt (19th Century Literature)**

3(3,0). PR: Senior standing or C.I. The romantic revolt in poetry and prose; English, American and Continental literature from 1798 to 1832.

AS-English

**LIT 5387 . Captives, Housewives, and Coquettes**

3(3,0). PR: Graduate status or C.I. Course considers early American women's literature from 17th to 19th centuries

AS-English

**LIT 5389 . Studies in Gender & Fiction Writing**

3(3,0). PR: Graduate status or C.I. Graduate study of gender's implications for teaching and practice of fiction writing

AS-English

**LIT 5556 . Advanced Feminist Theories**

3(3,0). PR: Graduate status or C.I. Graduate level Feminist Theories from "French Feminism" to "Critical Race Theories."

AS-English

**LIT 6009 . Literary Genres**

3(3,0). PR: Graduate standing. Provenance, structure, and critical problems in a specific genre such as tragedy, the epic, the novel, or the lyric. May be repeated for credit when content is different.

AS-English

**LIT 6105 . World Literature**

3(3,0). PR: Graduate standing. Study of the influence on British and American literature of selected foreign works read in translation. May be repeated for credit when content is different.

AS-English

**LIT 6246 . Major Authors**

3(3,0). PR: Graduate standing. Study of a single author or of two or three associated authors, with emphasis on biography, bibliography, and style. May be repeated for credit when content is different.

AS-English

**LIT 6365 . Movements in Literature**

3(3,0). PR: Graduate standing. 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.

AS-English

**MAA 5210 . Topics in Advanced Calculus**

4(4,0). PR: MAA 4226 or equivalent. Topics in multivariable calculus, including limits, continuity, integration, differentiation, Taylor's theorem, inverse and implicit function theorems.  
AS-Mathematics

**MAA 5405 . Complex Variables**

3(3,0). PR: MAC 2313 or C.I. Analytic functions. Integration in the complex plane. Laurent series and residue calculus. Inversion of Laplace transformations. Conformal mappings. Applications in engineering and the physical sciences.  
AS-Mathematics

**MAA 5416 . Foundations of Analysis**

3(3,0). PR: MAA 4226. Topological spaces, compactness results, connectedness, analytical and differentiable manifolds, topological groups, Lie groups, representation theory for classical groups, Green, Stoke and Gauss' theorems.  
AS-Mathematics

**MAA 6306 . Real Analysis**

3(3,0). PR: MAA 5210. Sets, function spaces, Lebesgue measure, Lebesgue-Stieltjes measure, measurable functions, convergence notions, general measure and integration, Radon-Nikodym theorem.  
AS-Mathematics

**MAA 6404 . Complex Analysis**

3(3,0). PR: MAA 5405, MAP 4307, MAA 4226, or C.I. Review of complex variable theory; advanced topics chosen from conformal mapping and its applications, boundary behavior, numerical techniques; singular integrals.  
AS-Mathematics

**MAA 6508 . Hilbert Spaces with Applications**

3(3,0). PR: MAP 2302, MAS 3106, or C.I. Normed and inner product spaces; Hilbert spaces; orthonormal systems; linear operators and spectral decomposition; applications to differential and integral equations.  
AS-Mathematics

**MAD 5205 . Combinatorics and Graph Theory II**

3(3,0). PR: MAD 4203 or C.I. Polya's theory of counting; Latin squares and rectangles; block designs; coding theory; probabilistic methods; hypergraphs; applications.  
AS-Mathematics

**MAD 6309 . Advanced Graph Theory I**

3(3,0). 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  
AS-Mathematics

**MAD 6608 . Finite Fields and Coding Theory**

3(3,0). PR: MAP 5311 or C.I. General theory of fields, existence, construction and implementation of finite fields, polynomials over  $GF(p^n)$ , solving equations: emphasizing fields of characteristic 2.  
AS-Mathematics

**MAE 5318 . Current Methods in Elementary School Mathematics**

3(3,0). PR: EDG 4323. Strategies of instruction of computation and concepts of number, geometry, and measurement; instructional materials. (Meets Elementary Education certification requirements.)

ED-Teaching & Learning Princ

**MAE 5356 . Teaching General Mathematics in the Secondary School**

3(3,0). 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.

ED-Teaching & Learning Princ

**MAE 5935 . Post-Secondary Mathematics**

3(3,0). 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.

AS-Mathematics

**MAE 6145 . Mathematics Curriculum, K-12**

3(3,0). PR: At least 6 semester hours of graduate credit in mathematics education or C.I. Development of historical and current issues and forces in mathematics curriculum. New mathematics programs and contemporary curricular issues will be emphasized.

ED-Teaching & Learning Princ

**MAE 6337 . Teaching Algebra in the Secondary School**

3(3,0). 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.

ED-Teaching & Learning Princ

**MAE 6338 . Teaching Geometry in the Secondary School**

3(3,0). 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.

ED-Teaching & Learning Princ

**MAE 6517 . Diagnosis/Remediation of Difficulties in Mathematics for the Classroom Teacher**

3(3,0). PR: Basic Teacher Certificate or C.I. The study of techniques for diagnosis and remediation of difficulties in mathematics.

ED-Teaching & Learning Princ

**MAE 6641 . Problem Solving and Critical Thinking Skills**

3(2,1). PR: Regular Certificate or C.I. Development of procedures and practices necessary to implement critical thinking skills and problem solving techniques in the schools.

ED-Teaching & Learning Princ

**MAE 6656 . Using Technology in the Instruction of K-12 Mathematics**

3(3,0). PR: CAP 6613 or C.I. The application of computer technology to mathematics instruction including calculators, CAI, CMI, application software, simulators, and video disc technology.

ED-Teaching & Learning Princ

**MAE 6899 . Seminar in Teaching Mathematics**

3(3,0). PR: Six semester hours of graduate credit in mathematics education. Development of historical and current issues, forces, and individuals and their impact on the teaching of mathematics K-12. Consideration of advanced instructional techniques. (May be repeated for credit.)

ED-Teaching & Learning Princ

**MAE 7640 . History of Mathematics Education**

3(3,0). PR: Doctoral standing. Study of issues and forces that have shaped mathematics education including policies, classroom practices, curriculum development, instructional materials, technology and assessment of learning.

ED-Teaching & Learning Princ

**MAE 7795 . Seminar on Research in Mathematics Education**

3(3,2). PR: Doctoral standing.

ED-Teaching & Learning Princ

**MAN 5021 . Management Foundations**

1.5(1.5,0). PR: Acceptance to Graduate Study, ACG 5005 and ECO 5006. Theory and practice of managing organizations to include planning, organizational theory, human behavior, and control.

BA-Management

**MAN 5050 . Management Concepts**

2(2,0). PR: Acceptance in MBA program. Theory and practice of managing organizations to include planning, organizational theory, human behavior, and control.

BA-Management

**MAN 5501 . Foundations of Production/Operations Management**

2(2,0). PR: Acceptance into the graduate program and ECO 5415 or equivalent. Provides foundation in fundamental concepts, techniques, and applications of contemporary production and operations management to serve as tools for improving quality, productivity, and international competitiveness.

BA-Management

**MAN 6116 . Managing A Diverse Workforce**

3(3,0). PR: MAN 6285. Course designed to provide students with an understanding of managing a diverse workforce.

BA-Management

**MAN 6158 . Human Resources Management Issues**

3(3,0). PR: MAN 6305 or C.I. A course providing advanced study in selected topics of current interest in human resource management.

BA-Management

**MAN 6245 . Organizational Behavior and Development**

3(3,0). PR: CBA Masters Program of Study Foundation Core. The analysis of human behavior in organizations in terms of the individual, small group, intergroup relationships, and the total organization.

BA-Management

**MAN 6285 . Change Management**

3(3,0). PR: Graduate Standing or C.I. Course designed to familiarize students with change management processes and interventions.

BA-Management

**MAN 6286 . Advanced Change Management**

3(3,0). PR: MAN 6285. An in-depth examination of change management processes with emphasis on strategic change and innovation.

BA-Management

**MAN 6296 . Executive Leadership**

3(3,0). 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.

BA-Management

**MAN 6299 . Creative and Innovative Management**

3(3,0). 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

BA-Management

**MAN 6305 . Human Resources Management**

3(3,0). PR: Graduate standing or C.I. Course is designed as an overview of human resources practices, techniques and strategies.

BA-Management

**MAN 6311 . Advanced Topics in Human Resources Management**

3(3,0). PR: MAN 6305 or C.I. An in-depth analysis of current human resource issues related to the attraction, management, and retention of human capital.

BA-Management

**MAN 6323 . Human Resources Information Systems**

3(3,0). PR: MAN 6305 or C.I. Planning, designing, selecting, implementing, and maintaining human resource information systems.

BA-Management

**MAN 6325 . Applied Research Tools**

3(3,0). PR: MAN 6305 and MAN 6285. Development of applied qualitative and quantitative research skills for collecting, analyzing and reporting data to organizations, within the context of managing human resources and change.

BA-Management

**MAN 6385 . Strategic Human Resources Management**

3(3,0). PR: MAN 6305 or C.I. Examination of the strategic orientation of human resources management and the development of the human resources architecture aligned with the organization's strategy and task environment.

BA-Management

**MAN 6395 . Management Development & Coaching**

3(3,0). PR: Graduate standing or C.I. Course is designed to prepare students to understand the nature and role of management development with an emphasis on executive coaching.

BA-Management

**MAN 6448 . Conflict Resolution and Negotiation**

3(3,0). PR: Graduate standing or C.I. Theory and processes of negotiation in a variety of settings, with relevance to the broad spectrum of negotiation faced by managers.

BA-Management

**MAN 6449 . Alternative Dispute Resolution**

3(3,0). PR: Graduate standing or C.I. Theory and practice of conciliation, mediation, fact-finding, and arbitration as alternatives to business litigation.

BA-Management

**MAN 6515 . Research and Development Management**

3(3,0). PR: Graduate standing and MAN 5050. An examination of the function of research and development and the impact of technological innovation on our economic and social systems.

BA-Management

**MAN 6721 . Applied Strategy & Business Policy**

3(3,0). PR: MBA Professional Core I and taken in last semester of program. This capstone course integrates the various functional disciplines in business administration. It focuses on the theories and frameworks in the field of strategic management.

BA-Management

**MAN 6915 . Applied Field Project**

3(3,0). PR: MAN 6325 or C.I. Supervised filed research project addressing a specific organizational problem or approved practicum within an organization.

BA-Management

**MAN 7207 . Organization Theory**

3(3,0). PR: doctoral status. Study of impact of environment, technology, size and innovation on organization structure, functions and development.

BA-Management

**MAN 7275 . Organizational Behavior**

3(3,0). In-depth review of the classic and modern organizational behavior research literature, which deals with management of individual and group behavior in organizations.

BA-Management

**MAN 7306 . Seminar in Human Resources Management**

3(3,0). Course provides a graduate level overview of theory and research in human resources management. Topics covered include human resources strategy, legal issues, staffing, training, performance appraisal and compensation.

BA-Management

**MAN 7776 . Business-level Strategic Management**

3(3,0). PR: Admission to doctoral program and C.I. In-depth review of the classic and modern business-level strategy research literature, which deals with topics such as competitive strategy, industry analysis and the strategy process.

BA-Management

**MAN 7777 . Corporate-level Strategic Management**

3(3,0). PR: Admission to doctoral program and C.I. In-depth review of the classic and modern corporate-level strategy research literature, which deals with topics such as diversification, cooperative alliances and acquisitions strategies.

BA-Management

**MAN 7900 . Directed Readings in Management**

3(3,0). PR: Admission to Doctoral program and C.I. Directed readings in the area of Management concentration, as determined by the student's doctoral study advisory committee. May be repeated for credit.

BA-Management

**MAP 5117 . Mathematical Modeling**

3(3,0). PR: STA 4321, MAP 4363 or C.I. Introduction to modeling in industrial and scientific applications; techniques for studying



statistical and deterministic models.

AS-Mathematics

**MAP 5336 . Ordinary Differential Equations and Applications**

3(3,0). PR: MAP 2302 or C.I. Existence and uniqueness of solutions of differential equations, systems of ordinary differential equations, autonomous systems, phase plane analysis, stability, bifurcations.

AS-Mathematics

**MAP 5385 . Applied Numerical Mathematics**

3(3,0). PR: MAP 2302 or C.I. Classical topics or numerical analysis and their applications, Romberg integration, Richardson extrapolation, Gaussian quadrature schemes.

AS-Mathematics

**MAP 5396 . Splines and Data Fitting**

3(3,0). PR: MAS 3106, MAS 3105, MAP 2302, or C.I. Univariate splines and their application to data fitting. Applications to regression analysis, differential and integral equations. Algorithms to use different types of splines in computation.

AS-Mathematics

**MAP 5404 . Mathematical Foundations for Industrial Engineering and Operations**

3(3,0). PR: MAP 2302, ESI 5219 or equivalent, ESI 4312, or C.I. Methods of proof, set theory; basic elements of topology, real analysis, graph theory, and matrix analysis.

AS-Mathematics

**MAP 5407 . Applied Mathematics I**

3(3,0). PR: MAP 2302 or C.I. Calculus of variations. Hamilton's principle, Rayleigh-Ritz method, Sturm-Liouville theory, Green's functions for ordinary differential equations, introduction to integral equations

AS-Mathematics

**MAP 5426 . Special Functions**

3(3,0). 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.

AS-Mathematics

**MAP 5435 . Advanced Mathematics for Engineers**

3(3,0). PR: MAP 2302 or C.I. Linear Algebra and matrix methods, ordinary differential equations, Fourier series, partial differential equations, numerical methods for differential equations, and applications to engineering.

AS-Mathematics

**MAP 5514 . Linear and Nonlinear Waves I**

3(3,0). 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.

AS-Mathematics

**MAP 5931 . Research Seminar**

1(1,0). 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.

AS-Mathematics

**MAP 6110 . Measure and Probability**

3(3,0). 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.

AS-Mathematics

**MAP 6111 . Mathematical Statistics**

3(3,0). 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.

AS-Mathematics

**MAP 6112 . Asymptotic Methods in Mathematical Statistics**

3(3,0). PR: MAP 6111 (Mathematical Statistics) or C.I. Large sample theory, martingale sequences, probability measures on metric spaces, absolute continuity and singularity, Hellinger distance, functions of statistics, asymptotic theory of estimation.

AS-Mathematics

**MAP 6118 . Introduction to Nonlinear Dynamics**

3(3,0). PR: MAP 5336, PHY 2048 or equivalent, or C.I. Nonlinear differential equations; bifurcation theory; Hamiltonian dynamics; integrable systems and breakdown of integrability; chaos in conservative and dissipative systems.

AS-Mathematics

**MAP 6207 . Optimization Theory**

3(3,0). PR: MAA 4226 or C.I. Lagrangian function and duality, Kuhn-Tucker theorem, quadratic programming and Wolfe's theorem, Griffith and Stewart's method, search methods for unconstrained optimization.

AS-Mathematics

**MAP 6356 . Partial Differential Equations**

3(3,0). 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.

AS-Mathematics

**MAP 6386 . Numerical Solutions of PDE**

3(3,0). PR: MAP 6456, MAP 5385, or C.I. Numerical solution of linear and nonlinear partial differential equations of parabolic, elliptic and hyperbolic type using finite difference and spectral methods.

AS-Mathematics

**MAP 6398 . Multivariate Splines and Surface Fitting**

3(3,0). 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.

AS-Mathematics

**MAP 6408 . Applied Mathematics II**

3(3,0). PR: MAP 3302 and MAA 5405 or equivalent. Asymptotic series, asymptotic expansion of integrals, regular and singular perturbation expansions, boundary layer, multiple scales, WKB theory.

AS-Mathematics

**MAP 6419 . Advanced Transform Methods**

3(3,0). 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.

AS-Mathematics

**MAP 6420 . Generalized Functions**

3(3,0). 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.

AS-Mathematics

**MAP 6421 . Integral Equations**

3(3,0). PR: MAA 5405 or C.I. Successive approximations, Volterra equations, Fredholm theory, Hilbert-Schmidt theory, Neumann series, singular integral equations, the Riemann-Hilbert problem.

AS-Mathematics

**MAP 6424 . Transform Methods**

3(3,0). PR: MAA 5405 or C.I. Laplace, Fourier, Hankel, and other integral transforms, inversion theorems; the Z transform; applications to physical problems.

AS-Mathematics

**MAP 6445 . Approximation Techniques**

3(3,0). 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.

AS-Mathematics

**MAP 6465 . Wavelets and Their Applications**

3(3,0). 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.

AS-Mathematics

**MAP 6506 . Functional Analysis**

3(3,0). PR: MAA 4226 or C.I. Normed vector spaces, linear operators, Baire Category theorem, Banach fixed point theorem, Hahn-Banach theorem and applications, open mapping and closed graph theorem with applications, Hilbert space, Gateaux and Frechet.

AS-Mathematics

**MAP 6507 . Wave Propagation through Random Media**

3(3,0). PR: MAP 2302, EEE 5542, or C.I. Development of mathematical models for laser communications and laser radar in atmospheric turbulence. Free-space propagation of Gaussian beams and classical theories of propagation.

AS-Mathematics

**MAP 7119 . Advanced Nonlinear Dynamics**

3(3,0). PR: MAP 6118 or C.I. Solitons, inverse scattering transform, breakdown or integrability, analytic structure of dynamical systems, fractal aspects of turbulence.

AS-Mathematics

**MAP 7357 . Advanced Topics in Partial Differential Equations**

3(3,0). 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.

AS-Mathematics

**MAR 5055 . Marketing Foundations**

1-3(1-3,0). PR: Acceptance into the graduate program. Study of functions, institutions, and basic marketing of goods in the U.S. economy.  
BA-Marketing

**MAR 5941 . Small Business Consulting**

3(3,0). 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.  
BA-Marketing

**MAR 6077 . Contemporary Marketing Problems**

3(3,0). PR: Graduate standing, MAR 6816, or C.I. Analysis of contemporary marketing problems resulting from social, economic, and political developments.  
BA-Marketing

**MAR 6406 . Sales Management and Control**

3(3,0). 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.  
BA-Marketing

**MAR 6456 . Advanced Industrial Marketing Management**

3(3,0). 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.  
BA-Marketing

**MAR 6616 . Marketing Research Methods**

3(3,0). 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.  
BA-Marketing

**MAR 6816 . Strategic Marketing Management**

3(3,0). PR: MBA Professional Core I. Marketing competitive strategy formulation with respect to product, pricing, promotion and distribution. Course aims at developing strategic thinking, functional marketing expertise and analytical skills.  
BA-Marketing

**MAR 6845 . Services Marketing**

3(3,0). PR: MAR 5055 or equivalent or C.I. Marketing in 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.  
BA-Marketing

**MAR 7575 . Seminar in Consumer Behavior**

3(3,0). PR: ECO 7423. Provide doctoral students with a broad exposure to the literature of consumer behavior theories and methods.  
BA-Marketing

**MAR 7638 . Seminar in Marketing Theory, Scaling, and Measurement**

3(3,0). PR: ECO 7423. Provide doctoral students with a foundation in marketing theory, scaling, and measurement.  
BA-Marketing

**MAR 7666 . Seminar in Marketing Models**

3(3,0). PR: ECO 7423 and ECO 7425. Course provides an overview of mathematical models utilized in Marketing contexts.  
BA-Marketing

**MAR 7807 . Seminar in Marketing Strategy**

3(3,0). PR: ECO 7423. Provide doctoral students with a broad exposure to the literature surrounding marketing strategy and management issues.  
BA-Marketing

**MAS 5145 . Advanced Linear Algebra and Matrix Theory**

3(3,0). PR: MAS 3105. LU and LDU decompositions, linear spaces, inner product spaces, systems of linear equations, eigenvalues and canonical forms, variational principles and applications.  
AS-Mathematics

**MAS 5311 . Abstract Algebra with Applications**

3(3,0). 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.  
AS-Mathematics

**MAS 6147 . Multilinear Algebra**

3(3,0). PR: MAS 5145 or C.I. Algebraic theory of tensor and exterior products of finite and infinite dimensional vector spaces and linear transformations. Some category theory will be discussed. Applications to other areas of algebra will be presented.  
AS-Mathematics

**MAS 6463 . Doubly Stochastic Measures**

3(3,0). PR: MAP 6506, MAP 5416, MAP 6111, MAP 6110, or C.I. Doubly stochastic matrices, Birkhoff's theorem, double stochastic measures, Douglas-Linden-strauss theorem, copulas, Frechet bounds, dependence of random variables, Markov operators.  
AS-Mathematics

**MAT 5711 . Scientific Computing**

3(3,0). PR: MAC 2313, MAP 2302 or C.I. Basic programming skills using Mathematica, Maple, Matlab, or Java in solving basic scientific computing problems; preparing students for advanced computational methods and algorithms.  
AS-Mathematics

**MCB 5205 . Infectious Processes**

3(3,0). PR: MCB 3020C or C.I. Discussion of current theories of the infectious process and the response of host cells and tissue to infection.  
HPA-Molecular & Microbiology

**MCB 5225 . Molecular Biology of Disease**

3(3,0). PR: Graduate standing or C.I. An in-depth study of the molecular biological mechanisms of diseases in experimental animal models and human populations  
HPA-Molecular & Microbiology

**MCB 5505 . Virology**

3(3,0). PR: MCB 3020C and BCH 4053. Nature of viruses and other intra-cellular parasites including structure, nomenclature propagation, isolation, propagation, and identification.

HPA-Molecular & Microbiology

**MCB 5527 . Genetic Engineering and Biotechnology**

3(3,0). PR: PCB 3523 and PCB 4524 or C.I. Principles of Genetic Engineering/Biotechnology in Bacteria, Yeast, Viral, Mammalian, Non-mammalian systems, Plants, including human gene therapy, novel pharmaceuticals, recombinant proteins will be discussed in depth.

HPA-Molecular & Microbiology

**MCB 5654 . Applied Microbiology**

3(3,0). PR: MCB 3020C or C.I. Microbial biochemistry of industrial processes including: economics, screening, scale up, quality control and applied genetics.

HPA-Molecular & Microbiology

**MCB 5932 . Current Topics in Molecular Biology**

Variable. 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.

HPA-Molecular & Microbiology

**MCB 6226 . Molecular Diagnostics**

3(3,0). PR: PCB 3523, PCB 4524 and MCB 5225 or C.I. A course in basic laboratory skills used in molecular genetic or clinical diagnostic laboratories for detecting genetic diseases.

HPA-Molecular & Microbiology

**MCB 6407C . Laboratory Methods in Molecular Biology**

5(3,4). PR: PCB 4524 and MCB 4404, or C.I. Experimental techniques and design in laboratory biological research.

HPA-Molecular & Microbiology

**MCB 6417C . Microbial Metabolism**

3(3,0). PR: C.I. Relationship between microbial metabolism and principal cellular activities, emphasizing transport, respiration, differentiation, and synthesis.

HPA-Molecular & Microbiology

**MCB 6528 . Plant Molecular Biology**

3(3,0). PR: PCB 4524 or C.I. Structure and function of plant genomes, genes, gene products and experimental approaches for genetic engineering for production of edible vaccines, antibodies or other pharmaceuticals.

HPA-Molecular & Microbiology

**MHS 5005 . Introduction to the Counseling Profession**

3(3,0). 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

ED-Child, Family & Comm Serv

**MHS 6020 . Mental Health Care Systems**

3(3,0). PR: MHS 5005 or C.I. Foundations of mental health counseling including organizational, administration, fiscal, and accountability structures.

ED-Child, Family & Comm Serv

**MHS 6070 . Diagnosis and Treatment in Counseling**

3(3,0). 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.

ED-Child, Family & Comm Serv

**MHS 6220 . Individual Psychoeducational Testing I**

3(3,0). An overview of appraisal instruments for individual testing with emphasis on administration, scoring, and interpretation. Designed for practitioners interested in understanding individual assessment.

ED-Child, Family & Comm Serv

**MHS 6221 . Individual Psychoeducational Testing II**

3(3,1). PR: C.I. Analysis of test theory and practice in administration, scoring, and interpretation of tests assessing achievement, visual-motor and cognitive ability, adaptive behavior, and self-concept.

ED-Child, Family & Comm Serv

**MHS 6400 . Theories of Counseling and Personality**

3(3,0). 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.

ED-Child, Family & Comm Serv

**MHS 6401 . Techniques of Counseling**

3(1,2). PR: MHS 6400 or C.I. The nature of counseling and its relationships to theoretical concepts.

ED-Child, Family & Comm Serv

**MHS 6403 . Counseling and the Expressive Arts**

3(3,0). PR: C.I. This course provides a theoretical foundation for using expressive arts in counseling.

ED-Child, Family & Comm Serv

**MHS 6420 . Counseling Special Populations**

3(3,0). 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.

ED-Child, Family & Comm Serv

**MHS 6421 . Play Process in Counseling with Children**

3(3,0). PR: SDS 6411 or C.I. Theories and application of the principles of play in the counseling process with children.

ED-Child, Family & Comm Serv

**MHS 6422 . Advanced Play Process in Counseling**

3(3,0). PR: C.I. This course will provide an overview of different play therapy theories and the application of those in the counseling process.

ED-Child, Family & Comm Serv

**MHS 6430 . Family Counseling I**

3(1,2). PR: MHS 5005 or MHS 6020 or C.I. Presentation of specific family counseling theories. An evolution and current state of the art.

ED-Child, Family & Comm Serv

**MHS 6431 . Family Counseling II**

3(1,2). 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.

ED-Child, Family & Comm Serv

**MHS 6433 . Developmental Process of the Resilient Family**

3(3,0). PR: C.I. This course will examine models that focus on the resiliency of families throughout the life cycle and implications in counseling.

ED-Child, Family & Comm Serv

**MHS 6440 . Couples Counseling**

3(3,0). PR: Graduate standing or C.I. Overview of couple counseling theory and technique. In addition the course covers special problems and stressors in the couple relationship.

ED-Child, Family & Comm Serv

**MHS 6450 . Counseling Substance Use and Abuse**

3(3,0). 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.

ED-Child, Family & Comm Serv

**MHS 6465 . Counseling Victims & Perpetrators of Family Violence**

3(3,0). Examination of counseling interventions used with victims and perpetrators of family violence.

ED-Child, Family & Comm Serv

**MHS 6480 . Human Sexuality and Relationships**

3(3,0). A basic course in understanding how human beings form intra- and interpersonal relationships and how sexuality develops.

ED-Child, Family & Comm Serv

**MHS 6500 . Group Procedures and Theories in Counseling**

3(3,0). 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.

ED-Child, Family & Comm Serv

**MHS 6510 . Advanced Group Counseling**

3(1,2). 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.

ED-Child, Family & Comm Serv

**MHS 6600 . Consultation, Staffing, and Case Management**

3(2,0). PR: MHS 6500 or C.I. Understanding the counselor's role as consultant and staffing team member. Study of case management procedures.

ED-Child, Family & Comm Serv

**MHS 6780 . Ethical and Legal Issues**



3(3,0). Studies of ethical standards and legal issues in counseling and other human service professions.  
ED-Child, Family & Comm Serv

**MHS 6800 . Practicum in Counselor Education**

3(1,3). 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.  
ED-Child, Family & Comm Serv

**MHS 6830 . Counseling Internship**

1-6(1,1-6). PR: C.I. Supervised placement in setting appropriate for program track. (May be repeated for credit.)  
ED-Child, Family & Comm Serv

**MHS 6930 . Current Trends in Counselor Education**

3(3,0). PR: MHS 5005 or 6500 or C.I. Current trends affecting the rapid changes in the counseling field.  
ED-Child, Family & Comm Serv

**MHS 7311 . Technology Issues in Counselor Education**

3 (3,0). PR: Admission to Ph.D. in Education--Counselor Education track. Technology issues in counselor education including ethics, use of on line counseling, on line supervision, and addiction.  
ED-Child, Family & Comm Serv

**MHS 7340 . Advanced Career Development**

3(3,0). PR: Admission to Ph.D. in Educaiton. An advanced 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.  
ED-Child, Family & Comm Serv

**MHS 7406 . Advanced Theories in Counseling**

3(3,0). PR: Admission ot Ph.D. program in Education--Counselor Ed track. Examination of counseling theories including historical foundations and emerging theories.  
ED-Child, Family & Comm Serv

**MHS 7611 . Supervision in Counselor Education**

3(3,0). PR: Admission to Ph.D. in Education--Counselor Ed. track. An examination of the process and various theories of supervision in counselor education.  
ED-Child, Family & Comm Serv

**MHS 7700 . Professional Issues in Counselor Education**

3(3,0). PR: Admission to Ph.D. program in Education--Counselor Ed. track. Emphasis on professional issues realted to counselor education including teaching, research, and service.  
ED-Child, Family & Comm Serv

**MHS 7730 . Research Seminar in Counselor Education**

3(3,0). PR: Admission to Ph.D. in Education. An examination of outcome research design, methodological issues and empirical basis of counseling.  
ED-Child, Family & Comm Serv

**MHS 7808 . Practicum in Counseling Supervision**

3(3,0). PR: Admission to Ph.D. program in Education. Integration of theory and practice in counseling supervision  
ED-Child, Family & Comm Serv

**MHS 7840 . Internship in Counselor Education**

3(3,0). PR: Admission to Ph.D. program in Education--Counselor Ed. track. Examine and practice the various roles within a Counselor Education program under direct supervision.  
ED-Child, Family & Comm Serv

**MHS 7901 . Advanced Practicum in Counselor Education**

3(3,0). PR: Admission to Ph.D. program in Education--Counselor Ed. track. This course provides advanced graduate students an opportunity to demonstrate and develop counseling skills.  
ED-Child, Family & Comm Serv

**MLS 5710 . Current Concepts in Laboratory Management**

3(3,0). Overview of current administration and supervision concepts in a clinical laboratory to include laboratory planning, personnel administration, and financial management.  
HPA-Molecular & Microbiology

**MLS 6940 . Supervision and Administration in the Laboratory**

3(3,0). PR: Graduate standing or C.I. Management strategies and skills in the laboratory setting. Explores motivation theory, communication issues, ethics, personnel administration and regulatory agencies.  
HPA-Molecular & Microbiology

**MLS 6941 . Principles of Laboratory Education and Training**

3(3,0). PR: Graduate standing or C.I. Application of learning theories and curriculum planning to the laboratory didactic and practical teaching environment. To include goal and task analysis, performance objectives and evaluation mechanisms.  
HPA-Molecular & Microbiology

**MLS 6942 . Advanced Specialization in Immunematology; Theory**

3(3,0). PR: Graduate standing or C.I. Theoretical aspects of blood collection, testing, storage and transfusion of blood, red cell antigen genetic and immunological theory, transfusion therapy and serological characteristics of antibodies.  
HPA-Molecular & Microbiology

**MLS 6943 . Advanced Specialization in Immunoematology: Practice**

3(3,0). PR: Acceptance in the Specialist in Blood Banking program. Supervised practice in donor recruitment, phlebotomy, donor testing. Component preparation, HLA typings, transfusion service and management in the community blood center.  
HPA-Molecular & Microbiology

**MMC 6202 . Legal and Ethical Issues for Communication**

3(3,0). A study of social, ethical and legal issues for Communications practitioners and the impact on media consumers.  
AS-Communication

**MMC 6307 . International Communication**

3(3,0). Case studies on global communication, coping with cultures, communicating across cultures, global media, global news flow and persuasive communication. May be repeated for credit.  
AS-Communication

**MMC 6402 . Mass Communication Theory**

3(3,0). A study of mass communication theory and research traditions.

AS-Communication

**MMC 6407 . Visual Communication Theory**

3(3,0). A study of the visual world as it relates to theories of visual interpretation.

AS-Communication

**MMC 6445 . Mass Media Research I**

3(3,0). Quantitative approaches to mass communication research.

AS-Communication

**MMC 6446 . Mass Media Research II**

3(3,0). Qualitative approaches to mass communication research.

AS-Communication

**MMC 6567 . Seminar in New Media**

3(3,0). A study of the development and convergence of new technologies and their mediation.

AS-Communication

**MMC 6600 . Media Effects and Audience Analysis**

3(3,0). A study of the effects of communication on society emphasizing the research in media effects.

AS-Communication

**MMC 6606 . Advertising and Society**

3(3,0). A study of the social and ethical impact of advertising focusing on the development and presentation of advertising messages.

AS-Communication

**MMC 6607 . Communication and Society**

3(3,0). The importance of the mass media, their structure, role, and problems.

AS-Communication

**MMC 6612 . Communication and Government**

3(3,0). A study of the relationship between the media and government.

AS-Communication

**MTG 5256 . Differential Geometry**

3(3,0). PR: MAA 4227 or C.I. Differentiable manifolds, tangent space and tangent bundle, flows and vector fields, Lie derivatives, cotangent space and cotangent bundles, Riemann metrics, connections and geodesics, applications in classical mechanics.

AS-Mathematics

**MTG 6348 . Topological K-Theory**

3(3,0). PR: C.I. or MTG 4302. Chain and cochain complexes; general cohomology theories; exact couples and spectral sequences; Atiyah-Hirzebruch spectral sequence; topological K-theory; Chern character; applications.

AS-Mathematics

**MUE 6349 . Advanced General Music**

3(3,0). PR: Basic Teacher Certificate or C.I. Analysis of current materials, new programs, and teaching techniques in general music, K-12. Emphasis on practical applications. Examinations of psychological foundations of music education.  
ED-Child, Family & Comm Serv

**MUE 6946 . Practicum in Music Education**

3(0,14). PR: Basic Teacher Certificate. MUE 6349, MUE 6610 and MUE 6630 or C.I. Field experience in teaching music. (May be repeated for credit.)  
ED-Child, Family & Comm Serv

**MUM 5806 . Performing Arts Management**

3(3,0). PR: C.I. Structure of nonprofit performing arts organization (PAOs), examining the fundamental elements of administration, audience development, marketing, and fund-raising.  
AS-Music

**MUS 5526 . Music and Technology**

3(3,0). PR: Graduate Student. The emergence of technology in music including MIDI, CD ROM, and the high-tech music classroom.  
AS-Music

**MUT 5381 . Arranging and Composing Music**

3(3,0). PR: Satisfactory placement tests in theory, sight-singing, and ear training. Arranging and composing music for instrumental and vocal ensembles. Some emphasis on compositional techniques of the 20th century.  
AS-Music

**MVB 5451 . Trumpet V**

2(1,0). PR: C.I. May be repeated for credit.  
AS-Music

**MVB 5452 . French Horn V**

2(1,0). PR: C.I. May be repeated for credit.  
AS-Music

**MVB 5453 . Trombone V**

2(1,0). PR: C.I. May be repeated for credit.  
AS-Music

**MVB 5454 . Baritone V**

2(1,0). PR: C.I. May be repeated for credit.  
AS-Music

**MVB 5455 . Tuba V**

2(1,0). PR: C.I. May be repeated for credit.  
AS-Music

**MVK 5451 . Piano V**

2(1,0). PR: C.I. May be repeated for credit.

AS-Music

**MVK 5453 . Organ V**

2(1,0). PR: C.I. May be repeated for credit.

AS-Music

**MVO 5250 . Advanced Secondary Instruction**

1(1,0). PR: Graduate standing and C.I. Advanced instructional techniques on a secondary instrument or in voice. May be repeated for credit.

AS-Music

**MVP 5451 . Percussion V**

2(1,0). PR: C.I. May be repeated for credit.

AS-Music

**MVS 5451 . Violin V**

2(1,0). PR: C.I. May be repeated for credit.

AS-Music

**MVS 5452 . Viola V**

2(1,0). PR: C.I. May be repeated for credit.

AS-Music

**MVS 5453 . Cello V**

2(1,0). PR: C.I. May be repeated for credit.

AS-Music

**MVS 5454 . Bass V**

2(1,0). PR: C.I. May be repeated for credit.

AS-Music

**MVS 5455 . Harp V**

2(1,0). PR: C.I. May be repeated for credit.

AS-Music

**MVS 5456 . Guitar V**

2(1,0). PR: C.I. May be repeated for credit.

AS-Music

**MVV 5451 . Voice V**

2(1,0). PR: C.I. May be repeated for credit.

AS-Music

**MVW 5451 . Flute V**

2(1,0). PR: C.I. May be repeated for credit.

AS-Music

**MVW 5452 . Oboe V**

2(1,0). PR: C.I. May be repeated for credit.

AS-Music

**MVW 5453 . Clarinet V**

2(1,0). PR: C.I. May be repeated for credit.

AS-Music

**MVW 5454 . Bassoon V**

2(1,0). PR: C.I. May be repeated for credit.

AS-Music

**MVW 5455 . Saxophone V**

2(1,0). PR: C.I. May be repeated for credit.

AS-Music

**NGR 5003 . Advanced Health Assessment, Health Promotion, & Diagnostic Reasoning**

3(3,0). PR: Baccalaureate Degree in Nursing; Basic Hlth Assess course. Co: Adv Hlth Assess Clinical. Advanced health assessment, health promotion, and diagnostic reasoning for individuals over the lifespan and populations.

HPA-Nursing

**NGR 5004L . Advanced Health Assessment, Health Promotion, & Diagnostic Reasoning Clinical**

2(0,2). PR: Pre-Baccalaureate in Nursing Basic Health Assessment course. CR: NGR 5003C. Application of skills for advanced health assessment, health promotion, and diagnostic reasoning for individuals over the lifespan and populations. Graded S/U.

HPA-Nursing

**NGR 5090 . Urgent Care for the Advanced Practice Nurse**

3(3,0). PR: NGR 6240C or C.I. Advanced practice evaluation and management of clients in urgent care settings.

HPA-Nursing

**NGR 5141 . Pathophysiological Bases for Advanced Nursing Practice**

3(3,0). PR: Baccalaureate Degree in Nursing. Critical examination of the physiological and pathophysiological mechanisms affecting individuals.

HPA-Nursing

**NGR 5252 . Psycho-Social Factors and Health Care Outcomes in the Elderly**

3(3,0). PR: Post-baccalaureate or graduate status or C.I. Interdisciplinary perspective to examine the relationship between client characteristics, client health care provider interactions and health care outcomes in the elderly.

HPA-Nursing

**NGR 5635 . Transdisciplinary and Community-Based Strategies of Health Professionals**

3(3,0). PR: Graduate standing or C.I. A study of healthcare issues and strategies encountered by speech-language pathologists and nurse practitioners when promoting transdisciplinary and collaborative interactions.

HPA-Nursing

**NGR 5714 . Clinical Teaching Strategies for Health Professional Education**

3(3,0). PR: EDG 6236 or Teaching Strategies for Health Professionals, or C.I. In-depth study of the development, implementation, and evaluation of clinical education programs for health profession students. May be repeated for credit.

HPA-Nursing

**NGR 5715 . Instructional Technology Resources for Health Professional Education**

3(3,0). PR: EDG 6236, Teaching Strategies for Health Professionals, or C.I. Analysis of effective teaching learning strategies with emphasis on developing techniques for teaching through technology resources.

HPA-Nursing

**NGR 5720 . Organizational Dynamics**

3(3,0). PR: Baccalaureate Degree in Nursing. Analysis of theories and models of health care organizational systems. Emphasis on nursing administration roles.

HPA-Nursing

**NGR 5744 . Roles and Issues in Advanced Practice Nursing I**

1(1,0). PR: Admission to the MSN program or C.I. Examine societal responses to health and illness, health care systems and policies and the role of advanced practice nurses.

HPA-Nursing

**NGR 5745 . Roles and Issues in Advanced Practice Nursing III**

1(1,0). PR: NGR 5746 (Roles and Issues in Advanced Practice Nursing II). Examine professional obligations of advanced practice nurses. Opportunity to develop skills for taking certification exam.

HPA-Nursing

**NGR 5746 . Roles and Issues in Advanced Practice Nursing II**

1(1,0). PR: NGR 5744. Examine cultural, legal, ethical and political issues of advanced practice nurses.

HPA-Nursing

**NGR 5791 . Teaching Strategies for Health Professionals**

3(3,0). PR: Bachelors in nursing or consent of instructor. Analysis of internal and external controls on curriculum development for health professionals; application of selected teaching learning theories to classroom and clinical practice.

HPA-Nursing

**NGR 5800 . Nursing Theory/Research I**

4(4,0). PR: Baccalaureate degree in Nursing or NUR 4836, undergraduate statistics course or C.I. Explores and analyzes the conceptual and theoretical bases of nursing, examines and critiques research designs and methods commonly used in nursing research.

HPA-Nursing

**NGR 5801 . Nursing Research II/Statistics**

4(4,0). PR: BSN; NGR 5800; Undergraduate Statistics or C.I. Measurement strategies in nursing research, data planning and collection techniques, statistical data analysis and interpretation of results, research proposal development, outcomes research and statistical software.

HPA-Nursing

**NGR 5871 . Health Care Informatics**

3(3,0). PR: Baccalaureate in health-related field or C.I. Use of information systems, clinical data management, communication strategies,

and decision-making models.

HPA-Nursing

**NGR 5880 . Professional Ethics**

3(3,0). PR: C.I. Clinical cases and other professional ethical issues related to codes of conduct and research; application of ethical principles. May be repeated for credit.

HPA-Nursing

**NGR 6192 . Pharmacology for Advanced Nursing Practice**

3(3,0). 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.

HPA-Nursing

**NGR 6240 . Adult I for APNs**

3(3,0). PR: PreAdmit MSN Prog ANP/FNP track, NGR 5003,5141, 6334C. CR: Adult I APN clin or C.I. Development of theoretical skills for evaluation, diagnosis, and management of health needs of adults and communities.

HPA-Nursing

**NGR 6240L . Adult I Clinical for APNs**

3(0,3). PR: Preadmit to MSN prog FNP/ANP track, NGR 5003C, 5141, 6334C, 6192. CR: NGR 6240C. Application of skills for evaluation, diagnosis, and management of health needs of adults and communities. Graded S/U.

HPA-Nursing

**NGR 6242 . Adult II for APNs**

2(2,0). PR: NGR 6242C, 6334C, 6192. CR: Adult II for APN Clinical or CI. Development of theoretical foundation for the evaluation, diagnosis, and management of the complex health needs of adults.

HPA-Nursing

**NGR 6242L . Adult II Clinical for APNs**

2(0 ,2). PR: NGR 6240C, NGR 6334C, NGR 6192 CO-NGR 6242. Application of theory and skills for the evaluation, diagnosis, and management of the complex health needs of adults. Graded S/U. May be repeated for credit.

HPA-Nursing

**NGR 6331 . Pediatrics I for APNs**

2(2,0). PR: Admission to MSN program FNP or PNP tract, NGR 5003, 5141. ; CR: Pediatrics I Clinical, NGR 6192, Focused Pediatrics (PNP students only). Evaluation, diagnosis, and management of the primary care needs of children, their families and communities.

HPA-Nursing

**NGR 6331L . Pediatrics I Clinical for APNs**

2(0,2). PR: Admission of MSN program PNP or FNP track, NGR 5003, NGR 6141. CR: Pediatrics I, NGR 6192, Focused Pediatrics. Evaluation diagnosis and management of the primary care needs of children and their families.

HPA-Nursing

**NGR 6332 . Pediatrics II for APNs**

3(3,0). PR: Pediatrics I, Pediatrics I Clinical, NGR 6192 ; CR: Pediatrics II, Clinical or CI. Foundation for the evaluation, diagnosis, and management of the complex health needs of children and their families.

HPA-Nursing



**NGR 6332L . Pediatrics II Clinical for APNs**

3(0,3). PR: Pediatrics I, Pediatrics I Clinical, NGR 6192.; CR: Pediatrics II. Evaluation, diagnosis, and management of the complex health needs of children and their families.

HPA-Nursing

**NGR 6334 . Women's Health for APNs**

2(2,0). PR: Admit MSN prog ANP/FNP track, NGR 5003, 5141. CR: Wmns Hlth APN Clin. 6192 or CI. Development of theoretical skills for evaluation, diagnosis, and management of women.

HPA-Nursing

**NGR 6335 . Focused Pediatrics for APNs**

2(2,0). PR: Admission to MSN program PNP or FNP tract, NGR 5003, NGR 5141. CR: Pediatrics I, Pediatrics I Clinical, Focused Pediatrics Clinical, NGR 6192. Development of advanced knowledge in the physical and developmental assessment of children and families across the lifespan.

HPA-Nursing

**NGR 6335L . Focused Pediatrics Clinical for APNs**

1(0,1). PR: Pre- Ped I for APNs; NGR 6192; co-focused Pediatrics for APNs. Application of theory and skills for the in depth developmental and physical assessment of children and their families. Graded S/U. May be repeated for credit.

HPA-Nursing

**NGR 6482L . Women's Health for APNs Clinical**

1(0,1). PR: Admit to MSN program. GNP/ANP track, NGR 5003, 5141, CR: Women's Hlth for APNs, NGR 6192 or CI. Application of skills for evaluation, diagnosis, and management of the health needs of women. Graded S/U.

HPA-Nursing

**NGR 6722 . Financial Management and Resource Development**

3(3,0). PR: Admission to MSN program, NGR 5720. Comprehensive overview of health care economics for the nurse executive; financial management, resource development and impact on nursing and health care services.

HPA-Nursing

**NGR 6723 . Nursing Leadership and Management I**

2(2,0). PR: Admission to MSN program, NGR 5720, CR: Nursing Ldrshp and Mngmt I Practicum. Analysis, synthesis, and application of principles related to health care administration including nursing care delivery systems, staffing, personnel management, and legal and regulatory requirements.

HPA-Nursing

**NGR 6723L . Nursing Leadership and Management I Practicum**

2(0,2). PR: Admit to MSN program, NGR 5720. CR: NGR 6723. Preceptor experience with a nurse leader/executive with a focus on the analysis, synthesis, and application of principles related to health care administration. Graded S/U.

HPA-Nursing

**NGR 6724 . Nursing Leadership and Management II**

2(2,0). PR: NGR 5720, 6723. CR: Nursing Leadership and Management II Practicum. Analysis, synthesis, and application of principles related to health care administration including management information systems, quality management, program evaluation, strategic planning, and issues and trend.

HPA-Nursing

**NGR 6724L . Nursing Leadership and Management II Practicum**

3(0,3). PR: NGR 5720, 6723. CR: NGR 6724. Preceptor experience with a nurse leader/executive for advanced analysis, synthesis, and application of principles related to health care administration.

HPA-Nursing

**NGR 6752 . Clinical Nurse Specialist I**

3(3,0). PR: NGR 5141; NGR 6192, NGR 5720, NGR 5003. Foundation for CNS practice; common clinical problems across the lifespan; role delineation.

HPA-Nursing

**NGR 6752L . Clinical Nurse Specialist I Practicum**

2(0,2). PR: NGR 6752, NGR 6722. Implementation of the clinical expert, educator, and leadership roles of the CNS.

HPA-Nursing

**NGR 6753 . Clinical Nurse Specialist II**

2(0,2). PR: Clinical Nurse Specialist I and Clinical Nurse Specialist I Practicum. Continuation of CNS; management of acute and/or complex patients across the lifespan; consultant, case manager, change agent and research roles.

HPA-Nursing

**NGR 6753L . Clinical Nurse Specialist II Practicum**

2(0,2). PR: Clinical Nurse Specialist II. Implementation of CNS role with emphasis on the consultant, case manager, change agent, and researcher.

HPA-Nursing

**NGR 6813 . Research Scholarly Work**

3(3,0). PR: NGR 5801, admission to MSN program. Develop, conduct, and complete a scholarly work evaluating research findings for application to advanced practice. Graded S/U.

HPA-Nursing

**NGR 6941 . Advanced Practice Practicum**

Variable 1-6. PR: NGR 6334C or NGR 6242C. Supervised advanced clinical practice in the role of the nurse practitioner in an individualized preceptorship.

HPA-Nursing

**OSE 5041 . Introduction to Wave Optics**

3(3,0). 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.

ECS-Elect Engr & Computer Sci

**OSE 5050 . Fundamentals and Applications of Photonics**

3(3,0). PR: Graduate standing or C.I. Introduction to optics and photonics emphasizing the concepts governing applications of current interest for science and engineering senior and first-year graduate students and working scientists and engineers.

UCF-Optics

**OSE 5051L . Electro-Optics Laboratory**

3(1,4). PR: EEL 4440 or OSE 5041 or C.I. Study of laboratory techniques for optical measurements and performance of measurements on electro-optic devices to determine operational characteristics.

**OSE 5111 . Optical Wave Propagation**

3(3,0). PR: Graduate standing or C.I. Optical propagation of light waves as applied to isotropic, anisotropic, and inhomogeneous media, guided waves and Gaussian beams.

UCF-Optics

**OSE 5115 . Interference and Diffraction**

3(3,0). PR: Graduate standing or C.I. Interference of light, optical interferometry, Fraunhofer and Fresnel scalar diffraction, diffraction gratings, temporal coherence, spatial coherence, and partial coherence.

AS-Physics

**OSE 5143 . Fiber Optics Communication**

3(3,0). 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.

ECS-Elect Engr & Computer Sci

**OSE 5203 . Geometrical Optics**

3(3,0). PR: C.I. or G.S. Fundamentals of Geometrical Optics, Geometrical Theory of Image Formation, Optical System Layout.

ECS-Elect Engr & Computer Sci

**OSE 5312 . Optical Properties of Materials**

3(3,0). PR: PHY 4324, MAP 2302, PHY 4424. Normal modes (dipole and Raman active); microscopic theory of absorption, dispersion, and refraction; wave propagation, crystal optics; scattering mechanisms; optical activity.

AS-Physics

**OSE 5414 . Fundamentals of Optoelectronic Devices**

3(3,0). PR: Graduate standing or C.I. Operation, methods of fabrication, applications, and limitations of various optoelectronic devices including quantum well semiconductor devices.

ECS-Elect Engr & Computer Sci

**OSE 5421 . Integrated Optics**

3(3,0). PR: Graduate standing or C.I. The propagation and loss characteristics in dielectric optical waveguides, fundamental concepts of both integrated and fiber optic devices, numerical modeling of complex integrated optical components.

UCF-Optics

**OSE 5511 . Laser Principles**

3(3,0). PR: PHY 3101, MAP 2302, PHY 4424. Classical introduction to the basic principles of laser gain media, properties of resonators and modes, description of specific laser systems.

AS-Physics

**OSE 5630C . Thin Film Optics**

3(2,1). PR: PHY 4424 or EEL 4440 and OSE 5041 or OSE 5051C. Principles of thin film optics and its applications in optical, electro-optical, and laser systems.

ECS-Elect Engr & Computer Sci

**OSE 6118 . Optical Propagation in Inhomogeneous Media**

3(3,0). PR: Graduate standing or C.I. Basic concepts of optical wave scattering and propagation in inhomogeneous media with applications to material sciences, optical remote sensing, biomedical optics, imaging, and image analysis.

UCF-Optics

**OSE 6211 . Fourier Optics**

3(3,0). Application of Fourier transform theory to optical systems design. Development of optical correlation techniques. Holographic techniques and applications.

ECS-Elect Engr & Computer Sci

**OSE 6225 . Radiation and Detection**

3(3,0). PR: C.I. Radiometry, Planck radiators, spectrometers, photon-counting statistics, detector noise analysis, detector mechanisms.

ECS-Elect Engr & Computer Sci

**OSE 6265 . Optical Systems Design**

3(3,0). PR: OSE 5203 or C.I. Design principles of lens and mirror optical systems; evaluation of designs using computer techniques.

ECS-Elect Engr & Computer Sci

**OSE 6334 . Nonlinear Optics**

3(2.5,0.5). PR: PHY 5346. Maxwell's equations in nonlinear media, frequency conversion techniques (SHG, SFG, OPO), stimulated scattering, phase conjugation, wave-guided optics, nonlinear crystals.

AS-Physics

**OSE 6335 . Nonlinear Guided Wave Optics**

3(3,0). PR: PHY 5346, PHY 6347, and OSE 6334. The physics and applications of nonlinear optical interactions in fibers and planar waveguides is discussed, including parametric processes, all-optical effects and solitons.

AS-Physics

**OSE 6347 . Quantum Optics**

3(3,0). PR: PHY 5606, PHY 5346, OSE 5511. Semiclassical treatment of light/matter interactions (quantized atomic states plus Maxwell's equations). Density matrix theory, coherent optical transients, pulse propagation.

AS-Physics

**OSE 6432 . Electro-optics**

3(3,0). PR: EEL 3470, OSE 5041. Principles, design and use of birefringent and periodic electro-optic devices. Nonlinear and phase-conjugate optics.

ECS-Elect Engr & Computer Sci

**OSE 6445 . High Speed Photonics**

3(3,0). PR: Graduate standing or C.I. Generation, transmission, detection, and manipulation of high-speed optical signals.

UCF-Optics

**OSE 6455L . Photonics Laboratory**

3(1,3). PR: Graduate standing or C.I. Experimental study of photonic devices and systems including liquid crystal displays, fiber-optic sensors, laser diodes, electro optic modulation, acousto-optic modulation, lightwave detection, optical communications, and photonic signal processing.

ECS-Elect Engr & Computer Sci

**OSE 6457 . Photonic Signal Processing**

3(3,0). Design, building and testing of photonic information processing systems using fiber-optics bulk polarization optics, acousto-optics, liquid crystals, micromirrors, and integrated optics.

ECS-Elect Engr & Computer Sci

**OSE 6473 . Optical Networks**

3(3,0). PR: Graduate standing or C.I. The interplay between the current state of electronic digital networking and optical transmission and switching technologies and the principles that underlie the present optical networking technology.

UCF-Optics

**OSE 6526L . Laser Engineering Laboratory**

3(1,3). PR: OSE 6560, OSE 5511, 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.

ECS-Elect Engr & Computer Sci

**OSE 6528 . Specific Laser Systems**

3(3,0). PR: OSE 5511 or C.I. Review of laser principles, specifics of gas, ion, solid state, dye, metal vapor, free electron, and semiconductor lasers and power supplies.

AS-Physics

**OSE 6560 . Laser Engineering**

3(3,0). PR: OSE 5041 or C.I. Principles of laser amplification and oscillations; design of lasers; general characteristics of excitation systems.

ECS-Elect Engr & Computer Sci

**OSE 6615L . Optoelectronic Device Fabrication Laboratory**

3(3,0). PR: Graduate standing or C.I. Design and micro-fabrication of semiconductor optoelectronics devices including passive waveguides, light emitting diodes (LEDs), laser diodes (LDs), photodetectors and electro-optic modulators.

UCF-Optics

**OSE 6817 . Advanced Topics in Electro-Optics**

3(3,0). PR: C.I. Current research topics in electro-optics, such as optical computing, binary optics, advanced system design issues, novel laser systems.

ECS-Elect Engr & Computer Sci

**OSE 6854 . Near Field Optics**

3(3,0). PR: Graduate standing or C.I. An introduction to the underlying phenomenology and the potential applications of near-field optics in using light to locate, identify, and manipulate structures on nanometer scales.

UCF-Optics

**PAD 5041 . Ethics and Values in Public Administration**

3(3,0). Examination of ethics in the public sector. Public concerns, past patterns, and individual/social aspects of ethical behavior are explored.

HPA-Public Administration

**PAD 5142 . Nonprofit Organizations**

3(3,0). PR: Admission to certificate program or C.I. Overview of nonprofit management, including history, governance structures, criteria

used to establish nonprofit status, range of organizations, and application of management theory.

HPA-Public Administration

**PAD 5145 . Volunteerism in Nonprofit Management**

3(3,0). PR: Admission to certificate program or C.I. Human resource development in nonprofit organizations, including board selection, development and leadership, volunteer recruitment, training, retention and theories of motivation, leadership, ethical issues.

HPA-Public Administration

**PAD 5146 . Nonprofit Resource Development**

3(3,0). PR: Post-bac status or C.I. Examines human resource development and financial resource development in nonprofit organizations including management issues.

HPA-Public Administration

**PAD 5208 . Nonprofit Financial Management**

3(3,0). PR: Admission to certificate program or C.I. Financial management in nonprofit organizations, including nonprofit funding, budgeting policies and procedures, orientation of department managers to budgeting, estimating income and expenses, and ethical implications of budgeting and finance.

HPA-Public Administration

**PAD 5336 . Introduction to Urban Planning**

3(3,0). Issues of urbanization, regional development, land use and comprehensive planning, environmental planning, and social planning.

HPA-Public Administration

**PAD 5337 . Urban Design**

3(3,0). Planning techniques such as planned unit developments, capital improvements planning, and growth management, and planning methods, including needs assessment and graphic design.

HPA-Public Administration

**PAD 5338 . Land Use and Planning Law**

3(3,0). Review of national and local aspects of the legal underpinnings of urban planning aspects such as zoning, growth management, and environmental regulation.

HPA-Public Administration

**PAD 5356 . Managing Community and Economic Development**

3(3,0). PR: Graduate standing or C.I. Overview of economic development activities focusing on policy and managerial issues at the local level.

HPA-Public Administration

**PAD 5425 . Dispute Resolution in the Public Sector**

3(3,0). An examination of the skills needed to resolve disputes in the public sector through facilitation, mediation, and other alternative methods.

HPA-Public Administration

**PAD 5427 . Labor Relations in the Public Sector**

3(3,0). Current trends and developments in employment relations in the public sector, especially employee organization, negotiations, and the collective bargaining process.

HPA-Public Administration

**PAD 5806 . Local Government Operations**

3(3,0). Operational Functions of municipal and county governments and the role of the chief executive officer.

HPA-Public Administration

**PAD 5807 . Administrative Practice in the Public Sector**

3(3,0). The application of various theoretical concepts to the "real world" of public administration. Policy formulation and execution are examined through the case study mode.

HPA-Public Administration

**PAD 5850 . Grant and Contract Management**

3(3,0). 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.

HPA-Public Administration

**PAD 6035 . Public Administration in the Policy Process**

3(3,0). 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.

HPA-Public Administration

**PAD 6037 . Public Organization Management**

3(3,0). Structure, functioning, performance of public organizations; behavior of individuals and groups; application for public management, includes both macro and micro approaches to organizational behavior.

HPA-Public Administration

**PAD 6053 . Public Administrators in the Governance Process**

3(3,0). 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.

HPA-Public Administration

**PAD 6062 . Advanced Concepts and Applications in Public Administration**

3(3,0). PR: Completion of all core requirements. An integrative course applying the skills, knowledge, and values considered in the program to selected public problems.

HPA-Public Administration

**PAD 6207 . Public Financial Management**

3(3,0). PR: Graduate standing or C.I. Survey of financial management functions in local government, such as accounting, fund structures, debt and case management, and financial reporting.

HPA-Public Administration

**PAD 6227 . Public Budgeting**

3(3,0). PR: Graduate standing or C.I. Budgets as planning programming documents, stressing the relationships of policy and budgetary decisions, problems in grantsmanship and revenue decision-making, program budgeting, PPBS, and incrementalism

HPA-Public Administration

**PAD 6307 . Policy Implementation**

3(3,0). Program analysis and organization structure as policy tools, examining the implementation of differential policy and the administrator as policy maker and change agent.

HPA-Public Administration

**PAD 6327 . Public Program Evaluation Techniques**

3(3,0). Techniques and skills utilized in the evaluation of public programs.

HPA-Public Administration

**PAD 6335 . Strategic Planning and Management**

3(3,0). 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.

HPA-Public Administration

**PAD 6353 . Environmental Program Management Research**

3(3,0). Research of environmental programs, problems, issues, and policies to prepare persons working for or entering government service for environmental program staff or management responsibilities.

HPA-Public Administration

**PAD 6417 . Human Resource Management**

3(3,0). Administrator as manager and motivator of public employees with particular emphasis on organizational behavior and contemporary public service legislation.

HPA-Public Administration

**PAD 6700 . Analytic Techniques for Public Administration I**

3(3,0). Statistical methodology and use of computers as a tool for decision-making in the public sector.

HPA-Public Administration

**PAD 6701 . Analytic Techniques for Public Administration II**

3(3,0). PR: Completion of PAD 6700. Applied analytical tools for administrators in the public sector. Practical use of computers in policy and decision-making.

HPA-Public Administration

**PAD 6716 . Information Systems for Public Managers and Planners**

3(3,0). PR: C.I. Use of systems concept, software and computers in contemporary public sector management and planning information systems.

HPA-Public Administration

**PAD 6834 . Comparative Global Public Admin**

3(3,0). PR: Graduate status or CI. Public Administration at the national level, to include political system, policy structure, institutional frameworks, institutional capacity and level of technology.

HPA-Public Administration

**PAD 6934 . Special Issues in Public Administration**

3(3,0). Substantive and theoretical issues confronting the broad spectrum of contemporary public administration. May be repeated for credit when content is different

HPA-Public Administration

**PAD 6946 . Internship**



3(3,0). PR: C.I.  
HPA-Public Administration

**PAD 7026 . Advanced Seminar in Public Administration**

3(3,0). PR: PAD 6053, PAF 7802. Discuss emerging issues in public administration research using current journal articles and exemplary research in areas such as public management.  
HPA-Public Administration

**PAD 7419 . Advanced Public Human Resource Management**

3(3,0). PR: PAD 6417 or C.I. Contemporary issues of public sector personnel management, including public employee motivation, merit pay, performance appraisal, affirmative action, productivity enhancement, merit pay, performance appraisal, affirmative action, productivity enhancement, civil service reforms, comparative public personnel management.  
HPA-Public Administration

**PAF 7000 . Foundations of Public Affairs**

3(3,0). PR: Admission to Ph.D Program or CI. Introduction to Public Affairs - with special emphasis on the interrelationships among criminal justice, health services administration, public administration and social work.  
HPA-College-HPA

**PAF 7110 . Ethics and Public Affairs**

3(3,0). PR: Admission to Ph.D. Program or CI. Basic philosophical principles of ethical theories as they impact practitioner-level ethical demands for public managers.  
HPA-College-HPA

**PAF 7230 . Strategic Change and Management in Public Affairs**

3(3,0). PR: Admission to Ph.D. Program or CI. Traditional organizational behavior in public affairs within the context of public agency interests and the demand for organizational change.  
HPA-College-HPA

**PAF 7250 . Social Justice and Public Policy**

3(3,0). PR: Admission to Ph.D. Program or CI. Examination of how public policy and institutions shape social justice in the United States. Emphasizes different concepts of social justice and public policies.  
HPA-College-HPA

**PAF 7300 . Policy Analysis in Public Affairs**

3(3,0). PR: Admission to Ph.D. Program or CI. Public policy development and impact analysis in criminal justice, health administration, public administration, and social work.  
HPA-College-HPA

**PAF 7510 . Seminar in Program Evaluation in Public Affairs**

3(3,0). PR: Admission to Ph.D. Program or CI. Critical analysis of program evaluation literature. Development of skills necessary to conduct program evaluations and impact assessments.  
HPA-College-HPA

**PAF 7600 . Legal Foundations of Public Affairs**

3(3,0). PR: Admission to Ph.D. program in Public Affairs. Legal issues, reasoning, and research related to administration and public affairs.

HPA-College-HPA

**PAF 7802 . Advanced Research Methods in Public Affairs**

3(3,0). PR: Admission to Ph.D. Program or CI. Advanced social science methodology. Critical evaluation of research; the design and conduct of research. A solid background in research methodology is required.

HPA-College-HPA

**PAF 7804 . Advanced Quantitative Methods I**

3(3,0). PR: Admission to Ph.D. Program or CI. An investigation of data analysis strategies, including presentation of results, building upon knowledge of hypothesis testing and multivariate statistics.

HPA-College-HPA

**PAF 7810 . Seminar in Survey Research in Public Affairs**

3(3,0). PR: Admission to Ph.D. Program or CI. In-depth analysis of research survey methods and their application. Focus on interviews and questionnaires.

HPA-College-HPA

**PAF 7820 . Seminar in Qualitative Methods in Public Affairs**

3(3,0). PR: Admission to Ph.D. Program or CI. Qualitative research methods and their application to the study of public affairs. Methods examined include case studies, focus groups, ethnographic studies, qualitative interviews, and content analysis.

HPA-College-HPA

**PAF 7840 . Seminar in Secondary Data Analysis in Public Affairs**

3(3,0). PR: PAF 7802. In-depth examination of the availability and use of archival data. Advantages and limitations of secondary data analysis discussed.

HPA-College-HPA

**PAF 7982 . Dissertation Seminar in Public Affairs**

2(2,0). PR: Admission to Ph.D. Program or CI. To provide guidance during the initial stages of dissertation preparation.

HPA-College-HPA

**PCB 5045C . Conservation Biology**

4(3,2). PR: PCB 3034 and PCB 3063. Scientific basis of conservation; conservation of ecosystems, populations, exploited species, and endangered species. Weekend field trips are required.

AS-Biology

**PCB 5107C . Advanced Cell Biology**

4(3,2). PR: PCB 3063 and PCB 3023 or CI. Review of selected topics in cell biology with emphasis on current research in areas of membrane structure, protein targeting, cytoskeleton, signalling and cell cycle.

AS-Biology

**PCB 5238 . Immunopathology**

3(3,0). PR: PCB 3233. In-depth overview of diseases due to deficiencies or over-reactivity of the immune system.

HPA-Molecular & Microbiology

**PCB 5239 . Tumor Biology**

3(3,0). 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.  
HPA-Molecular & Microbiology

**PCB 5256C . Advanced Developmental Biology**

4(3,2). PR: PCB 3063 and ZOO 4603C or equivalent. Lecture and literature review of emerging areas in plant and animal developmental biology.  
AS-Biology

**PCB 5275 . Signal Transduction Mechanics**

3(3,0). 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.  
HPA-Molecular & Microbiology

**PCB 5326C . Ecosystems of Florida**

5(3,2). PR: PCB 3034, PCB 3034L or equivalent. Ecosystems of Florida will be discussed to include geography, geology, climate, energetics, nutrient cycling, community structure and conservation.  
AS-Biology

**PCB 5328C . Landscape Ecology**

4(2,4). PR: PCB 3034, STA 2023 or C.I. Influence of spatial heterogeneity on ecological processes. Emphasizes quantitative methods (e.g., GIS, remote sensing and modeling) to characterize landscape patterns and dynamics.  
AS-Biology

**PCB 5435C . Marine Ecology of Florida**

4(2,6). PR: BSC 4312C or graduate status. Survey of experimental methods used in the study of marine communities in central and southern Florida, combining field manipulation and readings from primary literature.  
AS-Biology

**PCB 5485 . Models in Ecology**

3(3,0). PR: PCB 3034, MAC 2311 (or equivalent). A survey of how simulation models are applied to ecological questions of both a theoretical and managerial nature.  
AS-Biology

**PCB 5520 . Behavioral Ecology**

3(3,0). PR: CI. Introduction to field of Behavioral Ecology, which studies evolution of animal behavior in the wild.  
AS-Biology

**PCB 5556C . Conservation Genetics**

4(3,2). PR: PCB 3063 and PCB 4683. Applications of genetic models to the understanding and conservation of animal and plant populations.  
AS-Biology

**PCB 5665C . Human Genetics**

4(3,2). PR: PCB 3063, graduate standing or C.I. Human Genetics provides a theoretical framework for understanding the biology of the human species.  
AS-Biology

**PCB 5677 . Molecular Evolution**

3(3,0). PR: PCB 3063 and PCB 4683C. Provides an overview of molecular methods currently used to analyze diversity within and among species.

AS-Biology

**PCB 6046C . Advanced Ecology**

5(3,4). PR: Ecology, statistics and 2 years of biological science. Population and community ecology with emphasis on growth, regulation, species interactions, succession, and community classification.

AS-Biology

**PCB 6365 . Environmental Physiology**

3(3,0). PR: Physiology and ecology or C.I. The effects of major environmental factors on the physiology of plants and animals.

AS-Biology

**PCB 6585C . Advanced Genetics**

4(3,2). PR: Graduate standing and PCB 3063 or CI. Recent advances in genetics, stressing molecular and developmental trends.

AS-Biology

**PCB 6595 . Regulation of Gene Expression**

3(3,0). PR: Advanced course in molecular biology of MCB 6407C. Concepts of molecular biology focusing on major areas in transcriptional and translational processes.

HPA-Molecular & Microbiology

**PCB 6596 . Bioinformation and Genomics**

3(3,0). PR: Admission to Biomolecular Sciences Ph.D. of C.I. New scientific approaches, technologies, and tools for analysis of genomic data-genome sequencing projects.

HPA-Molecular & Microbiology

**PCB 6675C . Evolutionary Biology**

4(3,2). PR: PCB 3034 and PCB 3063 or C. I. Review of modern concepts and theories in evolutionary biology with emphasis on readings in the primary literature.

AS-Biology

**PCB 6727 . Comparative Animal Physiology**

3(3,0). 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.

AS-Biology

**PCB 6930 . Current Topics in Ecology**

1(1,0). PR: Graduate standing or C.I. Research on current ecological topics will be added . The instructor will assign readings on a weekly basis. Students will lead discussion. Graded S/U. May be repeated for credit.

AS-Biology

**PCB 6933 . Contemporary Studies in Biology**

2(2,0). PR: Graduate standing. Analysis of current publications and developments in theory and concepts of biological sciences. May be repeated for credit as content is variable.

AS-Biology

**PCB 6934 . Molecular Mechanisms of Fertilization: Journal Club**

1(1,0). PR: Graduate standing or CI. Current topics in fertilization research includes analysis and discussion of primary literature in both vertebrate and invertebrate systems. Graded S/U.

AS-Biology

**PCB 6959 . Cell Biology: Journal Club**

1(1,0). PR: Graduate standing or CI. Reading and critical analysis of current research in cell biology with emphasis on cell-cell communication, cell-ecm interaction and protein targeting. Graded S/U.

AS-Biology

**PEM 5408 . Controlling Classroom Violence**

3(3,0). PR: Post-baccalaureate or graduate status; certified teacher; or C.I. A hands-on course dealing with controlling disruption and violence as well as how teachers can protect themselves.

ED-Teaching & Learning Princ

**PEO 5645 . Coaching Football**

3(3,0). PR: C.I. Advanced principles and methods common to the coaching of football. Includes teaching and training methods, organization, motivation and strategies.

ED-Teaching & Learning Princ

**PET 5355 . Exercise and Health**

3(3,0). PR: Admission to Master's Program or Certificate Program. Will provide educators an in-depth understanding of energy pathways, and neuromuscular, cardiovascular, and respiratory systems during exercise. Emphasis on understanding principles of exercise adaptations and applying those principles to fitness/wellness settings.

ED-Teaching & Learning Princ

**PET 5635 . Advanced Human Injuries**

3(3,0). PR: PET 2622C or C.I. The application of medical knowledge to sport with the emphasis on preserving the health of an athlete before, during and after performance.

ED-Teaching & Learning Princ

**PET 5766 . Advanced Coaching Theory**

3(3,0). PR: C.I. Advanced study of theories and methods of coaching for optimum sports performance.

ED-Teaching & Learning Princ

**PET 6086 . Exercise As Preventive Medicine**

3(3,0). PR: PET 6388. Prevention of select major risk hazards through exercise intervention.

ED-Child, Family & Comm Serv

**PET 6088 . Wellness Development in Children**

3(3,0). An analysis of wellness characteristics and concepts as they affect the wellness of children.

ED-Teaching & Learning Princ

**PET 6089 . Personal and Organizational Wellness**

3(3,0). Professional implications of the U.S. Wellness Movement and assessment of the nature and quality of corporate and other instructional programming.

ED-Teaching & Learning Princ

**PET 6238C . Perceptual Motor Development**

3(2,1). Theoretical and laboratory study of the relationship between perceptual motor development and learning. Special attention is given to identifying and remediating motor deficit.

ED-Teaching & Learning Princ

**PET 6357C . Environmental Exercise Physiology**

3(3,2). A study of physiological adaptation resulting from prescribed physical activity programs.

ED-Child, Family & Comm Serv

**PET 6367 . Physical Performance and Energy Supplies**

3(3,0). The relation of nutrients to aerobic performance.

ED-Child, Family & Comm Serv

**PET 6369 . Electrocardiography**

3(3,0). PR: PET 6388. The course is designed to give the student the basic understanding of the electrocardiogram as it relates to graded exercise testing and functional evaluation.

ED-Child, Family & Comm Serv

**PET 6381 . Physiology of Neuromuscular Mechanisms**

3(3,0). Human body morphology and function critical in producing motion, strength, power, and endurance.

ED-Child, Family & Comm Serv

**PET 6388 . Exercise Physiology and Cardiovascular Disease Prevention**

3(3,0). The physiology of exercise as it affects the onset of cardiovascular diseases.

ED-Child, Family & Comm Serv

**PET 6389 . Exercise Physiology Instrumentation**

3(3,0). Instrumentation management and assessment protocols related to select exercise physiological parameters: anthropometric, bioenergetic, blood lactate, joint flexibility, and muscle rheology, strength and fatigue curve measurements.

ED-Child, Family & Comm Serv

**PET 6416 . Administration of Corporate Wellness Programs**

3(3,0). Administrative implications for the development of a corporate wellness program.

ED-Teaching & Learning Princ

**PET 6515C . Measurement in Kinesiology and Physical Education**

3(3,0). Techniques of measurement and evaluation of human performance and their applications to physical education.

ED-Teaching & Learning Princ

**PET 6615 . Psychomotor Assessment of Exceptional Children**

2(2,1). PR: PET 6655 or C.I. Presents assessment techniques and methodology for determining psychomotor needs of exceptional children. Application of competencies is required.

AS-Psychology

**PET 6645 . Advanced Studies in Adapted Physical Education**

3(3,1). PR: EEX 5050. Survey course that addresses the development, educational, and socialization needs of exceptional children. A minimum of 15 observation hours are required.

ED-Child, Family & Comm Serv

**PET 6646 . Methods and Curriculum in Adapted Physical Education**

4(3,1). PR: PET 6645, PET 6655, PET 6615. Individualized educational and developmental programming for exceptional children.

Presents models of service delivery and instruction. Practicum required.

ED-Child, Family & Comm Serv

**PET 6647 . Program Development in Adapted Physical Education**

3(3,1). PR: C.I. Development of appropriate physical education programs for exceptional children. Course includes teacher-consultant, collaboration, in-service training, legislative issues, resource utilization.

ED-Child, Family & Comm Serv

**PET 6655 . Developmental Aspects of Motor Disabilities**

3(3,1). PR: C.I. Addresses developmental aspects of motor and health disabilities. A developmental focus is presented. Observation required.

ED-Child, Family & Comm Serv

**PET 6690 . Exercise Testing and Prescription for Special Populations**

3(3,0). PR: PET 6388, PET 6369. Designed to provide the student the basic understanding of exercise testing and prescription as it pertains to special populations.

ED-Child, Family & Comm Serv

**PET 6910 . Problem Analysis - Review of Literature**

3(3,0). PR: EDF 6432 and C.I. Comprehensive review of literature related to a selected topic in physical education; identification, analysis, and evaluation of developments, issues, and research problems. (May be repeated for credit.)

ED-Teaching & Learning Princ

**PET 6946 . Practicum, Clinical Practice**

3(3,0).

ED-Teaching & Learning Princ

**PHC 6000 . Epidemiology**

3(3,0). PR: Graduate status. A study of the distribution and determination of diseases and injuries in human populations.

HPA-Health Professions

**PHC 6010 . Quantitative Methods in Epidemiology**

3(3,0). PR: Admission to MSHS graduate program and PHC 6000. Principles of managerial epidemiology, quantitative methods, application of prostistics, use of personal computers to handle data and solve problems.

HPA-Health Professions

**PHC 6146 . Health Planning and Policy**

3(3,0). Review of the determinants of the revolution of the health care system in the United States; analysis of public health, preventive medicine, and therapeutic medicine in terms of quality, access, and cost; methodologies and issues in comprehensive health planning; and trends in health policy development.

HPA-Health Professions

**PHC 6160 . Health Care Finance**

3(3,0). PR: Graduate status. The identification of resources available to health care institutions, allocation of resources, and control of resource expenditures.

HPA-Nursing

**PHC 6164 . Health Care Finance II**

3(3,0). PR: PHC 6160. Course facilitates the development of Strategic Financial Plans and its application to current health care management issues.

HPA-Health Professions

**PHC 6411 . Health and Society**

3(3,0). Understanding health and illness as defined by patients, providers, and other persons in the social system.

HPA-Health Professions

**PHC 6420 . Case Studies in Health Law**

3(3,0). Health law including patient care, liability, malpractice, workmen's compensation, and legal responsibilities of health personnel.

HPA-Health Professions

**PHM 5035 . Environmental Philosophy**

3(3,0). PR: PHI 3640, PHI 2630 or C.I. This course will provide an in-depth examination of the major contemporary positions in environmental philosophy, including deep ecology, ecofeminism, and social ecology.

AS-Philosophy

**PHT 5003 . Foundations of Physical Therapy I**

2(2,0). PR: Admission to the PT program. Introduction to the profession of physical therapy.

HPA-Health Professions

**PHT 5005 . Foundations of Physical Therapy II**

2(2,0). PR: Foundations of Physical Therapy I. Psychosocial aspects of disability. Focus on cultural diversity issues, communication skills, and different styles of learning and teaching.

HPA-Health Professions

**PHT 5115 . Gross Anatomy/Neuroscience I**

2(2,0). PR: Admission to PT program. In-depth study of human morphology emphasizing the back, spinal cord, cranial nerves, and upper and lower extremities. Regional cadaver dissection.

HPA-Health Professions

**PHT 5115L . Gross Anatomy/Neuroscience I Lab**

2(0,4). PR: Admission to PT program. Human cadaver dissection of the back, spinal cord, cranial nerves, and upper and lower extremities.

HPA-Health Professions

**PHT 5118 . Gross Anatomy/Neuroscience II**

2(2,0). PR: PR Gross Anatomy/Neuroscience I and Lab; CR Gross Anatomy Neuroscience II Lab. In-depth study of human morphology emphasizing the brain, the cervical spine, pelvis, and the internal organs.



HPA-Health Professions

**PHT 5118L . Gross Anatomy/Neuroscience II Lab**

2(0,4). PR: Gross Anatomy Neuroscience I and Lab; CR Gross Anatomy Neuroscience II. Directed Laboratory experiences with cadaver dissection; use of the skeleton, models, and computer programs to facilitate learning.

HPA-Health Professions

**PHT 5125 . Clinical Kinesiology**

3(3,0). CR: Clinical Kinesiology Lab. Investigates the mechanical aspects of human movement, joint mechanics of the upper and lower extremity, the vertebral column and tissue mechanics of relevant human tissues.

HPA-Health Professions

**PHT 5125L . Clinical Kinesiology Lab**

2(0,4). PR: CR Clinical Kinesiology. Lab course investigating the mechanical aspects of human movement.

HPA-Health Professions

**PHT 5156 . Physiology of Therapeutic Exercise**

2(2,0). PR: Admission to PT program. Exercise physiology investigates the physiological responses and adaptations to human movement including cardiovascular and pulmonary.

HPA-Health Professions

**PHT 5156L . Physiology of Therapeutic Exercise Lab**

2(0,4). CR: PHT 5156. Lab course emphasizing the clinical application of exercise physiology.

HPA-Health Professions

**PHT 5218 . Theories and Procedures I**

2(2,0). PR: CR Theories and Procedures I Lab. Theories of physical agents, heat, light, cold, water, sound, and massage; problem-solving rationale and selection of interventions for inflammation, pain, edema, and weakness.

HPA-Health Professions

**PHT 5218L . Theories and Procedures I lab**

1(0,2). PR: CR Theories and Procedures I. Lab course on the clinical applications of heat, light, cold, water, sound, and massage.

HPA-Health Professions

**PHT 5240 . Physical Assessment**

1(1,0). PR: Physical Assessment Lab. Extensive theory and practice in the examination of the patient. Incorporate a systems approach, utilizing screening, and patient problem-solving.

HPA-Health Professions

**PHT 5240L . Physical Assessment Lab**

2(0,4). PR: CR Physical Assessment. Lab course emphasizing the examinations required to perform an evaluation of physical therapy patient.

HPA-Health Professions

**PHT 5241 . Therapeutic Exercises I**

2(2,0). PR: CR Therapeutic Exercises I Lab. Theory of developing, implementing, and evaluating a therapeutic exercise program for

patients with musculoskeletal dysfunction.

HPA-Health Professions

**PHT 5241L . Therapeutic Exercise Lab I**

2(0,4). PR: Therapeutic Exercise I. Lab course emphasizing therapeutic exercise skills for the treatment of patients with musculoskeletal dysfunction.

HPA-Health Professions

**PHT 5260 . Patient Care Skills**

2(2,0). CR: Patient Care Skills Lab. Affective, cognitive, and psychomotor skills, regarding patient care. Basic skills of patient care, transfers, mobility skills, draping, gait training.

HPA-Health Professions

**PHT 5260L . Patient Care Skills Lab**

1(0,2). CR: Patient Care Skills. Skills of patient care, transfers, mobility skills.

HPA-Health Professions

**PHT 5306 . Pathology/Pharmacology**

2(2,0). PR: Admission to PT program. Organized seminars on the pathophysiology and clinical manifestations of various medical conditions as they relate to medical management in physical therapy practice.

HPA-Health Professions

**PHT 5411 . Foundations of Physical Therapy II**

3(3,0). PR: PHT 3002C. This course emphasizes the psychosocial aspects of disability. Focus on cultural diversity issues, communication skills, and different styles of learning and teaching.

HPA-Health Professions

**PHT 5605 . Research Methods in Physical Therapy**

2(2,0). PR: STA 2023. Methods of research applied to clinical environment of physical therapy. Coverage of the language, logic, design and analysis of clinical research.

HPA-Health Professions

**PHT 5718 . Neurological Physical Therapy**

2(2,0). PR: CR Neurological Physical Therapy Lab. Analysis of selected neuromotor theories and their clinical applications. Examinations and interventions for the evaluation and treatment of neurological patients presented.

HPA-Health Professions

**PHT 5718L . Neurological Physical Therapy Lab**

1(0,2). PR: CR Neurological Physical Therapy. Lab Course emphasizing the clinical application of selected neuromotor theories.

HPA-Health Professions

**PHT 5722C . Physical Therapy Integration I**

2(2,1). PR: Admission to PT program. Problem-solving approach to selected dysfunctions, including burns and open wounds, and selected diagnostic procedures and therapy interventions.

HPA-Health Professions

**PHT 5805 . Clinical Education I**

1(0,4). PR: Admission to PT program. Full-time supervised clinical education in physical therapy settings. Application of objectives of courses previously completed.

HPA-Health Professions

**PHT 5816 . Advanced Clinical Applications I**

2(0,6). PR: PHT 3821. Full time supervised clinical education in a physical therapy setting. All previous education objectives apply and are cumulative.

HPA-Health Professions

**PHT 6219 . Theories and Procedures II**

2(2,0). PR: Theories and Procedures I and lab; CR: Theories and Procedures II Lab. Continuation of Theories and Procedures I. Focus on electrodiagnosis and electrophysiologic examinations and the interventions used in the treatment of pain and dysfunction.

HPA-Health Professions

**PHT 6219L . Theories and Procedures II Lab**

1(0,2). PR: Theories and Procedures I and lab; CR: Theories and Procedures II. Lab course focusing on electrodiagnosis and electrophysiologic examinations, and the interventions used in the treatment of pain and dysfunction.

HPA-Health Professions

**PHT 6242 . Orthopedic Physical Therapy**

2(2,0). PR: CR Orthopedic Physical Therapy Lab. Examination and interventions for the evaluation and treatment of specific orthopedic cases and injuries presented.

HPA-Health Professions

**PHT 6242L . Orthopedic Physical Therapy Lab**

1(0,2). PR: CR Orthopedic Physical Therapy. Lab course emphasizing the examinations and interventions for the evaluation and treatment of specific orthopedic cases and injuries.

HPA-Health Professions

**PHT 6245 . Therapeutic Exercise II**

3(3,0). PR: Therapeutic Exercise I; CR: Therapeutic Exercise II Lab. Exploration of the various therapeutic exercise modalities, and their application to the rehabilitation course of treatment.

HPA-Health Professions

**PHT 6245L . Therapeutic Exercise II Lab**

1(0,2). PR: Therapeutic Exercise I and Lab; CR: Therapeutic Exercise II. Lab course emphasizing the use of the various therapeutic exercise modalities.

HPA-Health Professions

**PHT 6322C . Pediatric Physical Therapy**

2(1,2). PR: Admission to PT program. Study of the normal neurodevelopmental sequences for pediatric clinical assessment and physical therapy intervention provided to clients with abnormal diseases and dysfunction.

HPA-Health Professions

**PHT 6374 . Gerontology in Physical Therapy**

2(2,0). PR: Admission to PT program. Normal aging processes and health status of older people. Clinical decision making is emphasized

in the care of the elderly.  
HPA-Health Professions

**PHT 6381C . Cardiopulmonary Physical Therapy**

2(2,1). PR: Admission to PT program. Examinations and interventions for the management of chronic and acute cardiopulmonary problems. Teaching patient strategies for preventing/managing dysfunction.  
HPA-Health Professions

**PHT 6514 . Management of Physical Therapy Services**

3(3,0). PR: PHT 3002. Planning, organizing, delivering and evaluating physical therapy services within a health care system, including quality management, third party payers, DRG's and legislative impact.  
HPA-Health Professions

**PHT 6521 . Management of Physical Therapy Services**

3(3,0). PR: Admission to PT program. Planning, organizing, delivering and evaluating physical therapy services within a health care system, including quality management, third party payers, DRG's and legislative impact.  
HPA-Health Professions

**PHT 6606 . Research Methods in Physical Therapy**

2(2,0). PR: Admission to PT program. Methods of research applied to clinical environment of physical therapy. Coverage of the language, logic, design and analysis of clinical research.  
HPA-Health Professions

**PHT 6618C . Research Applications in Physical Therapy**

2(1,2). PR: Research methods in Physical Therapy. Exploration of clinical problem-solving, decision-making process. Critical review of relevant literature culminates in a research project.  
HPA-Health Professions

**PHT 6702C . Prosthetic/Orthotics**

2(2,1). PR: PHT 3259 and PHT 3259L. Focus on the examination, evaluation, and physical therapy therapeutic intervention related to the training, exercise programs and prosthetic fit 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 rehabilitative potential.  
HPA-Health Professions

**PHT 6716C . Advanced Orthopedic Physical Therapy**

2(2,1). PR: Orthopedic Physical Therapy; CR: Advanced Orthopedic Physical Therapy Lab. Specific rehabilitative protocols regarding particular orthopedic injuries and illnesses are presented. Focus on the previous course work in therapeutic modalities, anatomy, physiology, and therapeutic exercises incorporated.  
HPA-Health Professions

**PHT 6717C . Functional Rehabilitation**

2(2,1). PR: Admission to PT program. Physical therapy assessment and intervention with spinal cord injury clients which include wheelchair, home and business evaluation and modifications. Include prosthetics and orthotics.  
HPA-Health Professions

**PHT 6719 . Advanced Neurological Physical Therapy**

2(2,0). PR: Neurological Physical Therapy and Lab; CR: Advanced Neurological Physical Therapy Lab. Examinations and interventions

for the evaluation and treatment of the neurological patient. Emphasis on patients with spinal cord injury and neurological diseases.  
HPA-Health Professions

**PHT 6719L . Advanced Neurological Physical Therapy Lab**

1(0,2). PR: Neurological Physical Therapy and Lab; CR: Advanced Neurological Physical Therapy. Course Emphasizing examinations and interventions for the evaluation and treatment of patients with neurological disease. Emphasis on patients with spinal cord injury and neurological disease.

HPA-Health Professions

**PHT 6723C . Physical Therapy Integration II**

2(2,1). PR: Physical Therapy Integration I. Focus on examinations and interventions for the evaluation and treatment of the spine. Various theoretical models explored. Case studies used for integration of information.

HPA-Health Professions

**PHT 6817 . Advanced Clinical Applications II**

3(0,8). PR: PHT 5816. Full-time internship under the supervision of a physical therapist where the student practices and integrates evaluation skills and treatment knowledge from previous course work.

HPA-Health Professions

**PHT 6822 . Advanced Clinical Applications I**

1(0,8). PR: Clinical Education I. Eight weeks of full-time supervised clinical education in a physical therapy setting. All previous education objectives apply and are cumulative.

HPA-Health Professions

**PHT 6823 . Advanced Clinical Applications II**

1(0,12). PR: Advanced Clinical Application I. Full-time 12 week internship under the supervision of a physical therapist. Student practices and integrates skills with treatment knowledge from previous course work.

HPA-Health Professions

**PHY 5015C . Physics for Teachers II**

3(2,2). PR: C.I. Hands-on lecture-laboratory course. Dynamics, electricity, magnetism, optics, nuclear radiation.

AS-Physics

**PHY 5100 . Topics in Contemporary Physics for Teachers**

1(1,0). PR: C.I. The study of recent findings in a selected area such as particle physics, surface physics, planetary atmospheres, lasers, geophysics, etc. May be repeated for credit.

AS-Physics

**PHY 5140C . Ion-Solid Interactions**

3(3,2). PR: PHY 4604 or PHY 4324. Physical principals and related scientific and technological applications of ion-solid interactions.

AS-Physics

**PHY 5200C . Newtonian Mechanics for Teachers**

1(0.5,1.5). PR: C.I. A lab, lecture, demonstration course studying selected topics in classical mechanics.

AS-Physics

**PHY 5300C . Electricity for Teachers**

1(0.5,1.5). PR: C.I. Circuits, multimeters, oscilloscopes, circuit elements.

AS-Physics

**PHY 5302C . Electromagnetism for Teachers**

1(0.5,1.5). PR: C.I. Gauss' Law, Biot-Savart Law, Ampere's Law, Faraday's Law, Lenz's law, motors, generators, AC circuits and Maxwell's Equations.

AS-Physics

**PHY 5346 . Electrodynamics I**

3(3,0). PR: PHY 4324 or C.I. Boundary value problems in electrostatics and magnetostatics. Maxwell's equations. EM fields in matter, wave generation and propagation; wave guides, resonant cavities.

AS-Physics

**PHY 5401C . Optics for Teachers**

1(0.5,1.5). PR: C.I. Geometrical and physical optics, spectrometers and lasers.

AS-Physics

**PHY 5455 . Modern X-Ray Science**

3(3,0). An introduction to the science and applications of modern x-ray optics, x-ray lasers, etc., with a review of basic properties of x-rays.

AS-Physics

**PHY 5465C . Wave Motion for Teachers**

1(0.5,1.5). PR: C.I. Water waves, waves on strings, sound and vibrations.

AS-Physics

**PHY 5500C . Thermal Physics for Teachers**

1(0.5,1.5). PR: C.I. Engines, heat pumps, kinetic theory, phase changes, radiation, weather.

AS-Physics

**PHY 5524 . Statistical Physics**

3(3,0). PR: PHY 3503, STA 3032, or C.I. A study of physical concepts and methods appropriate for the description of systems involving many particles. Ensemble theory, partition functions. Maxwell Boltzmann, Bose-Einstein, Fermi-Dirac statistics.

AS-Physics

**PHY 5601 . Quantum Physics for Teachers**

1(1,0). PR: C.I. Hydrogen atom, diatomic molecules, heat capacity transition rates.

AS-Physics

**PHY 5606 . Quantum Mechanics I**

3(3,0). PR: PHY 4605 or C.I. Basic postulates of quantum mechanics, operators, eigenvalues, parity, potential wells, harmonic oscillator, time dependent and time independent Schrodinger equation, matrix formulation, and time independent perturbation theory.

AS-Physics

**PHY 5933 . Selected topics in biophysics of macromolecules**

3(3,0). 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.  
AS-Physics

**PHY 6246 . Classical Mechanics**

3(3,0). PR: C.I. Variational principles. Lagrange, Hamiltonian, and Poisson bracket formulations of mechanics. Hamilton's principle of least action. Hamilton-Jacobi theory. Perturbation theory. Continuous systems. Chaos.  
AS-Physics

**PHY 6347 . Electrodynamics II**

3(3,0). 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.  
AS-Physics

**PHY 6353 . Accelerator Physics**

3(3,0). 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.  
AS-Physics

**PHY 6355 . Physics of Free Electrons**

3(3,0). 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.  
AS-Physics

**PHY 6624 . Quantum Mechanics II**

3(3,0). PR: PHY 5606 or C.I. Time dependent perturbation theory, exchange symmetry, Dirac Equation, second quantization, and scattering theory.  
AS-Physics

**PHY 6667 . Advanced Quantum Mechanics**

3(3,0). PR: PHY 6624 or OSE 6347. Introduces advanced graduate students to the methods of Quantum field theory, essential for the understanding of many branches of physics.  
AS-Physics

**PHY 7423 . Physics of Nanostructures**

3(3,0). PR: PHY 6624 or CI. Electronic properties of mesoscopic nanostructures, conductance as transmission, s-matrix and Green's functions, localization, universal conductance fluctuations, single electron tunneling, chaos, nonequilibrium transport  
AS-Physics

**PHZ 5304 . Nuclear and Particle Physics**

3(3,0). PR: PHY 4604 or equivalent. Particles and nuclei, symmetries and conservation laws, interactions, models.  
AS-Physics

**PHZ 5405 . Condensed Matter Physics**

3(3,0). PR: PHY 4604, PHY 3101, or C.I. Crystal lattice cell structure, phonons, free electron model, band theory of solids, Fermi surface, solid state applications, and polymers.

AS-Physics

**PHZ 5505 . Plasma Physics**

3(3,0). PR: PHY 4324 or C.I. Introduction to theory and experimental basis of both weakly and highly ionized plasmas. Instabilities, plasma waves, nonlinear effects, controlled thermonuclear fusion.

AS-Physics

**PHZ 5600 . Special Relativity for Teachers**

1(1,0). PR: C.I. Length contraction, time dialation, simultaneity, conservation of mass-energy, conservation of momentum, Compton scattering.

AS-Physics

**PHZ 6156 . Advanced Computational Physics**

3(3,0). PR: PHZ 3151 or C.I. Computational methods applied to the solution of advanced problems in many branches of physics.

AS-Physics

**PHZ 6234 . Atomic Physics**

3(3,0). PR: PHY 6624 or 6447. Brief review of spectroscopy, photoionization, inner shell processes, Auger effect, atom-atom collisions, electron-atom collisions, spin polarization.

AS-Physics

**PHZ 6427 . Condensed Matter Physics I**

3(3,0). PR: PHY 5606, and eiether PHY 6624 or OSE 6347. Quantum theory of crystalline solids: crystals, electronic band structure, metals, insulators, semiconductors, electron interactions in solids, lattice dynamics.

AS-Physics

**PHZ 6428 . Condensed Matter Physics II**

3(3,0). PR: PHZ 6427 (Condensed Matter Physics I). Many-body theory: Green's functions, Feynman diagrams, screening in the electron gas, linear response theory, magnetism, conductivity, electron-phonon interactions, superconductivity, superfluids.

AS-Physics

**PLA 5937 . Seminar in Contemporary Legal Problems**

3(1,2). PR: C.I. Analysis of current trends in legislation and court decisions and their significance to American society.

HPA-Criminal Justice/Legal St

**POS 6045 . Seminar in American National Politics**

3(3,0). Examines major aspects of the American system, including mass behavior, public opinion, and political institutions.

AS-Political Science

**POS 6127 . State Politics**

3(3,0). PR: Graduate or post-bac status. The graduate course in state politics surveys political behavior, processes, institutions and policies among the fifty states.

AS-Political Science

**POS 6207 . Political Behavior**

3(3,0). PR: Graduate status. A review of theory and findings in regard to mass political behavior, including participation, voter choice,



public opinion, collective action, and communication.  
AS-Political Science

**POS 6324 . Women and Public Policy**

3(3,0). 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.  
AS-Political Science

**POS 6639 . Seminar in Public Law and Judicial Politics**

3(3,0). PR: Graduate or post-bac status. This course is intended to acquaint students broadly with the scholarly literature in the subfield of Public law. IT surveys the meaning of the field and its development, using books and articles to illustrate the major research and teaching concentrations in the subfield.  
AS-Political Science

**POS 6746 . Quantitative Methods in Political Research**

3(3,0). PR: C.I. Methods of model building and research design, including conceptualization and measurement of political variables; techniques of data collection and quantitative analysis and computer usage.  
AS-Political Science

**POS 6938 . Special Topics/Political Analysis**

3(3,0). 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.  
AS-Political Science

**POT 6007 . Seminar in Political Theory**

3(3,0). An examination of analytic and normative theories of politics and society, using selected topics as a substantive focus.  
AS-Political Science

**PPE 5055 . Personality Theories**

3(3,0). PR: G.A. or C.I. Critical theoretical models of personality development with applications to counseling, psychotherapy and psychological assessment.  
AS-Psychology

**PSB 5005 . Physiological Psychology**

3(3,0). PR: PSB 3002 or C.I. An advanced survey of the physiological basis of behavior, emphasizing the relationship between the nervous system and behavior.  
AS-Psychology

**PSB 6446 . Advanced Abnormal and Clinical Psychopharmacology**

3(3,0). PR: Graduate admission and C.I. Diagnosis of psychopathology and drug treatment of these disorders. Examination of the efficacy of psychoactive drugs.  
AS-Psychology

**PSY 5605 . History and Systems of Psychology**

3(3,0). PR: Acceptance to Clinical Psychology Ph.D. program or C.I. An examination of modern American psychology from its origins in the late 19th century to the present time. This course is intended for the Ph.D. in Clinical Psychology; in certain instances graduate students in other programs may enroll.

AS-Psychology

**PSY 6216 . Advanced Research Methodology I**

4(3,2). PR: Graduate admission and C.I. Logic and procedures of psychological research and evaluation; application of experimental and non-experimental techniques in analyzing psychological variables; review of relevant psychological research.

AS-Psychology

**PSY 6217 . Advanced Research Methodology II**

4(3,2). PR: PSY 6216, graduate admission, and C.I. Structure and planning of complex psychological experiments; internal and external validity; application of advanced experimental procedures in analyzing psychological variables; review of relevant psychological research.

AS-Psychology

**PSY 6219C . Advanced Research Methods III**

4(3,2). PR: PSY 6216 and PSY 6217. Application of research design and statistical problems to selected human factors, industrial and/or clinical settings.

AS-Psychology

**PSY 6308 . Psychological Testing I**

4(3,2). PR: PSY 6216. Theory of test construction, including test reliability and validity.

AS-Psychology

**PSY 6318 . Applied Testing and Selection**

3(3,0). PR: PSY 6308, graduate admission, and C.I. Issues in selecting employees and an examination of currently used tests in industry.

AS-Psychology

**PSY 6908 . Directed Independent Studies**

3(3,0). 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.

AS-Psychology

**PSY 6918 . Directed Research**

3(3,0). PR: PSY 6217, EXP 6257, PSY 6938, ten additional graduate hours in PSY, and C.I. Directed Research involves supervised research activity in an agency setting. The student will devote 15 hours per week in the assigned setting to work on an applied research problem with joint supervision by faculty and agency staff. May be repeated for credit.

AS-Psychology

**PSY 6919 . Research Report**

3(3,0). PR: PSY 6918. Preparation of a written report of the project completed in PSY 6918. This report will be in the form of a research publication of technical report.

AS-Psychology

**PSY 6933 . Administration Seminar/Practicum**

3(3,0). PR: Acceptance to Clinical Psychology Ph.D. program or C.I. The theories, issues, and techniques of administration in a mental health care delivery system. This course is intended for the Ph.D. in Clinical Psychology; in certain instances graduate students in other programs may enroll.

AS-Psychology

**PSY 6938 . Research Planning Seminar I**

1(1,0). Clinical graduate student initiation of thesis proposal formulation under faculty supervision.

AS-Psychology

**PSY 6939 . Research Planning Seminar II**

1(1,0). PR: PSY 6938. Clinical graduate student continued progress on thesis proposal formulation under faculty supervision.

AS-Psychology

**PUP 6007 . Public Policy Analysis**

3(3,0). 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.

AS-Political Science

**PUP 6208 . Environmental Politics**

3(3,0). PR: Graduate or post-bac status. Examines the political ideas and practices which have shaped environmental politics and practices in the U.S.

AS-Political Science

**PUP 6607 . Politics of Health**

3(3,0). PR: Graduate or post-bac status. Analysis of public health policies, primary focus upon political processes, policy makers, and interest groups. Comparative health practices.

AS-Political Science

**PUP 6938 . Special Topics/Public Policy**

3(3,0). 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.

AS-Political Science

**PUR 6403 . Crisis Public Relations**

3(3,0). PR: CI. The course examines the management of crisis situations from a PR perspective, as well as how to manage issues to prevent them from becoming crises.

AS-Communication

**QMB 7565 . Applied Statistical Business Decision Models**

3(3,0). PR: Admission to Business doctoral program; ECO 6416 or equivalent; or C.I. Logic and procedures used in research and data evaluation in the business sciences applying advanced statistical models to decision-making problems.

BA-Economics

**RED 5147 . Developmental Reading**

3(3,0). PR: EDG 4323. Principles, procedures, organization, and current practices in the elementary reading program. Materials and methods of instruction.

ED-Teaching & Learning Princ

**RED 5514 . Classroom Diagnosis and Development of Reading Proficiencies**

3(3,1). PR: RED 5147 or equivalent. Classroom diagnosis and corrective teaching in reading; instructional materials. Case study required.

ED-Teaching & Learning Princ

**RED 6116 . Trends in Reading Education**

3(3,0). PR: Basic Teacher Certificate or C.I. Analysis of historical development and current trends; management systems; instructional strategies and investigation of research.

ED-Teaching & Learning Princ

**RED 6336 . Reading in the Content Areas**

3(3,0). PR: Basic Teacher Certificate or C.I. Identification and evaluation of reading skills, diagnosis of reading problems, and development of methods and materials to increase student reading performance.

ED-Teaching & Learning Princ

**RED 6337 . Reading in the Secondary School**

3(3,0). PR: RED 6336, Basic Teacher Certification, or C.I. Nature of the adolescent reader; organizational patterns, principles, and procedures; diagnostic and remediation materials.

ED-Teaching & Learning Princ

**RED 6746 . Management of Reading Programs**

3(3,0). Overview of K-12 reading instruction goals and program management models; role of reading supervisor and in-service needs assessment and delivery.

ED-Teaching & Learning Princ

**RED 6845 . Advanced Evaluation and Instruction in Reading**

3(3,0). 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.

ED-Teaching & Learning Princ

**RED 6846 . Reading Practicum**

6(0,6). PR: RED 6845 or C.I. Evaluation and instructional practices for individualization of reading instruction in a laboratory setting. Parent interview and case report.

ED-Teaching & Learning Princ

**RED 6946 . Practicum, Clinical Practice**

3(3,0).

ED-Teaching & Learning Princ

**REE 6306 . Corporate Real Estate Investment Decision-Making**

3(3,0). 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.

BA-Finance

**RET 5910 . Research Methods in Cardiopulmonary Physiology**

3(3,0). Introduction to methods used in scientific and medical research in cardiopulmonary physiology. Literature review, experimentation, and data analysis.

HPA-Health Professions

**RET 6555 . Cardiac Rehabilitation**

3(3,0). PR: HSC 6566. Lecture course emphasizing the principles underlying the formulation and implementation of a comprehensive cardiac rehabilitation and prevention program.

**SCE 5716 . Methods in Elementary School Science**

3(3,0). PR: EDG 4323. Organization of instruction in elementary school science including methods, evaluation, materials, strategies, and current practices.

ED-Teaching & Learning Princ

**SCE 5825 . Space Science for Educators**

3(3,0). PR: Senior standing or C.I. Introduction to space science, manned space flight, and space education curriculum.

ED-Teaching & Learning Princ

**SCE 6146 . Environmental Education for Educators**

3(2,1). 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.

ED-Teaching & Learning Princ

**SCE 6237 . Science Programs in Secondary School**

3(3,0). PR: Basic Teacher Certificate or C.I. Study of historical development and current trends; analysis of science curricula, materials.

ED-Teaching & Learning Princ

**SCE 6238 . Inquiry in the Sciences**

3(3,1). PR: Graduate standing or science certification. Teaching science by inquiry in the secondary school and development of inquiry lessons.

ED-Teaching & Learning Princ

**SCE 6616 . Trends in Elementary School Science Education**

3(3,0). PR: Basic Teacher Certification or C.I. Study of historical development and current trends; analysis of science curricula, materials.

ED-Teaching & Learning Princ

**SDS 6040 . Student Personnel Services in Higher Education**

3(3,0). 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.

ED-Child, Family & Comm Serv

**SDS 6200 . Procedures for Group Testing**

3(2,1). 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.

ED-Child, Family & Comm Serv

**SDS 6330 . Career Development**

3(3,0). PR: EGC 5005, 6426, or 6055; EDG 6481, or C.I. A study of career development theories, occupational and educational information, approaches to career decision-making, life-style, and leisure in the development of the whole person.

ED-Child, Family & Comm Serv

**SDS 6411 . Counseling with Children and Adolescents**

3(3,0). 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.  
ED-Child, Family & Comm Serv

**SDS 6426 . Guidance and Counseling of Gifted/Talented Individuals**

3(3,0). Guidance and counseling procedures and strategies for gifted/talented students; self-assessment; group dynamics; communication with parents; career goals; alternate educational opportunities.

ED-Child, Family & Comm Serv

**SDS 6620 . Organization and Administration of School Counseling and Guidance Programs**

3(3,0). PR: EGC 5005. In-depth analysis of counseling and guidance programs in schools, including the development and management of comprehensive programs.

ED-Child, Family & Comm Serv

**SDS 6624 . The College Community and the Student**

3(3,0). 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.

ED-Child, Family & Comm Serv

**SOP 5059 . Advanced Social Psychology**

3(3,0). 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.

AS-Psychology

**SOW 5105 . Human Behavior and Social Environment I: Individual**

3(3,0). PR: Admission to MSW program. Study of human development and psychosocial functioning of individuals at various life stages with particular attention to implications of human diversity.

HPA-Social Work

**SOW 5106 . Human Behavior and Social Environment II: Social Systems**

3(3,0). Study of the patterns and dynamics of families, groups, organizations, and communities from a social work and a systems perspective.

HPA-Social Work

**SOW 5109 . Violence Against Women: A Global Perspective**

3(3,0). PR: Graduate status or C.I. An introduction to the types of violence that impact women from a global perspective. Community, political, and economic issues that support violence against women will be discussed by country, ethnic group(s) within countries, and religious principles.

HPA-Social Work

**SOW 5132 . Diverse Client Populations**

3(3,0). Study of human diversity, focusing on the needs, resources, problems, and service issues of several identified minority client populations.

HPA-Social Work

**SOW 5235 . Social Welfare Policies and Services**

3(3,0). Study of societal responses to human needs; forces shaping social welfare systems; introduces frameworks for analyzing social policies and services

HPA-Social Work

**SOW 5305 . Social Work Practice I: Generalist Practice**

3(3,0). Study of social work functions, knowledge, values, roles and skills; the use of a generalist model of practice.

HPA-Social Work

**SOW 5306 . Social Work Practice II: Intervention Approaches**

3(3,0). Study of selected social work theories, strategies, and techniques for helping people and improving system responsiveness to human needs.

HPA-Social Work

**SOW 5355 . Studies in Social Work Practice**

3(3,0). PR: C.I. Analysis of one or more urban practice issues and approaches. May be repeated for credit.

HPA-Social Work

**SOW 5387 . nonprofit Resource Development**

3(3,0). PR: Admission to certificate program or C.I. Resource Development in nonprofit organizations, including board development and leadership, volunteer program development, staff development, grant funding, fundraising, marketing, and government contract development and management.

HPA-Social Work

**SOW 5404 . Social Work Research**

3(3,0). Study of group research designs in social work; quantitative analyses; and related ethical issues.

HPA-Social Work

**SOW 5432 . Evaluating Social Work**

3(3,0). Study of single case designs in social work; recording methods; behavioral and standardized measures; applications to individuals, families, groups, programs, communities.

HPA-Social Work

**SOW 5532 . Generalist Field Education I**

2(2,0). PR: Admission to MSW Program. Supervised practice of social work in an agency for 224 clock hours. Graded S/U.

HPA-Social Work

**SOW 5533 . Generalist Field Education II**

2(2,0). PR: MSW. Continuation of SOW 5532 Generalist Field Education I in the same field agency for 224 clock hours. Graded S/U.

HPA-Social Work

**SOW 5604 . Medications in Social Work Practice**

3(3,0). PR: Graduate standing, pos-bac status, senior in SW program or C.I. The study of the effects that psychotropic medications can have within the counseling/helping relationship.

HPA-Social Work

**SOW 5624 . Social Work Practice in Mexican Culture**

3(3,0). PR: C.I. The practice of social work in Mexican culture through cultural immersion, seminars, field visits and language instruction.

HPA-Social Work

**SOW 5625 . Social Work with Women**

3(3,0). Alternative approaches to the treatment of women in the urban setting.

HPA-Social Work

**SOW 5642 . Aging In Social Situations**

3(3,0). PR: Admission to MSW program or Gerontology Certificate Program or C.I. Knowledge about elderly in social situations or environmental context.

HPA-Social Work

**SOW 5644 . Interventions with Elderly and Their Families**

3(3,0). PR: Admission to Gerontology graduate certification program or MSW program or CI. Study of concepts, skills, models and theories for intervening with aged. Special attention is given to minority populations.

HPA-Social Work

**SOW 5655 . Child Abuse: Treatment and Prevention**

3(3,0). The social worker's role and interventions with victims of child abuse and their family members.

HPA-Social Work

**SOW 5662 . Strategies in Employee Assistance Programs**

3(3,0). Techniques for establishing, providing, and evaluating services to people with problems which affect job performance.

HPA-Social Work

**SOW 5670 . Gay and Lesbian Experience in American Society**

3(3,0). PR: Seniors or graduate status. Sexual orientation in a cultural context: resources and policies affecting gay and lesbian people; and professional considerations in interventions with and for gay and lesbian clients.

HPA-Social Work

**SOW 5695 . Documentation Skills for Helping Professionals**

3(3,0). PR: MSW Social Work Students, C/I. Study of documentation skills and record keeping for helping professionals.

HPA-Social Work

**SOW 5712 . Interventions with Substance Abusers**

3(3,0). Strategies for working with persons who abuse drugs, alcohol, and other substances.

HPA-Social Work

**SOW 5713 . Prevention and Treatment of Adolescent Substance Abuse**

3(3,0). PR: Graduate Status or C.I. An in-depth review of prevention, intervention and treatment of adolescent substance abuse.

HPA-Social Work

**SOW 5846 . Spirituality in Professional Counseling**

3(3,0). PR: Graduate standing, post-bac status, seniors, or C.I. Examination of spirituality as it relates to professional counseling.

HPA-Social Work

**SOW 6123 . Psychosocial Pathology**

3(3,0). PR: All first-year courses in the MSW Program SOW 5305, 5105, 5404, 5325, 5306, 5106, 5432, 5532, 5132, 5533. Study of psychosocial dynamics of dysfunctional behavior in individuals.



HPA-Social Work

**SOW 6246 . Policy Analysis and Social Change**

2(2,0). 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.

HPA-Social Work

**SOW 6324 . Clinical Practice with Groups**

3(3,0). PR: Advanced standing in MSW program. Group work theories, interventions and techniques applied to persons with emotional, social and psychological problems.

HPA-Social Work

**SOW 6348 . Clinical Practice with Individuals**

3(3,0). PR: Advanced standing in MSW program. Behavioral, crisis, and psychosocial theories applied to persons with emotional, social, and psychological problems.

HPA-Social Work

**SOW 6373 . Clinical Supervision**

3(3,0). PR: MSW graduate student, Ph.D. status. or C.I. Supervisory theory and practice in clinical settings.

HPA-Social Work

**SOW 6386 . Seminar in Social Welfare Planning and Implementation**

3(3,0). PR: Admission to Ph.D. program or C.I. Social welfare planning, implementation, and evaluation at the community and organizational levels. Emphasizes planning needs of oppressed groups.

HPA-Social Work

**SOW 6399 . Advanced Administration in Social Welfare**

3(3,0). PR: Admission to Ph.D. program or C.I. Attributes, skills, behaviors, and problems with executive roles in public human service organizations. Emphasizes the mission of the organization as well as mobilization of resources.

HPA-Social Work

**SOW 6492 . Theory Building in Social Work**

3(3,0). PR: Admission to the Ph.D. program or C.I. Epistemological, ontological, and methodological implications of knowledge building in social work.

HPA-Social Work

**SOW 6535 . Clinical Field Education I**

3(3,0). PR: SOW 5532 and SOW 5533 CR: Clinical Field Integrative Seminar I. Supervised specialist practice in a field agency for 304 clock hours. Graded S/U.

HPA-Social Work

**SOW 6536 . Clinical Field Education II**

3(3,0). PR: SOW 6535 Clinical Field Education I CR: Clinical Field Integrative Seminar II. Continuation of SOW 6535, Clinical Field Education I, in the same field agency for 304 additional clock hours. Graded S/U.

HPA-Social Work

**SOW 6612 . Clinical Practice with Families**

3(3,0). PR: Advanced standing in MSW program. Family-focused models of intervention applied to families in transition and to problems such as divorce, single parenting, and blended families.

HPA-Social Work

**SOW 6656 . Clinical Practice with Children and Adolescents**

3(3,0). PR: Advanced standing in MSW program. Social work practice and treatment of children and adolescents.

HPA-Social Work

**SOW 6689 . Sex Therapy**

3(3,0). Intervention approaches for sex-related problems.

HPA-Social Work

**SOW 6914 . Intergrative Research Project in Clinical Practice**

2(2,0). PR: Advanced standing in MSW program. Student-selected research on an issue of clinical practice in urban settings.

HPA-Social Work

**SPA 5327 . Aural Habilitation/Rehabilitation**

3(3,0). PR: SPA 6204, SPA 6401. Principles and procedures involved in speech and language acquisition management, utilization of residual hearing, speech reading, and the use of hearing aids.

HPA-Communicative Disorders

**SPA 5473 . Multicultural Aspects of Communication Disorders and Differences**

3(3,0). PR: Graduate status. Introduction to cultural and linguistic diversity among individuals with communication disorders and differences. Special emphasis on African, Hispanic, Asian, and Native-American.

HPA-Communicative Disorders

**SPA 5477 . Aging and Communication**

3(3,0). PR: Senior status of CI. Study of the changes in communication with normal aging, focusing on assessment and management of older individuals with communication disorders.

HPA-Communicative Disorders

**SPA 5559 . Augmentative and Alternative Communication Systems**

3(3,0). PR: Senior status or CI. The total integrated network of techniques, aids, strategies, and skills individuals use to supplement or replace inadequate natural speaking ability.

HPA-Communicative Disorders

**SPA 5561 . Counseling in Communicative Disorders**

3 (3,0). PR: Senior Status or C.I. Interviewing and counseling for individuals with communication disorders and their families.

HPA-Communicative Disorders

**SPA 5570 . Administration and Management of Communicative Disorders Programs**

3(3,0). PR: SPA 6553, SPA 5237, seminar. Methods and techniques for organization and administration of speech-language and hearing disorders in public school, hospital, rehabilitation center, and private practice facilities.

HPA-Communicative Disorders

**SPA 6132 . Advanced Speech Science**

3(3,0). PR: Graduate Status. Advanced study of the anatomy and physiology for speech production, the acoustic and physiological measurement of speech, application of speech science to clinical practice.

HPA-Communicative Disorders

**SPA 6204 . Advanced Articulation/Phonological Disorders**

3(3,0). PR: Graduate status or C.I. SPA 3112C, SPA 4291C. Advanced theory, diagnosis, and treatment of articulation/phonological disorders including developmental apraxia of speech, dysarthria, and cleft palate; communicative differences vs. disorders emphasized.

HPA-Communicative Disorders

**SPA 6211 . Voice Disorders**

3(3,0). PR: Graduate Status. Study of the etiology, evaluation, and management of voice disorders in children and adults.

HPA-Communicative Disorders

**SPA 6225 . Fluency Disorders**

3(3,0). PR: Graduate Status. Study of the etiology, evaluation, and management of disorders of fluency in children and adults.

HPA-Communicative Disorders

**SPA 6236 . Motor Speech Disorders in Adults and Children**

3(3,0). PR: Graduate Status. A study of dysarthrias, apraxias, and other motor speech disorders in adults and children associated with neurological problems, brain injury and systemic disease.

HPA-Communicative Disorders

**SPA 6245 . Communication Disorders in Cleft Palate-Velopharyngeal Dysfunction**

3(3,0). PR: Graduate Status. Introduction to the management of communication and feeding disorders related to cleft palate and/or velopharyngeal dysfunction.

HPA-Communicative Disorders

**SPA 6308 . Auditory Evaluation and Assessment Procedures for Special Populations**

4(4,0). PR: Graduate status or C.I. Audiometric testing and functional communicative assessment procedures for geriatric, pediatric, and other special populations.

HPA-Communicative Disorders

**SPA 6309 . Auditory Processing of Language**

3(3,0). PR: Graduate Status. Diagnosis, Intervention and management of auditory-specific language and information processing deficits in children.

HPA-Communicative Disorders

**SPA 6345 . Amplification**

4(4,0). PR: Graduate status or C.I. Hearing aids, selective evaluation procedures, electroacoustic measurements, coupling techniques, and orientation and counseling.

HPA-Communicative Disorders

**SPA 6353 . Hearing Conservation**

4(4,0). PR: SPA 4032. Industrial audiometry, community noise abatement, and public school hearing conservation.

HPA-Communicative Disorders

**SPA 6401 . Language Disorders in Infants and Toddlers**

3(3,0). PR: Graduate status. Assessment and intervention of communication disorders in infants and toddlers incorporating transdisciplinary and family-centered models.

HPA-Communicative Disorders

**SPA 6404 . Preschool Language Disorders**

3(3,0). PR: SPA 4402 or equivalent. 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.

HPA-Communicative Disorders

**SPA 6407 . Seminar in Language**

2-3(2-3,0). PR: SPA 6225, SPA 6132, SPA 6211. Examines innovative and disorder-specific evaluation and treatment in adult and pediatric language disorders.

HPA-Communicative Disorders

**SPA 6410 . Aphasia and Related Disorders**

3(3,0). PR: Graduate Status. Study of language disorders in adults with focal lesions to the central nervous system, including an emphasis on etiology, differential diagnosis, and treatment.

HPA-Communicative Disorders

**SPA 6413 . School-Aged Language Disorders**

3(3,0). PR: SPA 440 or equivalent. Application of the normal process of later language acquisition to the evaluation and management of school-aged children with spoken and written language disorders.

HPA-Communicative Disorders

**SPA 6417 . Cognitive-Linguistic Communication Disorders**

3(3,0). PR: SPA 6210 (Aphasia). Evaluation and treatment of right hemisphere dysfunctions, traumatic brain injury, and dementias, with special emphasis on memory, cognition, pragmatics and other issues affecting functional communication.

HPA-Communicative Disorders

**SPA 6474 . Assessment of Culturally and Linguistically Diverse Population**

3(3,0). PR: SPA 5473. Study of speech and language assessment of individuals of culturally and linguistically diverse (CLD) backgrounds.

HPA-Communicative Disorders

**SPA 6475 . Management of Culturally and Linguistically Diverse Populations**

3(3,0). PR: SPA 5473. Study of communications differences and the role of native and second languages and cultures in management of communication disorders.

HPA-Communicative Disorders

**SPA 6505 . Clinical Practicum**

3(0,6). PR: SPA 4052. Supervised practicum in evaluation and management of speech, language, and hearing disorders May be repeated for credit.

HPA-Communicative Disorders

**SPA 6526 . Seminar in Speech Pathology**

2(2,0). PR: SPA 6225, SPA 6132, SPA 6211. Examines innovative and disorder-specific evaluation and treatment procedures. Topics will be in the area of adult and pediatric speech disorders.

HPA-Communicative Disorders

**SPA 6553 . Differential Diagnosis in Speech and Language**

3(3,0). PR: SPA 6204, SPA 6225, SPA 6413, SPA 6404, SPA 6410, SPA 6236, SPA 6211; CR: SPA 6553L. A study of the procedures for diagnosing speech and language disorders in children and adults, with emphasis on interviewing, test administration and interpretation, and report writing.

HPA-Communicative Disorders

**SPA 6553L . Differential Diagnosis in Speech and Language Laboratory**

1(0,4). PR: SPA 6204, SPA 6413, SPA 6211, SPA 6225, SPA 6404, 6410, SPA 6236; CR: SPA 6553C. Practice in the differential diagnosis of speech and language disorders with emphasis on interviewing, test administration and interpretation, report writing, and case presentations. May be repeated for credit.

HPA-Communicative Disorders

**SPA 6567 . Feeding and Swallowing Disorders**

3(3,0). PR: SPA 6236, SPA 6211. Evaluation and management of feeding and swallowing disorders in children and adults.

HPA-Communicative Disorders

**SPA 6805 . Research in Communicative Disorders**

3(3,0). PR: STA 4163 or HSA 4710. Introduction to empirical research in communicative disorders, with emphasis on hypothesis testing, research design, data analysis, and interpretation of results.

HPA-Communicative Disorders

**SPA 6826 . Seminar in Research**

2(2,0). PR: SPA 6225, SPA 6132C, SPA 6211. Examination of major issues in research of clinical or theoretical importance.

HPA-Communicative Disorders

**SPC 6219 . Modern Communication Theory**

3(3,0). Comparative analysis of theories and models of human communication, behavior systems, encoding and decoding processes, interaction variables, and social context.

AS-Communication

**SPC 6442 . Small Group Communication**

3(3,0). A study of communication and its effect on small group behavior.

AS-Communication

**SPN 5502 . Hispanic Culture of the United States**

3(3,0). PR: Graduate Standing or C.I. An analysis of the Hispanic culture of the United States, past and present.

AS-Foreign Languages

**SPN 5505 . Spanish Peninsular Culture and Civilization**

3(3,0). PR: Graduate Standing or C.I. An analysis of the salient characteristics of Spanish culture and civilization.

AS-Foreign Languages

**SPN 5506 . Spanish American Culture and Civilization**

3(3,0). PR: Graduate Standing or C.I. An analysis of the salient characteristics of Spanish American culture and civilization.

AS-Foreign Languages

**SPN 5705 . Introduction to Spanish Linguistics**

3(3,0). PR: Graduate Standing or C.I. An introduction to main concepts and methods of analyses focusing on Spanish morphology, syntax, semantics, and phonology as well as dialectology and sociolinguistics.

AS-Foreign Languages

**SPN 5825 . Spanish Dialectology**

3(3,0). 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.

AS-Foreign Languages

**SPN 5845 . History of the Spanish Language**

3(3,0). 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.

AS-Foreign Languages

**SPN 5920 . AP Spanish Language**

3(3,0). 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.

AS-Foreign Languages

**SPN 6805 . Spanish Morphosyntax**

3(3,0). A study of Spanish morphology and syntax from different perspectives.

AS-Foreign Languages

**SPS 6125 . Infant Development Assessment**

3(2,1). 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.

ED-Child, Family & Comm Serv

**SPS 6175 . Cultural Diversity and Nonbiased Assessment**

3(3,0). An investigation of some of the major multicultural issues with emphasis on administration, scoring, and interpretation of instruments related to this population.

ED-Child, Family & Comm Serv

**SPS 6191 . Individual Psychoeducational Diagnosis I**

4(4,0). PR: Graduate admission and C.I. CR: SPS 6206. Measurement of intellectual and cognitive functioning of children and adults. Administration, scoring and interpretation of Wechsler scales and selected psychometric instruments.

ED-Child, Family & Comm Serv

**SPS 6192 . Individual Psychoeducational Diagnosis II**

4(4,0). PR: Graduate admission and C.I. CR: SPS 6949. Measurement of intellectual and cognitive functioning of children and adults. Administration, scoring, and interpretation of Binet IV, K-ABC, Woodcock-Johnson, and other psychometric instruments.

ED-Child, Family & Comm Serv

**SPS 6194 . Assessment of Special Needs**

3(3,0). PR: SPS 6191, SPS 6192. Measurement of social, behavioral, and emotional functioning in children and adolescents.  
ED-Child, Family & Comm Serv

**SPS 6206 . Psychoeducational Interventions**

3(3,0). PR: SPS 6191. This course will enable school psychology students to link psychoeducational assessment results to appropriate prescriptive interventions.  
ED-Child, Family & Comm Serv

**SPS 6225 . Behavioral and Observational Analysis of Classroom Interactions in Schools**

3(3,0). 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.  
ED-Child, Family & Comm Serv

**SPS 6601 . Introduction to Psychological Services in Schools**

3(3,1). PR: Graduate admission and C.I. A course presenting an overview of the philosophy, organization, programs, and operation of school psychological services.  
ED-Child, Family & Comm Serv

**SPS 6606 . School Consultation Techniques**

3(3,0). PR: C.I. Theories and models of school consultation and clinical practice in the consultative role.  
ED-Child, Family & Comm Serv

**SPS 6608 . Seminar in School Psychology**

3(3,0). PR: C.I. Diagnostic, instructional, and prescriptive intervention techniques.  
ED-Child, Family & Comm Serv

**SPS 6703 . Child and Adolescent Deviant Behavior and Treatment**

3(3,0). 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.  
ED-Child, Family & Comm Serv

**SPS 6801 . Developmental Bases of Diverse Behaviors**

3(3,0). 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.  
ED-Child, Family & Comm Serv

**SPS 6931 . Ethical and Legal Issues in School Psychological Services**

3(3,0). PR: Graduate admission. Introduction to ethical codes, professional standards, ethical-legal decision-making models and case studies impacting the delivery of school psychological services.  
ED-Child, Family & Comm Serv

**SPS 6946 . Practicum in School Psychology**

3(0,3). 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.  
ED-Child, Family & Comm Serv

**SPS 6949 . School Psychology Internship**

6(0,6). PR: Graduate admission and C.I. Supervised placement in school setting.

ED-Child, Family & Comm Serv

**SPW 5805 . Spanish Graduate Studies Research**

3(3,0). 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.

AS-Foreign Languages

**SPW 5825 . Seminar Series**

3(3,0). PR: Graduate Standing or C.I. A seminar course that focuses on a single author, a geographical area or a specific topic within a period or literary movement from Spain, Latin American or Hispanics in the U.S. May be repeated for credit.

AS-Foreign Languages

**SPW 6216 . Golden Age Prose**

3(3,0). A study of the major prose works of the Spanish Golden Age.

AS-Foreign Languages

**SPW 6217 . Spanish American Prose I**

3(3,0). A study of the principal characteristics of Spanish American prose from Colonial times to post-independence.

AS-Foreign Languages

**SPW 6218 . Spanish American Prose II**

3(3,0). A study of the principal characteristics of Spanish American prose from modernism to the present.

AS-Foreign Languages

**SPW 6269 . Nineteenth Century Spanish Novel**

3(3,0). 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.

AS-Foreign Languages

**SPW 6306 . Spanish American Drama I**

3(3,0). An analysis of dramatic texts from Pre-Columbian times to the end of the nineteenth century.

AS-Foreign Languages

**SPW 6307 . Spanish American Drama II**

3(3,0). An analysis of Spanish American Drama from modernism to the present.

AS-Foreign Languages

**SPW 6315 . Golden Age Drama**

3(3,0). An analysis of the meaning and artistic values of selected theatrical works of the Spanish Golden Age.

AS-Foreign Languages

**SPW 6356 . Spanish American Poetry**

3(3,0). A study of the different movements and their contribution to Spanish American poetry.

AS-Foreign Languages



**SPW 6405 . Medieval Spanish Literature**

3(3,0). An intensive study of the major genres of the period. Emphasis on selected works by major writers.  
AS-Foreign Languages

**SPW 6585 . Contemporary Peninsular Literature**

3(3,0). A study of the major writers and literary movements from the Generation of 1927 to the present.  
AS-Foreign Languages

**SPW 6725 . The Generation of 1898**

3(3,0). An analysis of the major works of writers of the Generation of 98 such as Ganivet, Unamuno, Baroja, Azorin, and Machado.  
AS-Foreign Languages

**SPW 6919 . Advanced Spanish Graduate Research**

3(3,0). PR: Graduate student in Spanish MA program. Introduce historical and literary criticism at the graduate level. Teach methods for independent study and provide students with tools needed for research in Spanish linguistics, literary criticism and culture.  
AS-Foreign Languages

**SSE 5115 . Methods in Elementary School Social Science**

3(3,0). PR: EDG 4323. Study of instructional programs in social sciences; objectives; materials; techniques; current research; and their application in elementary school setting.  
ED-Teaching & Learning Princ

**SSE 5391 . Problems in World Studies Education**

3(3,0). PR: C.I. The examination of theories of World Studies Education along with insights into the practical dilemmas of world teaching.  
ED-Teaching & Learning Princ

**SSE 6617 . Trends in Elementary School Social Studies Education**

3(3,0). PR: Basic Teacher Certificate or C.I. Historical development and current trends, strategies for inquiry instruction, intellectual, social, and personal dimensions of social studies.  
ED-Teaching & Learning Princ

**SSE 6636 . Contemporary Social Science Education**

3(3,0). PR: Basic Teacher Certificate of C.I. A survey of recent developments and contemporary programs in all areas of the social sciences.  
ED-Teaching & Learning Princ

**STA 5103 . Advanced Computer Processing of Statistical Data**

3(3,0). PR: STA 4163 and knowledge of a programming language. Use of SAS and other statistical software packages; data manipulation; graphical data presentation; data analysis; creating analytical reports.  
AS-Statistics

**STA 5132 . Pension Actuarial Science**

3(3,0). PR: STA 4322 and STA 4131. Pension plan funding basic theory and applications. Types and calculations of pension benefits. Methods of funding pension plans. normal costs, supplemental liability and projected benefit cost methods.  
AS-Statistics

**STA 5139 . Credibility Theory and Loss Distribution**

3(3,0). PR: STA 4322. Full and partial credibility. The credibility premium. Exact credibility. Parametric and nonparametric estimation of credibility. Loss models for claim severities and frequencies. Aggregate claims models.

AS-Statistics

**STA 5175 . Biometry**

3(3,0). PR: STA 2023 or C.I. Design and analysis of experiments with emphasis on biological/ecological application; one-way and multi-way ANOVA; regression; ordination; classification.

AS-Statistics

**STA 5176 . Introduction to Biostatistics**

3(3,0). PR: STA 4163 or STA 4173. Fixed-effects model, random-effects model, repeated measures design, logistic regression, survival analysis, Kaplan-Meier estimates, proportional hazards model.

AS-Statistics

**STA 5205 . Experimental Design**

3(3,0). PR: STA 4164, STA 5206 or ESI 5219. Construction and analysis of designs for experimental investigations. Blocking, randomization, replication; Incomplete block designs; factorial and fractional designs; design resolution.

AS-Statistics

**STA 5206 . Statistical Analysis**

3(3,0). PR: STA 2023; not open to students who have completed STA 4164. Data analysis; statistical models; estimation; tests or hypotheses; analysis of variance, covariance, and multiple comparisons; regression and nonparametric methods.

AS-Statistics

**STA 5505 . Categorical Data Methods**

3(3,0). PR: STA 4163 or STA 5206. Considers discrete probability distributions, contingency tables, measures of association, and advanced methods, including loglinear modeling, logistic regression, McNemar's Test, Mantel-Haenszel test.

AS-Statistics

**STA 5646 . Casualty Insurance**

3(3,0). PR: STA 4322 and STA 4641. Individual risk rating and classification of risk for property/casualty insurance. Re-insurance and expense issues. Reserves for insurance and loss adjustment expenses. Investment income.

AS-Statistics

**STA 5703 . Data Mining Methodology I**

3(3,0). PR: STA 5103 and STA 5206. Data mining to uncover valuable information through SEMMA (Sample, Explore, Model, Modify, and Access). Process with neural network and decision tree.

AS-Statistics

**STA 5825 . Stochastic Processes and Applied Probability Theory**

3(3,0). PR: STA 4321. Conditional probability and conditional expectations, sequences of random variables, branching processes, random walks, Markov chains, recurrent events, renewal theory, queueing theory, and simple stochastic processes.

AS-Statistics

**STA 5931 . Topics in Actuarial Science**

3(3,0). PR: Senior status and 9 hours of actuarial science classes. Topic may include: survey of actuarial practices, financial mathematics,

ruin theory, insurance law, advanced pension and disability actuarial methods.

AS-Statistics

#### **STA 5940 . Statistical Advice for Researchers**

1(1,0). PR: C.I. Discussion of student-supplied statistical problem, data sources, sampling techniques, computer package usage, analysis, interpretation. May be repeated for credit. Graded S/U.

AS-Statistics

#### **STA 6106 . Statistical Computing I**

3(3,0). Computer systems, approximating probabilities/percentiles, random number generation, linear model computations, density estimation

AS-Statistics

#### **STA 6107 . Statistical Computing II**

3(3,0). PR: STA 6329 (or knowledge of matrix algebra), STA 6236 (or knowledge of linear regression), and familiarity with a higher level programming language (e.g., FORTRAN, C++, MATLAB). Linear regression: stepwise regression, Gauss-Jordan pivots, stand-up regression, residual analysis, Nonlinear regression; Gauss-Newton algorithm, derivative-free methods, constraints, iteratively reweighted least squares. General maximum likelihood methods: Newton-Raphson and Fisher-scoring, conjugate gradient and quasi-Newton methods, EM algorithm.

AS-Statistics

#### **STA 6207 . Response Surface and Mixture Experiments**

3(3,0). PR: STA 5205. Approximating response functions; first-order and second-order response surfaces; ridge systems; mixture problems, component proportions, and the analysis of mixture data.

AS-Statistics

#### **STA 6226 . Sampling Theory and Applications**

3(3,0). PR: STA 4321. Different techniques of sampling, sampling for proportions, choosing sample size, ratio estimates, effects of sampling and non-sampling errors.

AS-Statistics

#### **STA 6236 . Regression Analysis**

3(3,0). 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.

AS-Statistics

#### **STA 6237 . Nonlinear Regression**

3(3,0). PR: STA 6236 (or knowledge of linear regression). Nonlinear regression: model specification, diagnostics. Estimation: nonlinear least squares, SAS, Gauss Newton algorithm. Robust regression: M-estimation adaptive robust regression. Logistic regression, Poisson regression

AS-Statistics

#### **STA 6246 . Linear Models**

3(3,0). 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.

AS-Statistics

**STA 6326 . Theoretical Statistics I**

3(3,0). PR: MAC 3313. Distribution of random variables, conditional probability and independence, some special distributions, distributions of functions of random variables, limiting distributions.

AS-Statistics

**STA 6327 . Theoretical Statistics II**

3(3,0). PR: STA 6326. Point estimation, sufficient statistics, completeness, exponential family, maximum likelihood estimators, statistical hypotheses, best tests, likelihood ratio tests, noncentral distributions.

AS-Statistics

**STA 6329 . Statistical Applications of Matrix Algebra**

3(3,0). PR: MAC 2313 and STA 4164 or STA 5206. Basic theory of determinants, inverses, generalized inverses, eigenvalues and eigenvectors, partitioned matrices. Diagonalization and decomposition theorems, least squares and statistical applications.

AS-Statistics

**STA 6346 . Advanced Statistical Inference I**

3(3,0). PR: STA 6327. Decision rules, risk functions, utility theory, the loss function, prior information and subjective probability, Bayesian analysis.

AS-Statistics

**STA 6347 . Advanced Statistical Inference II**

3(3,0). PR: STA 6346. Minimax analysis, invariance, admissibility, maximal invariants, sequential analysis.

AS-Statistics

**STA 6466 . Advanced Probability Theory**

3(3,0). PR: STA 6327 or MAP 6111. Basic concepts of probability theory, modes of convergence, probability inequalities, weak law of large numbers, Central Limit Theorem, strong law of large numbers.

AS-Statistics

**STA 6467 . Advanced Probability Theory II**

3(3,0). PR: STA 6466. Accuracy of point estimators, relative efficiency, multivariate normal distribution, testing goodness of fit, U-statistics, statistical functionals, density estimation asymptotic normality and efficiency.

AS-Statistics

**STA 6507 . Nonparametric Statistics**

3(3,0). PR: STA 4321. Theory and methods for one and two sample problems; one and two way layouts; independence problems; regression problems.

AS-Statistics

**STA 6662 . Statistical Methods for Industrial Practice**

3(3,0). Variance components, PCRs, autocorrelation structures, charting, EVOP, design strategies, calibration, standards, and associated awards

AS-Statistics

**STA 6704 . Data Mining Methodology II**

3(3,0). PR: STA 5703 and STA 6106. Statistical techniques for data mining that include discriminant analysis, logistic regression, and factor analysis.

AS-Statistics

**STA 6707 . Multivariate Statistical Methods**

3(3,0). PR: MAS 3105, STA 4163, and STA 4322. Concepts of statistical relationships among several variables and methods for inference. Multivariate normal, Hotelling's  $T^2$ , multivariate analysis of variance, canonical correlations and principal components.

AS-Statistics

**STA 6857 . Applied Time Series Analysis**

3(3,0). PR: STA 4322, MAS 3105. Stationarity, autocorrelation, moving averages and autoregressive processes. Non-stationary time series. Identification and estimation. Forecasting.

AS-Statistics

**SYA 5625 . ProSeminar**

3(3,0). 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.

AS-Sociology & Anthropology

**SYA 5937 . Advanced Population**

3(3,0). Examines the theories, methods, and information utilized by demographers and focuses on techniques of application of those skills.

AS-Sociology & Anthropology

**SYA 6126 . Social Theory**

3(3,0). PR: Regular graduate standing or C.I. The study of selected sociological theories in terms of relevance, usefulness, and adequacy for applied sociology.

AS-Sociology & Anthropology

**SYA 6305 . Social Research**

3(3,0). PR: Regular graduate standing or C.I. Research methodology including problem conceptualization, sampling designs, research proposals, data collection, and evaluation techniques for applied settings.

AS-Sociology & Anthropology

**SYA 6315 . Qualitative Research Methods**

3(3,0). PR: Graduate Standing. Examination of qualitative research methods, how and when they are employed, and processes of analyzing field observation, oral histories, and in depth interviews

AS-Sociology & Anthropology

**SYA 6455 . Research Analysis**

3(2,2). PR: SYA 6305, undergraduate statistics, regular graduate standing, or C.I. Data management, selection of statistics, data analysis, evaluation, data presentation, and computer skills.

AS-Sociology & Anthropology

**SYA 6656 . Social Organization and Human Resources**

3(3,0). PR: C.I. Complex organization theory, social systems analysis, competence in group dynamic skills, and use of human resources in agencies, businesses, and industries.

AS-Sociology & Anthropology

**SYA 6657 . Program Design and Evaluation**

3(3,0). PR: C.I. Techniques of system and policy assessment, evaluation, and design. Determination of consequences and implications of policies and practices in applied settings.

AS-Sociology & Anthropology

**SYD 5795 . Class, Race, and Gender in American Society**

3(3,0). PR: Graduate Status or C.I. Using theoretical and empirical studies, this course will provide a sociological examination of the intersections of race, class, and gender in American society.

AS-Sociology & Anthropology

**SYD 6705 . Seminar in Race and Ethnicity**

3(3,0). PR: Graduate standing in sociology or C.I. A sociological examination of the experiences of racial and ethnic groups in the United States.

AS-Sociology & Anthropology

**SYD 6809 . Seminar in Gender Issues**

3(3,0). PR: Graduate standing in Sociology or C.I. Using theoretical and empirical studies, this course will provide a sociological examination of gender issues that influence relationships between women and men.

AS-Sociology & Anthropology

**SYO 6175 . Social Research in the Family**

3(3,0). PR: General Soc. SYG 2000 or COI. To offer an overview of current research in the family. The family will be viewed from the institutional level, individual social system, and individual level.

AS-Sociology & Anthropology

**SYO 6515 . Issues in Social Disorganization**

3(3,0). 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.

AS-Sociology & Anthropology

**SYP 5005 . Sociological Social Psychology**

3(3,0). PR: regular graduate standing. An exploration of sociological social psychological theories and their application in understanding the effects of society and groups on the individual.

AS-Sociology & Anthropology

**SYP 5526 . Sociological Criminology**

3(3,0). 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.

AS-Sociology & Anthropology

**SYP 5562 . Seminar on Domestic Violence: Theory, Research and Social Policy**

3(3,0). 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.

AS-Sociology & Anthropology

**SYP 5738 . Seminar on the Welfare State & Aging**

3(3,0). PR: Graduate standing or C.I. A sociological examination of old policies from a cross-cultural perspective.

AS-Sociology & Anthropology

**SYP 6515 . Deviant Behavior Issues**

3(3,0). PR: C.I. An examination and evaluation of the forms of social deviance, and the organizations designed to respond to them.

AS-Sociology & Anthropology

**SYP 6546 . Crime, Law, Inequality**

3(3,0). PR: Graduate standing. The consequences of social stratification on criminality and treatment/protection by the legal system. This course examines literature concerning inequality and the sociology of law.

AS-Sociology & Anthropology

**SYP 6561 . Child Abuse in Society**

3(3,0). PR: C.I. A sociological examination of literature and current research pertaining to child abuse and neglect.

AS-Sociology & Anthropology

**SYP 6563 . Reactions to Domestic Violence**

3(3,0). 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.

AS-Sociology & Anthropology

**SYP 6565 . Elder Abuse and Neglect**

3(3,0). PR: C.I. A sociological examination of elder abuse and neglect in the family and other social settings.

AS-Sociology & Anthropology

**TAX 5015 . Advanced Tax Topics**

3(3,0). PR: TAX 4001 or TAX 4XXX (Taxation of Business Entities), or equivalent. Advanced tax issues affecting individuals and business entities, including corporations and partnerships.

BA-Accounting

**TAX 6065 . Tax Research**

3(3,0). PR: TAX 4001 and graduate standing. Legal and ethical guidelines governing tax practice.

BA-Accounting

**TAX 6135 . Taxation of Corporations and Shareholders**

3(3,0). PR: TAX 4001 and graduate standing. Federal taxation relating to corporate organization, distributions, liquidations, accumulations, and reorganizations.

BA-Accounting

**TAX 6205 . Partnership Taxation**

3(3,0). PR: TAX 4001 and graduate standing. Federal taxation relating to partnership income including formation, distribution, and retirements.

BA-Accounting

**TAX 6405 . Taxation of Estates and Gifts**

3(3,0). PR: TAX 4001 and graduate standing. Federal transfer taxes affecting gifts and estates.

BA-Accounting

**TAX 6505 . International Taxation**

3(3,0). PR: TAX 4001 and graduate standing. Study of federal tax issues related to international transactions affecting U.S. and foreign taxpayers.

BA-Accounting

**TAX 6845 . Tax Planning and Consulting**

3(3,0). PR: Tax 4001 and graduate standing. Individual and business tax planning.

BA-Accounting

**THE 5269 . Period Props, Furniture & Architecture**

3(3,0). PR: Admission into the graduate program and Research Methods (no # assigned). Advanced Chronological study of historical genres and styles of furniture, ornament and design and their interrelationships.

AS-Theatre

**THE 5307 . Contemporary Theatre Practice**

3(3,0). PR: THE 3110, THE 3111, THE 3306, Restricted to Theatre majors or departmental consent. Contemporary trends in plays and theatre production in the late 20th century.

AS-Theatre

**THE 5376 . Theatre/Drama of Williams, Miller, and Inge**

3(3,0). PR: Entrance into the Graduate Program. Study of Tennessee Williams, Arthur Miller, and William Inge from a literary, performance, and historical view, instilling in students a knowledge/appreciation of their plays.

AS-Theatre

**THE 6170 . Contemporary Theatre Practice**

3(3,0). PR: MFA and MA in Theatre. Examination of major avant-garde movements in theatre from the late nineteenth century to the present day.

AS-Theatre

**TPA 5042C . Costume Design Studio**

3(3,0). PR: Admission into the graduate program and Costume History I & II. (no # assigned). Project-oriented course in the advanced study of Costume Design.

AS-Theatre

**TPA 5062C . Scene Design Studio**

3(2,2). PR: Admission into graduate program. Advanced work in the conceptualization and communication of scenic designs for the theatre.

AS-Theatre

**TPA 5258C . AutoCad-2D for Theatre**

3(2,2). PR: Admission into the MFA Design Program. Two-Dimensional computer drafting and editing techniques applicable to theatre design.

AS-Theatre

**TPA 5405 . Theatre Management for Non-Majors**

3(3,0). PR: THE 2020 Theatre Survey or THE 2000 survey or C.I. Study of university, community and professional theatre management with special attention to the principles of management to include management skills/function and organizational systems/performance as



they relate to theatre organizations/institutions.

AS-Theatre

**TPP 5156C . Acting Studio I**

3(2,2). PR: Admission to MFA Performance Program. An advanced scene study course with emphasis on scene analysis and character development and application of acting techniques in modern contemporary American plays.

AS-Theatre

**TPP 5157C . Acting Studio II**

3(2,2). PR: Graduate Acting Studio I. An advanced scene study course applying acting methodologies to the works of modern (1850-) European playwrights with emphasis on the works of Ibsen/Chekhov/Shaw.

AS-Theatre

**TPP 5515 . Movement Studio I**

2(2,0). PR: Admission to MFA Performance Program. Graduate-level course in principles and methods of movement for the stage focusing on relaxation, centering, increased physical control, and physical development of a character.

AS-Theatre

**TPP 5516C . Movement Studio II**

2(2,1). PR: Graduate Movement Studio I. Principles and methods of movement for the stage focusing on gaining specific knowledge and skills in period styles of movement and basic unarmed combat.

AS-Theatre

**TSL 5143 . ESOL Strategies**

3(3,0). 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.

AS-Foreign Languages

**TSL 5245 . Developing ESOL Language and Literacy**

3(3,0). PR: Graduate Standing or C.I. Emphasis on research in CALL as well as the design and evaluation of software and websites for learning English as a Second Language.

AS-Foreign Languages

**TSL 5345 . Methods of ESOL Teaching**

3(3,0). This course is designed to develop understanding, knowledge and skills of the current methods used in the teaching of ESOL.

ED-Teaching & Learning Princ

**TSL 5525 . ESOL Cultural Diversity**

3(3,0). This course is designed to identify major cultural groups represented by the LEP population in Florida schools and to understand their special needs.

ED-Teaching & Learning Princ

**TSL 5940 . Issues in TEFL**

3(3,0). PR: CI. Address issues specifically related to TEFL, such as materials adaptation, teaching in multi-level classrooms, learning styles, cultural issues, and curriculum syllabus design.

AS-Foreign Languages

**TSL 6142 . Critical Approaches to ESOL**

3(3,0). Emphasis placed on current research in second language acquisition as it relates to the development of ESOL curriculum and materials.

AS-Foreign Languages

**TSL 6250 . Applied Linguistics in ESOL**

3(3,0). 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.

AS-Foreign Languages

**TSL 6350 . Grammar for ESOL Teachers**

3(3,0). PR: Graduate Standing or C.I. Emphasis on English grammar for English as a Second Language teachers. Includes analytical and theoretical background, but primarily examines problematic grammar points for ESOL learners.

AS-Foreign Languages

**TSL 6440 . Problems in Evaluation in ESOL**

3(3,0). This course provides for the development of sound assessment knowledge necessary to prepare students to apply second language assessment theories, principles, and current research.

AS-Foreign Languages

**TSL 6540 . Issues in Second Language Acquisition**

3(3,0). Focuses on second language acquisition theories, principles, and current research as they relate to language-minority students acquiring English as a Second Foreign Language.

AS-Foreign Languages

**TSL 6640 . Research in Second Language**

3(3,0). 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.

AS-Foreign Languages

**TSL 6940 . ESOL Practicum**

3(3,0). PR: C.I. Techniques and strategies for creating effective lesson plans for ESOL classroom activities.

AS-Foreign Languages

**TTE 5204 . Traffic Engineering**

3(3,0). PR: TTE 4004. Study of operator and vehicle characteristics, and design for street capacity, signals, signs, and markings.

ECS-Civil & Environmental

**TTE 5205 . Highway Capacity and Traffic Flow Analysis**

3(3,0). PR: TTE 4004. Highway capacity for all functional classes of highway. Traffic signalization including traffic studies, warrants, cycle length, timing, phasing and coordination.

ECS-Civil & Environmental

**TTE 5256 . Traffic Operations**

3(3,0). PR: TTE 4004 or C.I. Fundamental theories and applications of traffic movements on streets and highways.

ECS-Civil & Environmental

**TTE 5700 . Railroad Engineering**

3(3,0). PR: TTE 4004 and C.I. The major technical factors in location, construction, maintenance, and operation of railroad transportation systems.

ECS-Civil & Environmental

**TTE 5805 . Geometric Design of Transportation Systems**

3(3,0). PR: TTE 4004. Study of geometric and construction design elements in the engineering of transportation systems.

ECS-Civil & Environmental

**TTE 5835 . Pavement Design**

3(3,0). PR: CEG 4101C. Pavement types, wheel loads, stresses in pavement components; design factors such as traffic configurations, environment, and economy.

ECS-Civil & Environmental

**TTE 6270 . Intelligent Transportation Systems**

3(3,0). PR: TTE 4004 and TTE 5204 and C.I. Theories and applications of intelligent vehicle highway systems in transportation engineering.

ECS-Civil & Environmental

**TTE 6315 . Traffic Safety Analysis**

3(3,0). PR: TTE 4004 and CI. Understanding crash research concepts, and identifying factors contributing to traffic crash occurrence.

ECS-Civil & Environmental

**TTE 6526 . Planning and Design of Airports**

3(3,0). PR: C.I. Background of aviation and airport development, aircraft characteristics. Planning and design of airport components. Heliport and STOL ports and pavement and drainage design.

ECS-Civil & Environmental

**TTE 6625 . Mass Transportation Systems**

3(3,0). PR: C.I. Planning, design, construction, operation, and administration of mass transportation systems.

ECS-Civil & Environmental

**WST 5347 . Research Seminar in Gender Studies**

3(3,0). PR: Graduate student or post-baccalaureate status. Research seminar exploring relationships among feminist theorizing, research, and social change, the development of gender studies programs and their relationships to other academic disciplines.

AS-Women's Studies

**ZOO 5456C . Ichthyology**

4(2,6). PR: ZOO 4310C or C.I. Introduction to the biology of the fishes, their classification, evolution, and life histories.

AS-Biology

**ZOO 5463C . Herpetology**

4(2,6). PR: 6 hours of zoology or C.I. Introduction to the biology of the amphibians and reptiles, their classification, evolution, and life histories.

AS-Biology

**ZOO 5475C . Ornithology**

4(2,6). PR: 6 hours of zoology or C.I. Introduction to the biology of birds, their classification, evolution, and life histories.  
AS-Biology

**ZOO 5486C . Mammalogy**

4(2,6). PR: 6 hours of zoology or C.I. Introduction to the biology of mammals, their classification, evolution, and life histories.  
AS-Biology

**ZOO 5517 . Methods for Studying Animal Behavior in Zoo Setting**

1(1,0). PR: An animal behavior course or C.I. Research techniques used to study animals in captivity.  
AS-Biology

**ZOO 5745C . Essentials of Neuroanatomy**

4(3,3). 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.  
HPA-Molecular & Microbiology

**ZOO 5815 . Zoogeography**

4(4,0). PR: 8 hours of zoology or C.I. Principles and concepts concerning regional patterns of animal distributions of the world, both past and present.  
AS-Biology

**ZOO 5881C . Fisheries Management**

4(3,4). PR: ZOO 4310C or C.I. Fisheries management of freshwater environments to include identification, sampling methods, farming and hatchery operations, propagation and population estimates.  
AS-Biology

**ZOO 5891 . Applied Conservation Biology**

1(1,0). PR: C.I. Examination of issues surrounding care, maintenance and tracking animals in small populations.  
AS-Biology

**ZOO 5893L . Reproductive Management in Zoological Environments**

1(1,0). PR: PCB 4732 or C.I. Laboratory techniques used to improve reproductive success of animals in a zoological environment.  
AS-Biology