

# UNIVERSITY OF CENTRAL FLORIDA

1995 - 1996

## GRADUATE

### CATALOG



## DEGREES OFFERED

### COLLEGE OF ARTS AND SCIENCES

#### Master of Arts

Communication  
English  
Creative Writing  
Literature  
Technical Writing  
History  
Political Science  
Sociology, Applied

#### Master of Science

Biology  
Chemistry, Industrial  
Computer Science  
Mathematical Science  
Physics  
Psychology  
Clinical  
Industrial/Organizational  
Statistical Computing

#### Doctor of Philosophy

Computer Science  
Mathematics  
Physics  
Psychology  
Human Factors

### COLLEGE OF BUSINESS ADMINISTRATION

#### Master of Arts in Applied Economics

(M.A.A.E.)

#### Master of Science in Accounting

(M.S.A.)

#### Master of Science in Taxation

(M.S.T.)

#### Master of Business Administration

(M.B.A.)

#### Doctor of Philosophy

Business Administration

### COLLEGE OF EDUCATION

#### Master of Arts and/or Master of Education

Art Education  
Business Education  
Counselor Education  
Educational Leadership  
Educational Media  
Elementary Education  
English Language Arts  
Exceptional Child

Instructional Systems  
Mathematics Education  
Music Education  
Physical Education  
Reading Education  
Science Education  
Social Science Education  
Vocational Education

#### Educational Specialist

Curriculum and Instruction  
Educational Leadership  
School Psychology

#### Doctor of Education

Curriculum and Instruction  
Educational Leadership

### COLLEGE OF ENGINEERING

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

Communications  
Computer Integrated  
Manufacturing  
Construction Engineering  
Controls  
Digital Signal Processing  
Digital Systems/  
Architecture  
Electrical Systems  
& Sciences  
Electromagnetics  
Electronics  
Electro-Optics  
Engineering Management  
Environmental Sciences

Geotechnical Engineering  
Industrial Engineering  
Manufacturing Engineering  
Microelectronics  
Operations Research  
Optical Sciences & Engineering  
Product Assurance  
Engineering  
Simulation Systems  
Software Engineering/  
Knowledge-Based Systems  
Structural Engineering  
Structures & Foundations  
Transportation Engineering  
Water Resources Engineering

#### Master of Science in

#### Engineering (M.S.E.)

Civil Engineering  
Computer Engineering  
Electrical Engineering  
Environmental Engineering  
Industrial Engineering  
Manufacturing Engineering  
Mechanical Engineering

#### Doctor of Philosophy

Civil Engineering  
Computer Engineering  
Electrical Engineering  
Environmental Engineering  
Industrial Engineering  
Mechanical Engineering

### COLLEGE OF HEALTH AND PUBLIC AFFAIRS

#### Master of Arts

Communicative Disorders

#### Master of Science

Criminal Justice  
Health Sciences  
Administration  
Molecular Biology &  
Microbiology  
Nursing (M.S.N.)

#### Master of Public Administration (M.P.A.)

#### Master of Social Work (M.S.W.)

# GRADUATE CATALOG

**UNIVERSITY OF CENTRAL FLORIDA**  
**Orlando — Brevard — Daytona Beach — South Orlando**

A Member Institution  
of the  
State University System of Florida



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

*Accent on the Individual*  
*Accent on Excellence*

*Correspondence:*

*Graduate Admissions*  
*University of Central Florida*  
*P O Box 160112*  
*Orlando, FL 32816-0112*  
*(407) 823-2766*

*Office of Graduate Studies*  
*University of Central Florida*  
*P O Box 160212*  
*Orlando, FL 32816-0212*  
*(407) 823-6432*

Volume XIX

May 1995

Cover Design: Jagdish J. Chavda  
Photography by: Ricardo Aguilar

# GRADUATE ADMISSION DOCUMENTS

If you are seeking admission to one of our graduate programs the following documents are required to be on file before your application can be considered.

- Graduate/Post-Baccalaureate Application form
- Residency Classification form
- \$20 application fee unless you are a former UCF student. This fee is not refundable.
- Official Transcripts (sent to UCF directly from former institution)
- Official Test Scores (required from all applicants)
  - \_\_\_ GRE
  - \_\_\_ GMAT (College of Business, Master of Health Science)
  - \_\_\_ TOEFL (International students only)
  - \_\_\_ GRE Subject Examination (where required)
- Health Form
- Three (3) Recommendations (if required by program)
- Essay/Personal Statement (if required by program)
- Financial Statement (international students only)
- Resume (if required by program)
- Program Application (Biology, Counselor Education, Electrical Engineering)

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**Send All Documents To:**  
**Graduate Admissions**  
**P.O. Box 160112**  
**University of Central Florida**  
**Orlando, FL 32816-0112**  
**Telephone (407) 823-2766**

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# APPLICATION DEADLINES

Applicants to full-time programs wishing fellowships or assistantships should apply by January 15 for Fall admission.

## Fall Deadlines for specific programs:

Biology (Priority deadline)	March 1
Business Administration, Ph.D. (Fall only)	March 1
College of Business, all Masters	June 15
Communications (Fall only)	July 15
Communicative Disorders	June 15
Computer Science (priority deadline)	March 1
Counselor Education (Master)	February 1
Criminal Justice	May 1
Curriculum & Instruction (Specialist & Ed.D.)	February 15
Educational Leadership (Specialist & Ed.D.)	February 15
English	April 1
Nursing (Fall only)	February 15
Physics	March 1
Psychology (Fall only)	February 1
Clinical	
Human Factors (Ph.D.)	
Industrial/Organizational	
Public Administration	July 1
School Psychology (Fall only)	March 15
Social Work (Fall only)	March 1
<u>Post-Baccalaureate and all programs not specifically listed</u>	July 15

## Spring Deadlines for specific programs:

College of Business, all Masters	November 1
Communicative Disorders	November 1
Counselor Education (Master)	September 1
Criminal Justice	October 15
Curriculum & Instruction (Specialist & Ed.D.)	September 15
Educational Leadership (Specialist & Ed.D.)	September 15
English	November 1
Public Administration	December 1
<u>Post-Baccalaureate and all programs not specifically listed</u>	December 15

## Summer Deadlines for specific programs:

College of Business, all Masters	March 15
Communicative Disorders	April 1
Public Administration	April 1
<u>Post-Baccalaureate and all programs not specifically listed</u>	April 15

Failure to meet these deadlines may prevent admission as a regular graduate student for the term.

## Policy Statement

The University of Central Florida, under applicable rules of the Administrative Procedures Act, may change any of the announcements, information, policies, rules, regulations, or procedures set forth in this catalog. The catalog is published once a year and cannot always reflect new and modified regulations. Statements in this catalog may not be regarded in the nature of binding obligations on the institution or the State of Florida. While every effort will be made to accommodate the curricular needs of students, limited resources may prevent the University from offering all required courses in each semester or in day and evening sections.

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

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

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

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

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

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

### Drug-Free Workplace/Drug-Free Schools Policy Statement

The University of Central Florida, in accordance with legislation passed by the federal government as part of the war on drugs program, has adopted the policy statement DRUG-FREE WORKPLACE/DRUG-FREE SCHOOLS. Information regarding this policy may be obtained in the Office of Personnel Services (AD 230) or the Division of Student Affairs (AD 282).

#### Directions to UCF Campus

##### From Orlando International Airport: (20 Miles)

Go east on BeeLine Expressway (528) to 417 North. Take 417 North to University Blvd. Exit east onto University Blvd. to UCF.

##### From Daytona on I-4:

Exit 49 onto Route 434. Go through Longwood and Oviedo on 434 to UCF.

##### From Tampa on I-4:

Exit 28 onto BeeLine Expressway East (528). Go past Orlando International Airport to 417 North. Take 417 North to University Blvd. Exit east onto University Blvd. to UCF.

##### From South on Florida Turnpike:

Exit 254 (Orlando South — 441). Take first right onto BeeLine Expressway East (528). Go east past Orlando International Airport to 417 North. Take 417 North to University Blvd. Exit east onto University Blvd. to UCF.

##### From North on Florida Turnpike:

Exit 265 (Holland East-West) onto East-West Expressway East (408). Go east through Orlando to merge with 417 North to University Blvd. Exit east onto University Blvd. to UCF.

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Recent program changes may not be reflected in this catalog. Students should check with the appropriate graduate program coordinator for current information. Rules, policies, fees, and courses described in the catalog are subject to change without notice. Reader comments and suggestions for improving the usefulness of this catalog may be sent to: Catalog, Office of Graduate Admissions, AD 161, UCF, PO Box 160112 Orlando, FL 32816-0112.

# GRADUATE PROGRAM CALENDAR 1995-96

<b>FALL Semester 1995</b>	<b>SPRING Semester 1996</b>	<b>SUMMER Term "C" 1996</b>
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**See page 3 for individual program deadlines.**

## APPLICATION DEADLINES\*

For International Students	March 1	Aug. 31	Nov. 15
For U.S. Post-baccalaureate Students	July 15	Dec. 15	April 15
Readmission Applications	July 15	Dec. 15	April 15

\* Failure to meet these deadlines may prevent admission as a regular graduate student for the term.

REGISTRATION by appointment	Aug. 22-23	Jan. 4-5	May 6-7
Classes begin	Aug. 24	Jan. 8	May 8
Last day of late registration, Add/Drop**	Aug.-Sept. 31-1	Jan. 10-12	May 9-10
Last day for refund of fees	Sep. 1	Jan. 12	May 10
Audit registration	Sep. 5	Jan. 16	May 13
Last day to apply for graduation	Sep. 1	Jan. 12	May 10
Deadline for withdrawal	Oct. 20	Mar. 8	June 21
Last day to remove an "I"	Nov. 17	April 5	July 5
Founders' Day Honors Convocation (Classes cancelled 10 a.m.-Noon)		April 3	
Classes end	Dec. 2	April 20	July 25
Final exams and Special Exams	Dec. 4-11	Apr. 22-29	
Commencement	Dec. 17	May 4	Aug. 3
Grades Due	Dec. 13	May 1	July 29

\*\* If class meets first time Wed. or Thurs. night, Add/Drop can be adjusted. Colleges may have earlier deadlines. See individual colleges for information

## GRADUATE STUDIES DEADLINES

Request for Dissertation Defense	Nov. 3	Mar. 22	June 28
Announcement of Dissertation/Thesis/Research Report Defense: At least one week prior to Defense			
Dissertation Defense deadline	Nov. 10	Mar. 29	July 5
Thesis Defense deadline	Nov. 10	April 20	July 5
Final thesis, dissertations or research reports to College Dean	Dec. 2	April 20	July 25

GRE — General Test Dates	Oct. 14 & Dec. 9, 1995 Apr. 13 & June 8, 1996
GMAT Test Dates	Oct. 21, 1995
TOEFL Test Dates	Jan. 20, Mar. 16 & June 15, 1996 Aug. 6, Oct. 22 & Nov. 19, 1994 Jan. 14, Feb. 11, Apr. 22 & May 13, 1995

**HOLIDAYS:** Labor Day — September 4 (University wide)  
 Veterans Day — November 11 (University wide)  
 Thanksgiving Holidays — November 23-25 (University wide)  
 Martin Luther King Day — January 15 (University wide)  
 Spring Holidays — March 11-16  
 Memorial Day — May 27 (University wide)  
 Independence Day — July 4 (University wide)

<p><b>JANUARY</b></p> <table style="width: 100%; text-align: center;"> <tr><td>S</td><td>M</td><td>T</td><td>W</td><td>T</td><td>F</td><td>S</td></tr> <tr><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td><td>7</td></tr> <tr><td>8</td><td>9</td><td>10</td><td>11</td><td>12</td><td>13</td><td>14</td></tr> <tr><td>15</td><td>16</td><td>17</td><td>18</td><td>19</td><td>20</td><td>21</td></tr> <tr><td>22</td><td>23</td><td>24</td><td>25</td><td>26</td><td>27</td><td>28</td></tr> <tr><td>29</td><td>30</td><td>31</td><td></td><td></td><td></td><td></td></tr> </table>	S	M	T	W	T	F	S	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31					<p><b>APRIL</b></p> <table style="width: 100%; text-align: center;"> <tr><td>S</td><td>M</td><td>T</td><td>W</td><td>T</td><td>F</td><td>S</td></tr> <tr><td></td><td></td><td></td><td></td><td></td><td></td><td>1</td></tr> <tr><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td><td>7</td><td>8</td></tr> <tr><td>9</td><td>10</td><td>11</td><td>12</td><td>13</td><td>14</td><td>15</td></tr> <tr><td>16</td><td>17</td><td>18</td><td>19</td><td>20</td><td>21</td><td>22</td></tr> <tr><td>23</td><td>24</td><td>25</td><td>26</td><td>27</td><td>28</td><td>29</td></tr> <tr><td>30</td><td></td><td></td><td></td><td></td><td></td><td></td></tr> </table>	S	M	T	W	T	F	S							1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30							<p><b>JULY</b></p> <table style="width: 100%; text-align: center;"> <tr><td>S</td><td>M</td><td>T</td><td>W</td><td>T</td><td>F</td><td>S</td></tr> <tr><td></td><td></td><td></td><td></td><td></td><td></td><td>1</td></tr> <tr><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td><td>7</td><td>8</td></tr> <tr><td>9</td><td>10</td><td>11</td><td>12</td><td>13</td><td>14</td><td>15</td></tr> <tr><td>16</td><td>17</td><td>18</td><td>19</td><td>20</td><td>21</td><td>22</td></tr> <tr><td>23</td><td>24</td><td>25</td><td>26</td><td>27</td><td>28</td><td>29</td></tr> <tr><td>30</td><td>31</td><td></td><td></td><td></td><td></td><td></td></tr> </table>	S	M	T	W	T	F	S							1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31						<p><b>OCTOBER</b></p> <table style="width: 100%; text-align: center;"> <tr><td>S</td><td>M</td><td>T</td><td>W</td><td>T</td><td>F</td><td>S</td></tr> <tr><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td><td>7</td></tr> <tr><td>8</td><td>9</td><td>10</td><td>11</td><td>12</td><td>13</td><td>14</td></tr> <tr><td>15</td><td>16</td><td>17</td><td>18</td><td>19</td><td>20</td><td>21</td></tr> <tr><td>22</td><td>23</td><td>24</td><td>25</td><td>26</td><td>27</td><td>28</td></tr> <tr><td>29</td><td>30</td><td>31</td><td></td><td></td><td></td><td></td></tr> </table>	S	M	T	W	T	F	S	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31																																						
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# GRADUATE PROGRAM CALENDAR

## SUMMER TERMS 1996

Term "A" 1996	Term "B" 1996	Term "D" 1996	Term "E" 1996
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See page 3 for individual program deadlines.

### APPLICATION DEADLINES

For International Students	Nov. 15	Nov. 15	Nov. 15	Nov. 15
For U.S. Post-baccalaureate Students	April 15	April 15	April 15	April 15
Readmission Applications	April 15	April 15	April 15	April 15

### REGISTRATION by appointment

Classes begin	May 6-7	May 6-7	June 21	June 21
Last day for refund/fees due	May 8	May 8	June 26	June 24
Last day of late registration, Add/Drop	May 10	May 10	June 25	June 25
Audit Registration	May 9-10	May 9-10	June 25	June 25
Last day to apply for graduation	May 13	May 13	June 26	June 26
Deadline for withdrawal	May 17	May 17	May 17	May 17
Last day to remove an "I"	May 31	June 7	July 12	July 12
End of classes and term; exams	June 7	June 7	July 12	July 12
Commencement	Jun 19	July 3	Aug. 1	Aug. 2
	Aug. 3	Aug. 3	Aug. 3	Aug. 3

Semester "B" is for College of Business classes.  
Semester "E" is for College of Education classes.

### JANUARY

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### DECEMBER

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# ADMINISTRATION AND STAFF

## STATE OF FLORIDA BOARD OF EDUCATION

Lawton Chiles.....	Governor
Frank Brogan.....	Commissioner of Education
Bob Butterworth.....	Attorney General
Bill Nelson.....	State Treasurer
Sandy Motham.....	Secretary of State
Bob Milligan.....	Comptroller
Bob Crawford.....	Commissioner of Agriculture

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Julian Bennett, Jr. ....	Panama City
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Charlton B. Daniel, Jr. ....	Gainesville
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Gwendolyn F. McLin.....	Okahumpka
Dennis Ross.....	Tampa
Steven J. Uhfelder.....	Tallahassee
Welcom "Hank" Watson.....	Fort Lauderdale
Jason J. Rosenberg, Student.....	Gainesville
Charles B. Reed, Chancellor.....	Tallahassee

## UNIVERSITY OF CENTRAL FLORIDA ADMINISTRATION

President of the University.....	John C. Hitt
Senior Executive Assistant.....	Beth Barnes
Provost and Vice President for Academic Affairs.....	Gary E. Whitehouse
Vice President for Administration and Finance.....	John R. Bolte
Vice President for Research and Graduate Studies.....	Diane M. Jacobs
Vice President for Student Affairs.....	LeVester Tubbs
Vice President for University Relations.....	Daniel C. Holsenbeck

## 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 and Director, Brevard Campus.....	James A. Drake
Associate Vice President and Director, Daytona Beach Campus.....	Sarah Pappas
Associate Vice President and Director, Division of Continuing Education.....	Thomas A. Shostak
Assistant Vice President, Strategic Planning and Evaluation.....	Denise L. Young
Interim Director, International Studies and Programs.....	Waltraud (Trudi) Queiser Morales
Interim Director, University honors Program.....	Katherine Keller
Director, Cooperative Education.....	Sheri Dressler
Vice Provost, Information Technologies and Resources.....	Joel L. Hartman
Director, Computer Services.....	William H. Branch
Director of Libraries.....	Anne Marie Allison
Director, Instructional Resources.....	Robert L. Arnold
Associate Vice President, Academic Administrative Systems.....	J. Edward Neighbor

## OFFICE OF UNIVERSITY RELATIONS

Vice President for University Relations and Senior Counsel to the President.....	Daniel C. Holsenbeck
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President, UCF Foundation, Inc. and Interim Director, University Development.....	Dennis Eloe
Assistant Vice President for University Relations and Director, Public Affairs .....	Dean McFall
Controller, UCF Foundation, Inc.....	Roberta K. Byrum
Special Assistant to the President.....	Charles N. Millican
Director, Alumni Relations .....	Thomas Messina
Director, Community Relations.....	Candice J. Crawford
Director, Scholarships .....	J. Holly Thomson
Director, Annual Fund.....	Richard P. Rosser
Director, Federal Relations.....	Marilyn Cobb Croach
Director, Defense Transition Services.....	Alzo J. Reddick

## RESEARCH AND GRADUATE STUDIES

Vice President for Research and Graduate Studies.....	Diane M. Jacobs
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## OFFICE OF GRADUATE STUDIES

Director of Graduate Studies.....	Patricia J. Bishop
Associate Director of Graduate Admissions .....	Linda Beats Putchinski

## DIVISION OF SPONSORED RESEARCH

Interim Director of Sponsored Research.....	Douglas Beckman
<b>CENTER FOR RESEARCH IN ELECTRO-OPTICS &amp; LASERS</b> .....	M.J. Soileau
<b>FLORIDA SOLAR ENERGY CENTER</b> .....	David L. Block
<b>INSTITUTE FOR SIMULATION AND TRAINING</b> .....	A. Louis Medin
<b>CENTRAL FLORIDA RESEARCH PARK</b> Director.....	Joseph H. Wallace

## GRADUATE PROGRAMS AND DEPARTMENT CHAIRS

### College of Arts and Sciences

Interim Dean .....	Kathryn L. Seidel
Associate Dean .....	TBA
Associate Dean .....	Ben B. Morgan, Jr.
Assistant Dean .....	Bruce A. Whisler
Assistant Dean .....	Diana Velez
Biology .....	David H. Vickers
Chemistry .....	Glenn N. Cunningham
Communication .....	Milan D. Meeske
Computer Science .....	Terry J. Frederick
English.....	John F. Schell
History .....	Richard C. Crepeau
Mathematics .....	John Cannon
Physics.....	William Silfvast
Political Science .....	Robert L. Bledsoe
Psychology.....	Margaret H. Thomas
Sociology and Anthropology .....	Alyn Stearman, Interim
Statistics.....	Mark E. Johnson

### College of Business Administration

Dean .....	Richard C. Huseman
Associate Dean .....	W. Warren McHone
Assistant Dean .....	Robert L. Pennington
Accounting .....	Andrew Judd
Economics .....	Richard A. Hoffer
Finance .....	John M. Cheney
Hospitality Management .....	Robert Ford
Management .....	Pamela S. Lewis
Marketing.....	Ronald Michaels

### College of Education

Dean .....	Mary Palmer
Associate Dean.....	John Middleton
Acting Associate Dean .....	David Hernandez

Assistant Dean .....	Margaret C. Miller
Educational Foundations .....	Larry Holt
Educational Services .....	Robert Bollett
Instructional Programs .....	John H. Armstrong
Exceptional and Physical Education .....	John W. Powell

**College of Engineering**

Dean .....	Martin P. Wanielista
Associate Dean .....	Stephen L. Rice
Associate Dean .....	Richard N. Miller
Director of Graduate Affairs .....	José Sepulveda
Director of Undergraduate Affairs .....	James K. Beck
Civil and Environmental Engineering .....	A. Essam Radwan
Electrical and Computer Engineering .....	Wasfy Mikhael
Industrial Engineering and Management Systems .....	Ralph Rogers
Mechanical and Aerospace Engineering .....	David Nicholson

**College of Health and Public Affairs**

Dean .....	Belinda R. McCarthy
Associate Dean .....	Joyce Dornor
Associate Dean .....	Michael Sweeney
Communicative Disorders (Acting) .....	Thomas A. Mullin
Criminal Justice .....	B. J. McCarthy
Health Sciences .....	Michael Sweeney
Molecular Biology and Microbiology .....	R.N. Gennaro
Nursing (Interim) .....	Joyce Dornor
Public Administration (Interim) .....	Wendall C. Lawther
Social Work .....	Ira C. Colby



# THE UNIVERSITY

## UNIVERSITY OF CENTRAL FLORIDA

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

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

### MISSION STATEMENT

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

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

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

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

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

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

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

### ACCREDITATION

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

In addition to the regional accreditation agencies, there are a number of scientific, professional, and academic bodies conferring accreditation in specific disciplines. College of Business Administration by the American Assembly of Collegiate Schools of Business (AACSB); College of Education, Florida State Department of Education and the National Council for Accreditation of Teacher Education (NCATE); Engineering, Engineering Accreditation Commission (EAC) of the Accreditation Board for Engineering and Technology (ABET). UCF is listed with an "A" rating in the Report of Credit Given by Educational Institutions.

## **EAST CENTRAL FLORIDA AREA**

UCF is located in East Central Florida, a region with a population of about two million. Known principally for its tourist attractions, 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 more vacationers here than anywhere else. The area also offers the Florida Symphony Orchestra, Broadway productions, pop and classical music headliners, art festivals, a Shakespeare festival of UCF origin, the National Basketball Association's Orlando Magic and restaurants of every type and price.

## **THE ORLANDO CAMPUS**

The 1,443-acre campus is located in the Orlando suburbs, 13 miles northeast of downtown. Sixty-seven permanent buildings — valued at more than \$133 million — radiate outwards from an academic core, where UCF's colleges, classrooms and library are located. More than \$22 million in new construction, including a \$14 million communications building is planned over the next three years. New facilities recently completed or now under construction include an \$11 million student union and an \$11 million building to house the Center for Research and Education in Optics and Lasers. UCF recreational facilities include lighted tennis and racquetball courts, an outdoor swimming pool, golf driving range, volleyball and basketball courts and ball fields.



## **UCF AREA CAMPUSES**

In addition to the academic programs offered on the Orlando Campus, the University of Central Florida offers a number of upper-division programs and graduate programs at area Campuses in Cocoa, Daytona Beach and South Orlando. Times and dates for all courses are listed in the regularly published schedule of classes.

A new Downtown Academic Center is scheduled to open in January 1996. Operated within the Division of Continuing Education, the Center will offer programs designed to meet the needs of the residents and businesses in downtown Orlando.

### **UCF South Orlando Campus**

Located on Lake Ellenor Drive in the heart of Orlando Central Park (west of South Orange Blossom Trail between Oak Ridge and Sand Lake Roads) the South Orlando Campus of the University of Central Florida is convenient to students who live or work in southwest Orange County and north to Osceola County. It offers upper division evening courses in business administration and the arts and sciences, a graduate engineering program, and undergraduate and graduate vocational education courses.

A television studio on site has the capacity to receive and transmit signals for live interactive television courses, and several courses are videotaped at the South Campus for distribution to other University sites.

There is a computer lab for student use, and the library is equipped with LUIS terminals. Admissions and financial aid information is available, as well as on-site registration for all UCF courses.

The South Orlando Campus also offers a variety of non-credit programs specifically designed to meet the needs of business and industry in the area, and serves as a center for statewide meetings and seminars. Contact: UCF South Orlando Campus, 7300 Lake Ellenor Drive, Orlando, Florida 32809, Phone: (407) 855-0881

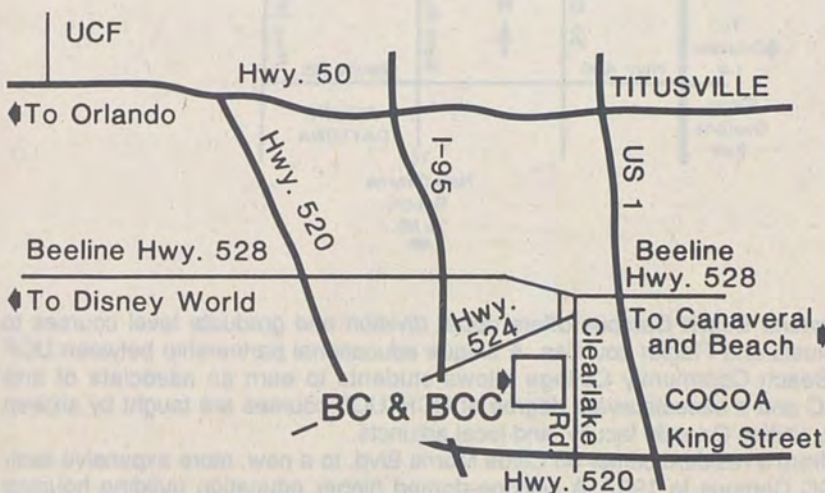
### UCF Brevard Area Campus

Clark Maxwell, Jr. Lifelong Learning Center  
1519 Clearlake Road  
Cocoa, FL 32922

Campus Director:

James A. Drake  
(407) 632-0067, UCF Ext. 506-5567

Director, Academic Services/Advising Coordinator  
(Admissions, Registration, Records, Financial Aid, Student Services)  
Doyce E. Walter  
(407) 632-4127, UCF Ext. 506-5563



The University of Central Florida, Brevard Campus, is housed in the Clark Maxwell, Jr. Lifelong Learning Center on the Cocoa Campus of Brevard Community College. The University offers junior, senior, and graduate-level courses and programs. Freshman and sophomore-level courses are provided by Brevard Community College. Students who have completed the Associate of Arts Degree are able to select from 17 baccalaureate programs offered by the University in Brevard. Newly admitted or currently enrolled UCF students may also register in selected upper division elective courses presented at UCF-Brevard. Graduate programs are offered in Business Administration, Communicative Disorders, Education, Engineering, and Public Administration.

### Graduate Programs:

- Business Administration (MBA)
- Communicative Disorders
- Educational Leadership
- Elementary Education
- Public Administration
- Engineering (FEEDS/ITV-video)

## UCF Daytona Beach Campus

1200 International Speedway Blvd.

P.O. Box 2811

Daytona Beach, Florida 32120-2811

(904) 255-7423

Associate Vice President and Campus Director

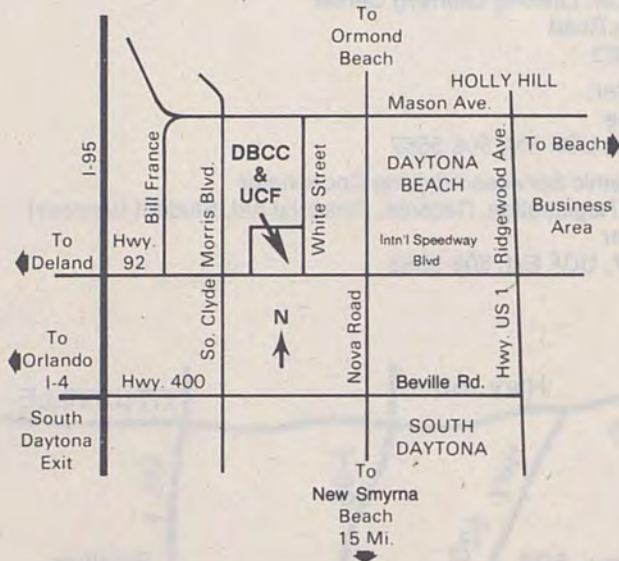
Sarah H. Pappas

(904) 255-7423 Ext. 4010

Associate Campus Director

William J. Wetherell

(904) 255-7423 Ext. 4025



The UCF Daytona Beach Campus offers upper division and graduate level courses to residents of Volusia and Flagler counties. A unique educational partnership between UCF and Daytona Beach Community College allows students to earn an associate of arts degree at DBCC and a baccalaureate degree at UCF. UCF courses are taught by sixteen resident faculty, visiting Orlando faculty, and local adjuncts.

UCF moved from a resident center on Clyde Morris Blvd. to a new, more expansive facility on the DBCC Campus in 1987. A silicone-domed higher education building housing classrooms, labs, and office space enable UCF to expand programs and acquire branch campus status in the Board of Regents system. A second building, completed in 1991, houses more classrooms and faculty offices as well as a 130-seat auditorium and conference.

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. Registration periods at Daytona Beach correspond to Orlando schedules. Admissions, registration and student services offices are located in Building 34, Suite 106. Business hours are 8:00 AM to 6:30 PM Monday to Thursday and 8:00 AM to 4:00 PM on Friday. Hours are extended during scheduled registration periods.

The following graduate degree programs are currently offered at Daytona Beach Campus:

Business Administration (MBA)  
Counselor Education:  
    School Counseling  
    Mental Health Counseling  
Educational Leadership  
Educational Leadership (Ed.D.)

Engineering  
Public Administration  
Reading Education  
Vocational Education

Additional courses and programs will be added as needs are identified. Contact: UCF Daytona Beach Campus, 1200 West International Speedway Blvd., P.O. Box 2811, Daytona Beach, FL 32120-2811. Phone: (904) 255-7423.





## INFORMATION TECHNOLOGIES AND RESOURCES

The Division of Information Technologies and Resources includes the Library, Computer Services, Telecommunications, and the Office of Instructional Resources. The Division has responsibility for planning, implementation, and support of information resources to serve the University's primary functions of instruction, research and administration.

Specific services and facilities provided by each of the above units are described in the following sections.

### University Libraries

Director: Anne Marie Allison, LR 512, Phone (407) 823-2564

Associate Director: Orlyn B. LaBrake, LR 512, Phone (407) 823-2564

Professional Staff: Joseph C. Andrews, R. Rochelle Ballard, Norris S. Basemore, Jr., Mem T. Catania, Jeffrey A. Franks, Elba C. Grovdahl, Carole S. Hinshaw, Suzanne E. Holer, Phyllis H. Hudson, Gary L. Hyslop, Selma K. Joskowski, Patricia E. Kenly, Chang C. Lee, Cheryl G. Mahan, Kimberly K. Montgomery, Peter C. Rossi, Phyllis L. Ruscella, Margaret K. Schaf, Roger D. Simmons, Marilyn R. Snow, June S. Stillman, Linda J. Sutton, Cheryl D. Walters, John S. Walters, Jeannette A. Ward, Jack L. Webb.

The University Library, housed in a facility of 200,000 square feet, has a collection of over 960,000 volumes with approximately 5,000 subscriptions (journals, newspapers, and other serials) and over 7,500 media titles. The Library is a partial depository for US and Florida documents, and US Patents. LUIS, the Library online catalog, may be accessed through terminals in the Library, at other Campus locations, or from off-campus computers. Through LUIS, Library users are able to determine whether the UCF Library owns a particular item, and the location and availability of the item. LUIS also provides online access to catalogs of all state university libraries in Florida, and to ERIC and IAC Academic and Business Indexes.

The University Library is open approximately 95 hours each week, including evenings and weekends. A shortened schedule is maintained during vacation periods, and hours are extended during the last few weeks of each semester. A staff of professional librarians and paraprofessionals is available to assist and advise those using the Library. Arrangements may also be made for class or small group instruction. Materials not in the Library's collections are available through the Interlibrary Loan Service. The Library also provides customized computer-produced bibliographies from any of approximately 500 different commercially available databases.

Special services are provided for the disabled. By using a computer terminal, disabled students can determine the availability of the books they need, and telephone the Library to request that books be brought to them at a convenient location on campus. A Kurzweil reading machine is available in the Library for the visually impaired; students or faculty may arrange for instruction in its use. Through the cooperation of the University's Office of Student Disability Services and the Florida Bureau of Blind Services, the Library staff will aid disabled students in obtaining special equipment they may need to use Library resources.

Students enrolled in the University's extended campus centers in Daytona Beach and Brevard County receive a full range of services from the Daytona Beach Community College Library and the Brevard Community College Library. Students at the South Orlando Campus have access to a small reference collection and "electronic" library. Online access to the catalog of the main Library collection is available from all branch campus locations and materials are delivered through a regular courier service.

## **Computer Services and Telecommunications**

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

Central instruction and research computing is provided primarily by computers located on the main campus as follows: Novell LAN file servers, IBM RS/6000 model 580, IBM ES/9000 model 170 and other Internet and campus facilities. There are four public access IBM PC labs in Computer Center II (CCII), the Engineering Building (ENG), Education (EDU), and the Business Building (BA). UNIX equipment is available in CCII and ENG. PowerMac and Macintosh labs are available in CCII and EDU. Public access labs are available for faculty and students. Most labs are open seven days a week with extended hours.

Voice Response systems are available for dialup registration, grades and financial aid information. Campus KIOSK workstations are available in the Administration and Library buildings for frequently asked questions and individual student record information. Additional information is available on the Knight Information System Gopher and UCF World Wide Webb servers. Access to Internet and campus information servers are available to our students.

The University also operates a full service sales, service and support on-campus computer store (bldg 541) which provides the UCF community a source for quality computer products and services at competitive prices. The store is an authorized campus reseller for Dell, Apple, IBM, Sun, Microsoft, Lotus and many other products. Maintenance and training support is also available from the store.

## **Office of Instructional Resources (OIR)**

Instructional Resources provides UCF faculty with graphics, use of a digital Information Processing Lab, Photography, and television production; a full range of audiovisual and classroom support services; and a wide range of instructional development assistance and consultation. Instructional Resources also administers Faculty and Classroom Support, Faculty Development, Faculty Multimedia Center, ITFS Television Network, the campus Cable Network, teleconferencing, satellite interconnection and Distance Learning facilities.

## **CENTRAL FLORIDA RESEARCH PARK**

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

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

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

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

Four University organizations including the Institute for Simulation and Training and the Center for Research in Electro-Optics and Lasers (CREOL), are located in the Research Park. The U.S. Naval Training Systems Center (NTSC), and the Army Simulation, Training and Instrumentation Command (STRICOM) the focal point of the nation's simulation and training industry, have their headquarters in the Research Park. Over 700 million dollars in federal contracts is granted by the Army and Navy each year.

Currently over 70 companies are located in the Research Park pursuing activities in simulation and training, lasers, optical filters, behavioral sciences, diagnostic test equipment, and oceanographic equipment. Approximately 4,000 employees currently work in the Research Park including many students and faculty.

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

## **RESEARCH FACILITIES**

Research facilities include access to a DEC MPP 1200 parallel processor and a Harris NightHawk NH-3800 processor within the Computer Science department, IBM RS/6000 model 580 and IBM 4381 model T92 processors within the Computer Services department, ES/9000 model 740 with three vectors at the Northeast Regional Data Center and access via INTERNET to worldwide computer facilities. In addition to the normal complement of laboratory instrumentation, scale-up and industrial control equipment is available for chemistry. Well-equipped laboratories are available for research in all areas of biology, as are a greenhouse and accompanying Arboretum, an extensive herbarium, a vertebrate collection, the Feller's House which is a research facility located on the Canaveral Seashore, and outstanding inland and coastal natural resources for fieldwork.

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

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

## **SPONSORED JOURNALS AND PUBLICATIONS**

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

The Canadian Review. Editor, Patrick Stewart

Florida Journal of Supervision and Curriculum Development, (FASCD)

Newsletter. Editor, Dr. M. L. Kysilka

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

The Florida Reading Quarterly. Editor, Rosie Webb Joels

The Florida Review. Edited by Russell Kesler  
Global Perspectives. Managing Editor, Dr. John C. DiPierro  
Ideas in Education. Edited by Dr. Patricia C. Manning  
International Journal of Computers and Industrial Engineering.  
Dr. Gary E. Whitehouse and Dr. Yasser A. Hosni, Editors  
International Journal of Mathematics and Mathematical Sciences.  
Dr. Lokenath Debnath, Chair and Professor of Mathematics, Managing Editor of the Journal  
The Journal of Reading Education. Dr. Richard A. Thompson, Editor  
Journal of Research on Computing in Education. Co-editors,  
Dr. William C. Bozeman and Dr. Dennis W. Spuck (University of Houston)  
Public Administration in the 1980's. Dr. Peter W. Colby, General Editor  
Social Studies Teacher. International Editor, Dr. Wentworth Clarke;  
Editorial Consultant, Dr. Fred Green

## **UCF ALUMNI ASSOCIATION**

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

- ◆ Timely information within the pages of Pegasus, UCF's bi-monthly alumni magazine
- ◆ Career resources and placement opportunities available nationwide
- ◆ Discounts with rental car agencies, hotels, and theme parks all across the country
- ◆ Free use of several campus recreational facilities
- ◆ Invitations to events like Homecoming, as well as local and regional alumni get-togethers
- ◆ Free borrowing at UCF library (main branch)
- ◆ Special alumni rates at UCF Computer Store
- ◆ 15% discount on UCF logo items at campus Bookstore
- ◆ Members-only discounts at Association-sponsored activities
- ◆ Numerous personal and professional networking opportunities

Every dues paying member is eligible to participate in the election of a Board of Directors for the Association, and to hold an office on the board or one of its committees. The Board guides the direction of the Association and the development of programs and annual scholarships to undergraduate and graduate students. For information, contact the UCF Alumni Relations Office, Administration 340, Phone (407) UCF-ALUM (823-2586).

## **UNIVERSITY OF CENTRAL FLORIDA FOUNDATION, INC.**

The UCF Foundation, Inc. is a non-profit, tax-exempt corporation directed by 60 member community based Board of Directors that encourages, solicits, receives, and administers private gifts and bequests of property and funds for scientific, educational, and charitable purposes. All gifts to UCF are received and processed through the Foundation for support of the University. Call (407) 249-4740 for additional information.

## **QUILL**

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

## **SCROLL**

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

## **INSTRUCTIONAL TELEVISION**

The University offers a variety of courses by way of television. They are available either live or on tape at various locations both on and off campus. Live courses may be viewed at the South Orlando, Brevard, and Daytona Beach campuses, as well as at selected sites

around the Greater Orlando area. Live courses may also be viewed on a Cable channel in the dorms and at several fraternity and sorority houses. Some courses are also broadcast to individual homes through local cable companies in Brevard and Orange Counties. Courses on tape are available in the learning centers or libraries at each of the University's four campuses.

Courses available on tape or live television are listed each semester in the schedule of classes. For additional information and updated course offerings, contact the Office of Orlando Area Programs at (407) 855-0881.

## **UNIVERSITY BOOKSTORE**

The University Bookstore is owned and operated by the University of Central Florida. The University Bookstore is located in the Student Services Building and is open to the public. In addition to textbooks and school supplies, this facility offers a complete line of UCF insignia clothing and gift items. A brochure of UCF items is available for mail order purchases. Write to UCF Bookstore, P.O. Box 162444, Orlando, Florida 32816-2444, or call (407) 823-2665 to request a brochure or inquire about store hours.



# INSTITUTES AND CENTERS FOR RESEARCH

## **CENTER FOR APPLIED HUMAN FACTORS IN AVIATION (CAHFA)**

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

Contact Person: Dr. Jefferson M. Koonce, Director and Chief Scientist, Phone (407) 823-1011; FAX (407) 823-5862.

## **CENTER FOR ECONOMIC EDUCATION**

The Center for Economic Education strives to increase public knowledge of economic principles and their applications in daily life.

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

Contact Person: Dr. Robert L. Pennington, Director, BA 325, Phone (407) 823-2870.

## **CENTER FOR EXECUTIVE DEVELOPMENT**

The Center for Executive Development of the College of Business Administration is committed to providing the best management and executive development programs in the State of Florida. Utilizing the resources of the College and University faculty, visiting executives and educators from around the world, the Center provides management and executive seminars in the areas of real estate, small business, general management, hospitality and human resources management for over 5,000 participants per year. Programs run from one day to over two weeks in length. Center activities are coordinated by program coordinators who are responsible for the following areas: Public Programming, In-House — Custom Seminars, Real Estate/Small Business 2000 and the Special Projects Groups. Examples of current programming within the Center includes: Train-the-Trainer, Management Development Series, Electronic Meeting/GroupWare System, Negotiation Skills, Purchasing, Supervising and Managing People, Lockheed Management Institute, and the Tax and Accounting Conference.

Also housed within the Center is the International Center for Business Leadership (ICBL). The function of the ICBL is to extend the reach of the College of Business to the global arena with programs that attract participants from around the nation and the world. The ICBL will use a UCF and global faculty network to provide world-class management and executive education programs for individuals and organizations.

Contact Person: Dr. Pamela S. Lewis, Director, Phone (407) 823-2446

## **CENTER FOR MULTILINGUAL MULTICULTURAL STUDIES**

Director: Consuelo Stebbins, TR 547, (407) 823-6110

Assistant Director: Myrna Creasman, TR 547, (407) 823-5515

Using contemporary teaching methodology and computer-assisted instruction, the Center for Multilingual Multicultural Studies provides English language instruction for international students. Four levels of instruction are offered which range from beginning to advanced, and special attention is given to preparing students for academic coursework 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.

## **CENTER FOR OUTREACH CREDIT**

Director: Dale A. Badger, TR 547, (407) 823-6108

Program Coordinator: Elizabeth Baab, TR 547, (407) 823-6114

The Center for Outreach Credit serves as a facilitator for the academic colleges and performs the overall planning, coordination, and management of approved off-campus credit courses, degree programs, sponsored contract courses, and accelerated on-campus instruction for students.

Outreach credit courses and program offered by the academic colleges and coordinated by the Center are tailored to meet the educational needs of local residents and area business, industry, and government employees. The goal of the Center for Outreach Credit is to unite the University and public/private sector resources for the purpose of providing to participants an opportunity to achieve personal aspirations and to maintain or enhance their professional and technical competencies. Registration in outreach credit courses does not require admission to the University, nor does it imply acceptance.

## **CENTER FOR PROFESSIONAL DEVELOPMENT**

Director: Consuelo Stebbins, TR 547, (407) 823-6112

Program Coordinator: John Duryea, TR 547, (407) 823-6111

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

The Center also works closely with business, professional and service organizations to design the programs that best meet the needs of the working community. To substantiate the content of professional programs, as well as to offer credentials to verify a learner's participation, continuing Education Units (CEU's) are offered to qualified and eligible participants

## **CENTER FOR RESEARCH AND EDUCATION IN OPTICS AND LASERS (CREOL)**

CREOL is the State University System of Florida's Center of Excellence for research and education in optical and laser sciences and engineering. CREOL was established in 1986 to bring together diverse disciplines into cohesive program in optics and lasers. Research activities at the Center are integrated with academic program to insure involvement of both students and faculty. CREOL has 28 faculty positions devoted to lasers and optical sciences and engineering of which 21 have been filled by scholars from around the world. CREOL Faculty are among the best in the laser/optics fields — half hold the rank of Fellow in major national and international societies associated with optics (e.g. Optical Society of America (OSA), the International Optical Engineering Society (SPIE). The faculty serve in major leadership positions in these societies, including service on the Boards of Directors and as officers of the societies. In a typical year approximately 50% of the faculty are asked to chair, co-chair, or serve on organizing committees of major national and international conferences dealing with their research specialties. The faculty and students of CREOL typically produce over 150 scholarly works per year. CREOL is located adjacent to the other science building on the campus of UCF in a modern 82,000 square foot research facility.

### **Research Program**

CREOL research projects reflect the interdisciplinary nature of the faculty and their diverse interest; and, is supported by federal, state, and industrial research grants. Faculty and students pursue joint research projects with industry and government laboratories. Current research activities include: laser propagation, laser/material interaction, nonlinear optics, integrated and guided-wave optics, infrared systems, optical signal processing, laser



development, detector technology, ultrafast phenomena, modern x-ray optics and lithography, laser plasma, nonlinear optical spectroscopy, diffractive optics, thin film optics, free electron lasers, photonics, optoelectronics, semiconductor optical device integration, growth of nonlinear and laser host materials, solid state and diode pumped lasers, laser-aided material processing and manufacturing, glass processing and characterization, optics manufacturing, and much more. The research facilities include fifty laboratories equipped with over ten million dollars of state-of-the-art optics equipment.

### **Academic Program**

The academic program involves students from various science and engineering departments and reflects the diverse interest of the faculty and students. M.S. and Ph.D. degree tracks in Optical Sciences and Engineering, and Optical Physics as well as M.S. and Ph.D. degrees in Electrical Engineering and Physics are offered at UCF. The academic program includes 25 specialized courses in electro-optics and lasers as well as basic Electrical Engineering and Physics courses. Graduate research assistantships up to \$14,000 per year are available at CREOL for highly qualified students through CREOL and the Litton Foundation.

### **Industrial Affiliates Program**

CREOL has established an industrial affiliate program to facilitate strong cooperative relationships with industry. The program provides businesses and manufacturers with the benefits of cutting-edge research and with access to the expertise and facilities of CREOL. Faculty members are teaming with Florida-based small businesses to help them compete for federally sponsored Small Business Innovative Research (SBIR) programs. The program provides industry with effective ways to contribute to and sustain the research and teaching in laser and electro-optical technology.

For information contact CREOL/UCF, 162700, Orlando, FL 32826-2700. Phone (407) 658-6800. Contact persons: Dr. M. J. Soileau, Director or Dr. M. G. Moharam, Chair Academic Affairs Committee.

### **DICK POPE, SR. INSTITUTE FOR TOURISM STUDIES**

The Dick Pope Sr. Institute for Tourism Studies is dedicated to improving the quality of the tourism product and increasing the benefits of tourism accruing to the industry, the state and local community. To this end the Institute is involved in a variety of programs in the fields of research and public awareness.

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

The Institute devotes significant efforts to increasing public awareness of the tourism industry in Florida and elsewhere, and of the contribution of the industry to the social and economic welfare of the general public.

Contact Person: Dr. Ady Milman, Director, Phone (407) 823-2188.

### **DISTANCE LEARNING**

Director: Thomas A. Shostak, 105 East Robinson Street, Suite 304, Orlando, FL 320801, (407) 423-6935.

Through its Instructional Television Fixed Service system (ITFS), UCF offers students at area campuses and at several locations throughout Central Florida the opportunity to "attend" credit courses by way of interactive television. Among the receive sites are the two area campuses (Brevard and Daytona Beach), major corporations and businesses throughout Central Florida, and each of the local community colleges. Certain courses are also available to students on videotape at each of the area campuses and centers. Courses available on videotape or live television are listed each semester in the schedule of classes.

## **DIVISION OF CONTINUING EDUCATION**

Associate Vice President: Thomas A. Shostak  
Administrative Assistant: Linda Hayes Gallegos  
800 North Magnolia Avenue, Suite 601  
Orlando, Florida 32803  
(407)423-6935

## **DOWNTOWN ACADEMIC CENTER**

Director: Thomas A. Shostak, 105 East Robinson Street, Suite 304, Orlando, FL 320801,  
(407) 423-6935

In the spring of 1995, UCF will be opening a Downtown Academic Center in the heart of downtown Orlando. The facility will provide office space for several University academic departments and support programs. Four classrooms, including a large lecture hall, will provide space for a variety of credit and non-credit courses designed to meet the needs of the business and residential community of Orlando. Registration, library, and computer services will be provided for students, and parking will be available in an adjacent parking garage.

## **FLORIDA-CANADA INSTITUTE**

The Florida-Canada Institute is hosted by the University of Central Florida for the State of Florida. The institute's purpose is to create and foster educational, commercial, cultural and social ties between Canada and Florida. The Institute sponsors several activities, including a yearly symposium on Florida-Canada issues, a workshop for school teachers, visits by distinguished speakers and government officials and information outreach. Palm Beach Community College in Lake Worth is the co-host for the Florida-Canada Institute.  
Contact Person: Dr. Elliot Vitte, Director, HFA 408D, Phone (407) 823-2079.

## **FLORIDA EASTERN EUROPE LINKAGE INSTITUTE**

The Florida-Central East Europe Institute is hosted by the University of Central Florida and Lake Sumter Community College for the Florida International Affairs Commission. The purpose of the Institute is to create and foster educational, commercial, cultural and social exchanges between the countries in Central and Eastern Europe and Florida.  
Contact Person: Richard Astro, Director, Research Pavilion, Suite 135, Phone:  
(407) 658-5571 or (407) 647-8022, FAX (407) 658-5570.

## **FLORIDA INSTITUTE OF GOVERNMENT AT THE UNIVERSITY OF CENTRAL FLORIDA**

The Institute of Government, an affiliate of the Florida Institute of Government, is housed in the College of Health and Public Affairs and provides training and development as well as technical assistance to federal, state, and local government agencies and intergovernmental associations. Training workshops, certification programs, conferences, seminars, applied research projects, citizen surveys, strategic planning, and organizational development programs are among the services offered by the Institute.

Director: Ms. Marilyn Crotty, Phone: (407) 423-6335.

## **FLORIDA SOLAR ENERGY CENTER (FSEC)**

The Florida legislature created FSEC in 1974 to conduct research on alternative energy technologies, to improve the quality of available solar energy equipment, and to educate the public about energy options. Located on a 16-acre complex at Cape Canaveral, the center serves as a statewide institute administered by the University of Central Florida.

FSEC conducts state, federal, and privately supported research in photovoltaics, energy use in buildings, electrical end uses, solar water heating, innovative air conditioning systems, and the production and use of hydrogen. In addition, the center has developed and administers state-mandated programs that require the testing, certification, and approval of all solar energy equipment manufactured or sold in Florida. Through its public information office, FSEC responds to more than 15,000 requests for energy information each year. The center also conducts seminars and workshops for teachers and professionals statewide, and its technical library boasts one of the nation's most extensive holdings on solar and alternative energy. Current projects involve solar thermal systems, electric utilities research,

hydrogen and energy systems, among others. For information contact the Florida Solar Energy Center, 300 State Road 401, Cape Canaveral, FL 32920-4099.

Contact Person: Dr. David Block, Director, Phone (407) 783-0300; FAX (407) 783-2571.

## **HIV-AIDS INSTITUTE**

The HIV-AIDS Institute is an interdisciplinary organization established in the College of Health and Public Affairs to facilitate the promotion of AIDS information and to serve as a principal coordinator in cooperation with local, regional, and state organizations, for AIDS education and other issues of particular interest to Central Florida.

Major goals of the Institute are to promote and provide educational research, and service programs for professionals, the general public, and private organizations; to serve as a regional information and educational center, to aid the educational community in promoting, securing, and maintaining up-to-date literature concerned with AIDS.

Contact Person: Dr. Sharon E. Douglass, Director, HPB 350, (407) 823-AIDS.

## **INSTITUTE FOR SIMULATION AND TRAINING (IST)**

The Institute for Simulation and Training (IST) is an internationally recognized research institute which focuses on technology advancement in training systems, education, and simulation and modeling.

IST was established in 1982 at the University of Central Florida and is located in the Central Florida Research Park, adjacent to the UCF campus. The Naval Air Warfare Center Training System Division, the Army Simulation, Training and Instrumentation Command (STRICOM) are also located in the Research Park. Additionally, more than 150 training and simulation companies maintain a presence in the Orlando area, causing the State of Florida to pass a resolution recognizing this area as the Center of Excellence for Simulation and Training technology.

The Institute serves this simulation and training community by providing a wide range of research services and working with university faculty to help develop curriculum and degree programs in simulation and training disciplines. UCF is the first university in the nation to offer a master's degree in simulation systems.

IST's research staff consists of scientists, engineers, and students. Program Managers and Principal Investigators have complete freedom to tailor interdisciplinary research teams to specific research projects. Several faculty members and graduate students have presented award winning papers at major conferences throughout the country.

IST researchers conduct basic and applied research for a broad range of training devices and programs. IST research areas include: simulation networking, visual simulation (including a Virtual Reality testbed), training systems effectiveness, artificial intelligence/expert systems, team training, computer graphics and animation, user interface design, computer architectures, simulation modeling, cognitive/information processing, database design and development, and instructional systems design. Laboratories, work space and administrative offices comprise nearly 38,000 square feet of total floor space in the Park's Barnett Building. Major laboratories include: Visual Systems Lab, Language Technology Lab, Communications Lab, Visual Systems Lab, Low Cost Flight Trainer Lab, Mathematics Simulation Lab, and the Advanced Learning Technology Transfer Center.

In its role as a leader in the simulation and training community, the Institute has undertaken a program of technology transfer. Included in this effort is the development of research projects with potential commercial applications, adaptation of military technology to civilian educational markets, and the communication of research results through seminars, publications and workshops.

Contact Person: Dr. A. Louis Medin, Executive Director, 3280 Progress Drive, Orlando, FL 32826-0544; Phone (407) 658-5000; FAX (407) 658-5059.

## **INSTITUTE FOR STATISTICS**

The Institute for Statistics provides statistical consulting and analytical support to all areas of the University. The Institute makes valuable contributions to research by supporting non-statistical researchers with statistical consulting assistance during the planning of experiments and investigations, analysis of data, and the evaluation of results.

The Institute also provides statistical support to various governmental agencies and private organizations.

Contact Person: Dr. Mark E. Johnson, Director, Phone (407) 823-2289.

## **INSTITUTE FOR TECHNICAL DOCUMENTATION**

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

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

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

Contact Person: Dr. Daniel Jones, Director, FA 301, (407) 823-2212.

## **OAK RIDGE ASSOCIATED UNIVERSITIES (ORAU)**

The University of Central Florida is a sponsoring institution of Oak Ridge Associated Universities (ORAU), a not-for-profit consortium of 82 colleges and universities and a management and operating contractor for the U.S. Department of Energy (DOE) with principal offices located in Oak Ridge, Tennessee. Founded in 1946, ORAU identifies and helps solve problems in science, engineering, technology, medicine, and human resources, and assists its member universities to focus their collective strengths in science and technology research on issues of national significance.

ORAU manages the Oak Ridge Institute for Science and Education (ORISE) for DOE. ORISE is responsible for national and international programs in science and engineering education, training and management systems, energy and environment systems, and medical sciences. ORISE's competitive programs bring students at all levels, precollege through postgraduate, and university faculty members into federal and private laboratories.

For additional information contact Dr. A. Louis Medin, Executive Director, Institute for Simulation and Training, Phone (407) 658-5000.

## **SMALL BUSINESS DEVELOPMENT CENTER**

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

- ◆ Marketing
- ◆ Personnel
- ◆ Bookkeeping
- ◆ Business Tax
- ◆ Franchising
- ◆ Sources of Financing
- ◆ Product Innovation
- ◆ Business Plan Development

Additional programs provide assistance to clients in the areas of government contracting, energy conservation and international trade.

Contact Person: Mr. Aloyse T. Polfer, Director, BA, Phone (407) 823-5554.

## **SMALL BUSINESS INSTITUTE**

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

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

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

Contact Person: Dr. Ron Rubin, Director, Phone (407) 823-2682.

## **SOUTH ORLANDO CENTER**

Director: Thomas A. Shostak, 7300 Lake Ellenor Drive, Orlando, FL 32809, (407) 855-0881

The South Orlando Center is located in Orlando Central Park, a site convenient to students who live or work in southwest Orange County and north Osceola County. The South Center offers upper division evening courses in business administration, criminal justice and legal studies, and hospitality management; undergraduate and graduate vocational education classes; and a graduate engineering program. It also provides a variety of non-credit programs specifically designed to meet the needs of business and industry in the area, and serves as a site for statewide meetings and workshops. A television studio at the center has the capacity to receive signals for live interactive television courses. There is a small computer lab for student use, and the library is equipped with LUIS terminals. Admission and financial aid information is available, as well as on-site registration for all UCF courses.

## **SPACE EDUCATION AND RESEARCH CENTER (SERC)**

The Space Education and Research Center (SERC) is an interdisciplinary organization that relies on faculty participation from all five colleges of the University. SERC's goal is to maximize space research opportunities for UCF faculty and students, while providing highly valued results to the space community.

Serc's objectives are to:

- ◆ Facilitate the performance of research to advance space technology.
- ◆ Serve as a catalyst to advance educational opportunities and experiences.
- ◆ Provide researchers with access to the upper atmosphere and space.
- ◆ Upgrade UCF capabilities through training and development programs.
- ◆ Advocate UCF's contributions to commercial space services.
- ◆ Be an active participant in the international space community.

Space research areas of interest include advanced launch systems, communications, the earth system sciences, educational technology, and space optics. Over 50 faculty members at the University have expertise and experience in these areas.

In education, SERC serves to aid in the development of new space related courses and programs. SERC also works with industry, government and the Central Florida school districts to improve science and mathematics education through the use of space applications and technology.

Contact Person: William Rock, Director, 12424 Research Parkway, Suite 157, Orlando, FL 32826, Phone (407) 658-5599, FAX (407) 658-5595.



# ADMISSION TO THE UNIVERSITY AND GRADUATE PROGRAMS

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

## GRADUATE ADMISSION DOCUMENTS

If you are seeking admission to one of our graduate programs the following documents are required to be on file before your application can be considered. You are responsible for requesting that the supporting documents be sent directly to:

**Graduate Admissions and Records Office**

**P.O. Box 160112**

**University of Central Florida**

**Orlando, Florida 32816-0112**

- ◆ Completed, signed Graduate/Post-Baccalaureate Application form.
- ◆ Residency Classification form.
- ◆ \$20 application fee unless you are a former UCF student who has already paid the fee. This fee is not refundable.
- ◆ Official Transcripts (sent to UCF directly from former institution). Proof of Baccalaureate or Masters degree is required.
- ◆ Official Test Scores (GRE or GMAT required of every applicant)
  - GRE
  - GMAT (College of Business, Master of Health Science)
  - TOEFL (International students only)
  - GRE Subject Examination (where required)
- ◆ Health Form
- ◆ Three (3) Recommendations (if required by program)
- ◆ Essay/Personal Statement (if required by program)
- ◆ Financial Statement (international students only)
- ◆ Resume (if required by program)
- ◆ Program Application (Biology, Counselor Education, Electrical Engineering)

Applications, Residency forms and Health forms should be typed or clearly printed in black ink. All documents become part of the UCF files and will not be returned to the applicant or duplicated for any purpose outside the University. For specific program information read the appropriate department description in the back of the catalog. Program application deadlines are on page 3.

## ACCREDITATION

For the purposes of this catalog, "accredited institutions" means those institutions accredited by the six regional associations:

New England Association of Schools and Colleges

Middle States Association of Colleges and Secondary Schools, Commission on Institutions of Higher Education

North Central Association of Colleges and Schools, Commission on Colleges and Universities

Northwest Association of Secondary and Higher Schools, Commission on Higher Schools

Southern Association of Colleges and Schools

Western Association of Schools and Colleges, Accrediting Commission for Senior Colleges and Universities and Accrediting Commission for Junior Colleges.

## APPLICATIONS

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

UCF students who graduate with a baccalaureate degree and wish to continue their studies must file an application for admission to either the graduate degree program or for non-

degree (post-baccalaureate) admission. No fee is required of returning UCF students who have previously paid an application fee.

## **OFFICIAL TRANSCRIPTS**

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

## **GRADUATE EXAMINATIONS**

The Board of Regents of the State of Florida requires every student to take either the Graduate Record Exam (GRE) or the Graduate Management Admission Test (GMAT) before the student can be transferred from post-baccalaureate status to graduate student status. Some programs may also require the GRE subject test before admission into graduate student status. Official copies must be mailed from the Educational Testing Service to the Graduate Admissions Office and be on file before graduate student status can be granted. UCF recommends that any individual contemplating class work beyond 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. Both the GRE and the GMAT are given four times a year on the UCF main campus. Computerized GRE examinations are available at Sylvan Learning Centers. An individual should contact the UCF Counseling and Testing Center for registration dates and procedures, at (407) 823-2811. Preparatory courses are offered through the Center for Continuing Education at (407) 823-6100.

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

## **RECORDS DEADLINE — Supporting Documents**

If the program has a specific deadline all supporting documents are due by that deadline (see page 3 for program deadlines). For all other programs and post-baccalaureate applicants all supporting admissions documents should be received by the Admissions Office no later than three weeks preceding the first day of classes. In some cases, applicants may be allowed to register on a temporary basis (without all records) assuming it can be determined from available records or consultation with the students that they appear admissible.

## **RECORDS — Validity of Documents**

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

## **MEDICAL HISTORY REPORT**

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

Immunizations and diagnostic procedures may be required of students by the University prior to any registration. University requirements for vaccinations or immunizations may be waived upon receipt of appropriate documentation from the student that the waiver is



requested on the basis of religious grounds or upon 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 which may be harmful to members of the University community.

## **REACTIVATION OF A STUDENT'S FILE**

A student who has submitted an application for admission to the University of Central Florida, but never attended, may reactivate the original application within a period of two years. (No additional fee is required.) Please check current catalog for deadline date. After two years of non-attendance from initial application, files are destroyed. An application fee is required if a student applies again after that period.

## **ADMISSION TO THE UNIVERSITY**

### **ADMISSION PROCESS**

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

The admission process begins with the receipt of the application with fee at the Graduate Admissions Office. The Graduate Admissions Office acknowledges receipt of the application and fee and notifies the applicant of any deficiencies in the application (e.g., official transcripts, GRE or GMAT test scores, etc.).

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

Non-degree seeking Post-Baccalaureate applicants will receive notice of acceptance to the University and registration information from the Graduate Admissions Office.

## **READMISSION TO THE UNIVERSITY**

A regularly admitted student who has not been registered for two major semesters (Spring/Fall) must make application for readmission through the Graduate Admissions Office approximately one month before classes begin for the new semester. (See "Continuous Attendance" below.)

## **CONTINUOUS ATTENDANCE**

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

1. A student may not be guaranteed continuing graduate status if he or she does not enroll in the University for a period of two major semesters (Spring/Fall). When a student applies for readmission, after having been out two or more semesters, the program will review the student's record to determine if he or she will be continued in graduate status or be reverted to post-baccalaureate status.
2. Graduation policy allows a student to fulfill degree requirements as listed in their official program of study on file in the office of the major. 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 degree requirements originally listed in their official program of study on file in the office of the major.

## **WITHDRAWAL POLICY**

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

A student is never automatically withdrawn from a class by not attending. Failure to officially withdraw from a class will result in a grade of "F." Course withdrawal forms are avail-

able in the Records Office (normally open until 6:00 p.m. Monday through Thursday, and until 5:00 p.m. on Friday).

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

## **ADMISSION TO A GRADUATE PROGRAM**

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

## **APPEALS PROCEDURE FOR REJECTED STUDENTS**

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

## **ADMISSION CLASSIFICATIONS**

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

### **GRADUATE STATUS — REGULAR**

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

- (1) A baccalaureate degree or equivalent from a regionally accredited university and an earned GPA of 3.0 or more (on a 4.0 maximum) while registered as an upper-division undergraduate student (normally based on the last sixty semester hours) or a total score of 1,000 or higher on the General Test (quantitative-verbal sections) of the Graduate Record Examination (or a GMAT score of 450 or higher as needed) or an equivalent score on an equivalent measure approved by the Board of Regents OR a previous graduate degree and official GRE or GMAT score.  
Even though an applicant may qualify for minimum admission on the basis of the undergraduate grade point average or having a previous graduate degree, an official GRE or GMAT score must be on file before consideration for admission to Graduate Status.
- (2) A student must be accepted by the program coordinator and the dean of the college offering the particular degree program sought. Requirements in addition to the minimums stated above may be specified by the individual degree programs.
- (3) International students must demonstrate their proficiency in the English language as one of the conditions of admission. All international applicants whose primary language is not English and who have not earned a degree from an accredited American college or university, must take the TOEFL (Test of English as a Foreign Language).

### **GRADUATE STATUS — PROVISIONAL**

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

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

PROVISIONAL students may be admitted to REGULAR status following satisfactory completion of 9 semester hours and upon recommendation by the program coordinator and college dean.

If a student does not maintain a 3.0 GPA in the graduate program of study, he or she will be placed on ACADEMIC PROVISIONAL status for 9 semester hours, then reverted to post-baccalaureate status if the GPA is still unsatisfactory. A student with regular or provisional status whose overall GPA falls below 2.0 will be reverted to post-baccalaureate status.

## **POST-BACCALAUREATE STATUS**

Post-baccalaureate status is considered to be non-degree-seeking. A student is placed in this category at his request. International students are not eligible for post-baccalaureate status unless they hold a baccalaureate degree from a regionally accredited United States university.

A student may elect to remain in post-baccalaureate status for various reasons (e.g., requirements in a graduate program at another institution, personal improvement, meeting job requirements, and removing academic deficiencies). While in this category, students are allowed to take graduate courses, in some departments, on a space-available basis. Graduate status students register the first days of registration, post-baccalaureate students register the last day. Not all departments accept post-baccalaureate students and the procedures for enrollment into graduate level classes vary with each department. Students should check with the individual department or college before attempting to register.

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

## **CHANGE OF MAJOR OR COLLEGE**

When students wish to change their major or college after having been admitted to a graduate program, they must apply to the new program. The program coordinator of the new program will then decide whether to admit the student.

## **DISMISSAL FROM THE GRADUATE PROGRAM**

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

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

## **SECOND MASTER'S DEGREE**

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

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

## **TRANSCRIPT REQUESTS**

Transcripts of a student's UCF academic record may be requested by the student through the Office of the Registrar. A student's academic record can be released only upon written authorization by the student. Include in the request the full name and social security number. Indicate names and complete addresses to whom transcripts are to be sent. If grades or degree statements for the current term are needed, indicate that the transcript request is to be held until the final semester reports are posted. The first three transcripts are provided at no cost to the student. For additional transcripts, there is a charge of \$2.00 each. The check or money order should be made payable to: UCF. Cash payments can be accepted only by the Cashier's Office (Monday 9-6:30; Tues-Fri, 9-3:30). Students requesting transcripts may do so in person or by writing to: Transcript Request, Office of the Registrar, University of Central Florida, PO Box 160114, Orlando, FL 32816-0114.

## INTERNATIONAL STUDENTS

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

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

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

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

International applicants should have their transcripts evaluated and the evaluation sent to the Graduate Admissions Office of the University of Central Florida along with the an official copy of their transcripts and a certified English translation. Transcript evaluators include Josef Silny & Associates, Inc. PO Box 248233, Coral Gables, FL 33124-8233; and World Education Services, Inc., (WES), P.O. Box 745, Old Chelsea Station, New York, NY 10011. Students will be notified if additional information is required to clarify a transcript. The following programs require only document evaluation; Computer Science, Engineering, English, Health, Mathematical Science, Political Science and Statistical Computing. All other departments require course-by-course evaluations. Students must adhere to deadlines published in the catalog.

International students are not eligible for post-baccalaureate status unless they hold a baccalaureate degree from a regionally accredited United States university.

## INTERNATIONAL STUDENT MANDATORY HEALTH AND ACCIDENT INSURANCE

Each international student accepted for admission shall prior to registration, submit proof of compliance with the Board of Regents mandatory health and accident insurance (effective Fall semester, 1992).

Written proof of insurance, must be provided to the International Student Services Office and must be valid at all times. Cancellation of the policy, stoppage of the premium, will result in administrative withdrawal from all classes.

If the insurance is issued by an insurance carrier from outside of the United States, a notarized statement, in English, must be provided attesting to meeting the minimum coverage mandated by the State of Florida.

# TUITION AND FEES

## SCHEDULE OF FEES

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

**Required fees are established by the Board of Regents and the Florida State Legislature and are subject to change without notice.** Fees are affected by residency status. Information on Florida residency for tuition purposes is on the following page.

All University fees must be paid at or before the end of the add/drop registration period. Failure to pay fees on or before due date will result in cancellation of the current registration.

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

**(All fees are subject to change without notice)**

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

B. **Registration Fees** per semester for campus, centers, and continuing education courses. The student is assessed tuition for one credit hour, Florida Resident Tuition rate, at the level student is classified, for zero hour registration.

**Please note: 1995-1996 rates had not been determined at the time of this printing.**

**Fee Schedule for 1994-1995 was:**

Category	Florida Resident		Non-Florida Resident	
	U-Grad (0000-4999)	Graduate (5000-7999)	U-Grad (0000-4999)	Graduate (5000-7999)
<b>Fees per Credit Hour:</b>				
Matriculation	\$ 38.08	\$ 87.53	\$ 193.71	\$ 328.51
Building Fee	2.32	2.32	2.32	2.32
Capital Improvement Fee	2.44	2.44	2.44	2.44
Undergraduate Financial Aid Fee	1.90	4.37	9.68	16.41
Activity & Service Fee	6.95	6.95	6.95	6.95
Athletic Fee (students taking 5 or more credit hours)*	6.50	6.50	6.50	65.50
<b>Total per Hour</b>	<b>\$ 58.19</b>	<b>\$110.11</b>	<b>\$221.60</b>	<b>\$363.13</b>

C. **Course Related fees** — fee per student; varies per course(s)..... \$2.00-\$15.00

D. **Student Health Fee** — not refundable (per semester)

Assessed to all students except those enrolled exclusively in Continuing Education courses. This fee is also waived for senior citizens, for State employees under the fringe benefit plan, and for Certificate of Participation holders. University employees who use the Tuition Fee Waiver for class attendance may not elect to pay the Student Health Fee, regardless of the number of semester hours taken.

Fall & Spring Semesters ..... \$47.30

Summer Semester ..... \$35.20

E. **Vehicle Registration** (required of everyone operating a motor-powered vehicle on campus) per calendar year for full-time, part-time students, and courtesy students from other institutions. Student's fee ..... \$45.00

F. **Late Registration and Late Payment Fees**

◆ A \$50 late registration fee will be assessed all students who register during the late registration period and pay fees by the deadline.

◆ A \$50 late payment fee will be assessed all students who pay fees after the deadline.

◆ Both a \$50 late registration fee and a \$50 late payment fee will be assessed all students who both register late and pay fees after the deadline.

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

G. **Books and supplies** (estimated) per semester ..... \$300.00

H. **Room and Board** (Based on accommodations and meal plan selected)

Residence Hall Rooms (per semester) . . . . .	\$880-\$1,180
Board (meal plans, per semester) . . . . .	\$600-\$1,050
Charge for late registration . . . . .	\$50.00
Charge for late payment . . . . .	\$50.00
I. <b>Certificate of Participation Holder</b> . . . . .	Lab fees/out-of-state fees
J. <b>I.D. Card replacement</b> . . . . .	\$ 5.00
K. <b>Return Check Charge</b>	
Service charge on all returned checks is \$20.00 or 5%, whichever is greater, and results in the loss of check cashing privileges.	

## 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 asylum 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 (this document 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 and be married to a person who has been a legal resident for the required 12-month period,

OR

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

OR

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

OR

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

AND

File a notarized residence affidavit with the Admissions Office.

The Admissions Office reserves the right to require additional documentation as seen necessary to accurately determine the resident status of any student.

## APPEALS

Students who wish to appeal a late registration, late payment, or return check service charge fee may make their appeal to the Appeals Committee by initiating a student petition (Form 41-561). This form can be obtained from Enrollment and Academic Services, Student Affairs, University Cashier, or the Student Accounts Section of Finance and Accounting. Students must submit their petitions to Student Accounts, Room 112, Administration Building, and may appear (not mandatory) before the committee which meets once each week.

## FINANCIAL ASSISTANCE FOR GRADUATE STUDENTS

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

There are sources of financial assistance available to UCF graduate students. Federal Perkins and Federal Stafford loans and the Federal College Work Study Program require that financial need be established. These programs are handled by the Financial Aid Office (AD 120).

In-State Tuition Waivers are available to qualified Florida residents. Out-of-State Tuition Waivers are offered to qualified non-Florida residents. Tuition fee waivers are awarded by individual departments and the Office of Minority Student Services (Non-Florida only); students should check with the program advisor for eligibility.

Eligibility and application guidelines for Teaching or Research Assistantships and Graduate Assistant positions are established by the colleges or in some cases by departments, as are pay scales. To apply for an assistantship position, contact the Dean's Office or Department Office in the College of Business Administration and Education; or, the department Graduate Coordinators in the College of Arts and Sciences, Engineering, and Health and Public Affairs.

There are also scholarships available to graduate students. Please check the monthly scholarship listing posted on the bulletin board outside the Student Financial Assistance Office. The College Graduate Coordinators, the Office of Graduate Admissions, the Office of Graduate Studies and the Office of Minority Affairs have information concerning graduate fellowships. Check the Knight Information Service for electronic access to fellowship information.

**Federal Perkins and Federal College Work Study are available only to student who are fully admitted into a graduate program. Post-Baccalaureate students and students on an F-1 visa are not eligible for these assistance programs.**

## STUDENTS RIGHTS AND RESPONSIBILITIES (Financial Aid)

- ◆ Students have the right to full information about the financial aid programs available at UCF, our application procedures and deadlines, and the criteria used to determine a financial package.
- ◆ Students have the right to appeal decisions made by the 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.

## **FICA and FUTA EXEMPTION GUIDELINES FOR GRADUATE STUDENTS**

The Internal Revenue Service (IRS) excludes certain types of student wages from the IRS definition of "employment" for purposes of FICA and FUTA tax withholdings. 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 full-time and regularly attending classes are exempt from the FICA and FUTA tax withholdings. 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 towards a graduate degree. Graduate students are defined as those with a pay classification of 9181-9185.

To be eligible for this IRC exemption, a graduate assistant must be (1) enrolled full-time at UCF, (2) regularly attending classes, and (3) be employed for less than or equal to 20 hours/week as a graduate assistant. 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 EXEMPTION ELIGIBILITY**

1. All graduate students seeking employment with the University must be enrolled as full-time students to have an assistantship at UCF. Further, only if they are assistants and enrolled full-time are they eligible for the FICA and FUTA exemptions. The Graduate Policy Manual and Graduate Catalog provide definitions for determining full-time status of a graduate student. In any given term, a graduate student is considered full-time when they are registered for six hours in Fall or Spring terms, and three hours in Summer terms. Also, students taking only thesis or dissertation hours will be required to be enrolled in at least one hour of thesis or dissertation to be considered full-time.
2. Graduate students who have assistantships are limited to working a maximum of 20 hours per week, regardless of the number of departments in which they have assistantship support.
3. All graduate students who work more than 20 hours/week at UCF, will be classified as a graduate student but will be subject to FICA and FUTA taxes.
4. Students who have assistantships at UCF for not more than 20 hours per week during intersessions should not be subject to FICA since their assistantships are of a limited nature and incidental to their role as students.
5. Students must be (1) enrolled full-time, (2) regularly attending classes during the A or C Summer session and (3) working as an assistant at UCF to receive FICA and FUTA exemptions for the Summer.
6. Generally, students who are on fellowships are not subject to FICA and FUTA taxes, since they do not have to account for hours of employment per week.
7. Graduate students who do not have assistantships from UCF are not eligible for these special exemptions.

### **DISSEMINATION OF GUIDELINES**

1. The University will publish these guidelines in the Graduate Policy Manual, and this shall serve as guidelines for exemptions from FICA and FUTA taxes for eligible graduate students.
2. The University will have Personnel check enrollment status for all graduate students who are employed and provide a report to the employing unit advising of those who do not meet the requirements for this exemption.



## CHECK CASHING

The University Bookstore cashes personal checks not exceeding \$50.00. The University collects a \$20.00 service fee, or five percent (5%) of the check amount, whichever is greater, for personal checks, drafts, or orders which are returned as uncollectible. Future check-cashing privileges may be denied.

## PAST-DUE ACCOUNTS

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

## PAYMENT PROCEDURES

Payment may be made in the Cashier's Office, AD 108, from 8:30 a.m. to 6:30 p.m. on Monday, and 8:30 a.m. to 4:00 p.m., Tuesday through Friday. A photo ID (if paying by check) is required.

Payments (NO CASH) may be placed on the Cashier's night depository; INCLUDE SS# ON CHECK OR MONEY ORDER.

Payments mailed must be postmarked no later than the deadline specified above. DO NOT SEND CASH.

**Address Payment to:**  
University Cashier  
University of Central Florida  
P.O. Box 620000  
Orlando, FL 32891-8449

Penalty for Late Payment is \$50.00. Do not assume your registration will be cancelled if you do not pay fees or attend classes.

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 following conditions upon presentation at the Student Accounts Office of a Certification of Withdrawal issued by the Registrar. No refunds will be made under this policy except upon proper application. Any debts to the University will be deducted up to the full amount of the refund.

### A. A full refund when:

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

### B. Partial refund (25% of the total registration and non-resident fees paid less building and capital improvement fees):

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

### C. Refunds for exceptional circumstances at any time upon withdrawal for one or more courses.

1. Up to 100% of tuition and registration fees due to circumstances determined by the University to be exceptional, including but not limited to sickness, death, involuntary call to military service or administrative errors created by the University.

### D. Pro rata refunds for first term at UCF students:

1. Between 60% and 90% of tuition and dorm charges for students who fully withdraw before 40% of the term has elapsed. Applies only to first term at UCF students. An administrative fee defined as the lesser of 5% of all charges or \$100 will be deducted from the refund.

## **TUITION FEE WAIVERS FOR STATE OF FLORIDA EMPLOYEES**

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

## **TUITION FEE WAIVERS FOR SENIOR CITIZENS**

Persons 60 years of age or older who meet Florida residency requirements may register to audit classes without payment of tuition and application fees. Registration is on a space available basis during the last hour of Add/Drop Registration. The tuition fee waiver cannot be used for courses which require increased costs. These courses include, but are not limited to: courses offered through the Center for Continuing Education, independent study, supervised research, supervised teaching lab, thesis hours, dissertation, internship, co-op, practicum or applied, individualized instruction in music, art, or dance, etc. A Florida Residency Affidavit is required in order to establish Florida residency. A completed Student Health History must be filed prior to registration. Inquiries should be directed to Enrollment and Academic Services, AD161, 823-2691.

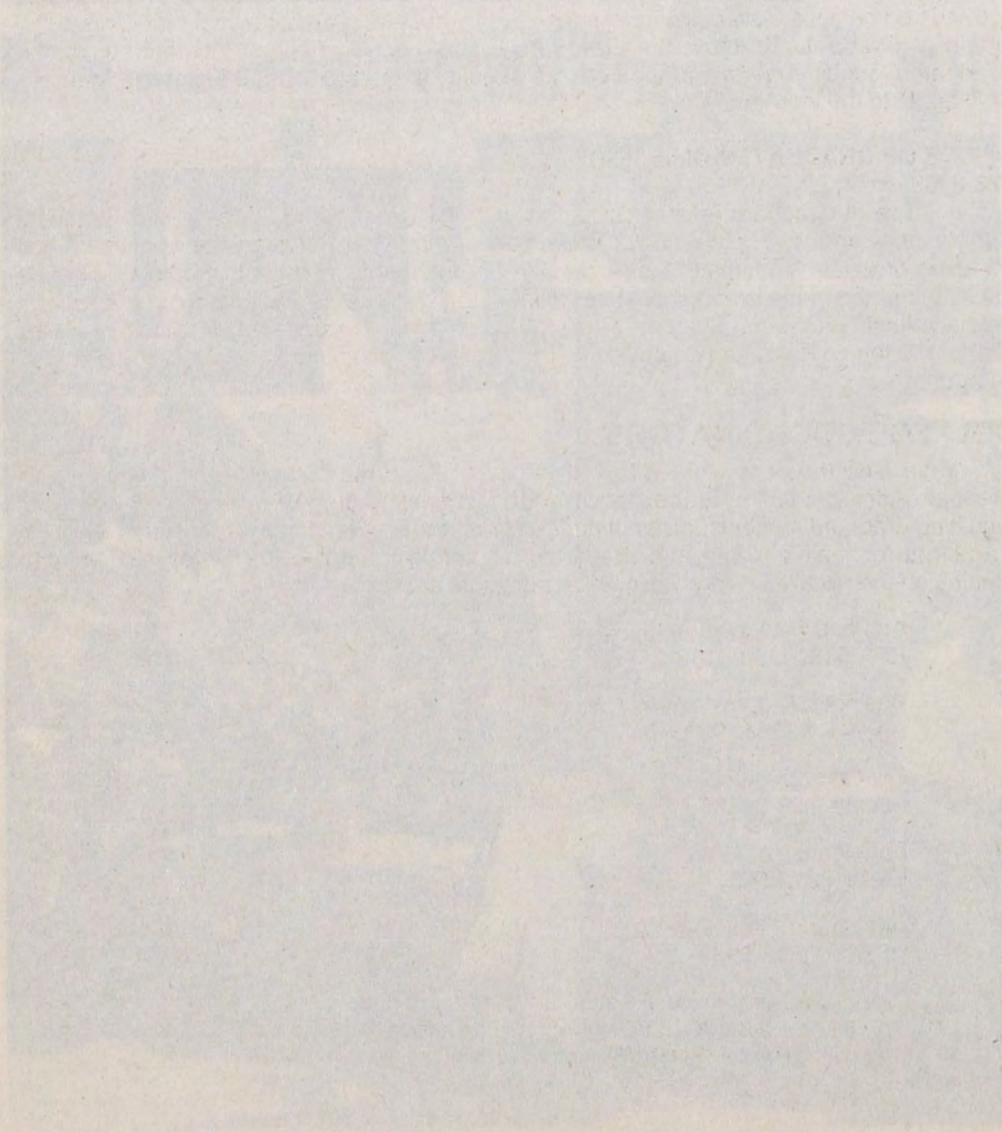
## **STATE TUITION EXEMPT PROGRAM (STEP)**

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



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Il primo volume della  
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la storia  
della  
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dell'Occidente  
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rinascimento  
all'età  
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# ORGANIZATION OF GRADUATE PROGRAMS

**VICE PRESIDENT FOR RESEARCH AND GRADUATE STUDIES** (Vice President, Diane Jacobs, AD 254, (407) 823-5538, DJACOBS\*\*)

The Vice President for Research and Graduate Studies will be responsible for all activities related to research and graduate studies on campus. The Vice President will be assisted in this area by the Office of Graduate Studies, the Office of Graduate Admissions, the Faculty Senate committees that address policy issues (Graduate Policy and Curriculum Committee and the Graduate Council), and the individual College and Departmental Coordinators. Each of these units will be described here with their primary areas of responsibility.

**OFFICE OF GRADUATE STUDIES** (Director, Patricia Bishop, AD 253, (407) 823-6432, PBISHOP\*)

The Office of Graduate Studies works with the Faculty Senate Committees and the College and Departmental Graduate Coordinators and is responsible for developing university-wide graduate policies, coordinating graduate activities, distributing tuition fee waivers to the Colleges, ensuring program standards, and preparing an annual report of graduate activities on campus. Any policy questions about graduate issues should be directed to the Office of Graduate Studies, the Graduate Policy and Curriculum Committee, or the Graduate Council. Operational procedures should be directed to the Office of Graduate Studies, or to the individual College or Departmental Coordinators.

**OFFICE OF GRADUATE ADMISSIONS** (Associate Director, Linda Putchinski, AD 161C, 823-2766 ext. 4, LINDAP\*)

The Office of Graduate Admissions works with the College and Departmental Graduate Coordinators and is responsible for coordinating recruitment of graduate applicants and admitting graduate students to the University. Graduate student records are kept indicating the status of the student and should be updated in this office as students progress through their academic programs. Students apply to the university through this office and their files are sent to the colleges and departments for enrollment, scholarship, and tuition fee waiver decisions.

## COLLEGE COORDINATORS

College Coordinators work with the Office of Graduate Studies and the Office of Graduate Admissions and are responsible for coordinating graduate department activities, recruiting graduate students, distributing fee waivers to the departments, ensuring program standards for their college, and preparing an annual report to the Office of Graduate Studies on their activities. The College Coordinators are:

Arts and Sciences: HFA 518, 823-0218	Ben Morgan MORGAN**
Business Administration: BA 241, 823-2184	Bob Pennington PENNINGT*
Education: ED328, 823-3382	John Middleton JOHNM*
Engineering: EN281, 823-5091	José Sepulveda
Health and Public Affairs: HPB219, 823-5233	Joyce Dornier JDORNER*

\*email addresses are: NAME@ucf1vm.cc.ucf.edu

\*\*email address: MORGAN@pegasus.cc.ucf.edu

\*\*\*email address: DJACOBS@adm.ucf.edu

## DEPARTMENTAL GRADUATE COORDINATORS AND DEGREE PROGRAMS

The Departmental Graduate Coordinators work with the College Graduate Coordinators and are responsible for recruiting graduate students, distributing tuition fee waivers to individual students, ensuring program standards in their department, and preparing an annual report to the College Coordinators on their activities. The Departmental Graduate Coordinators and the degree programs that they supervise are given below:

Degree	Program	Coordinator	Phone	Room	Email address*
M.S.	Biology	Dr. Kuhn	823-2141	BIO 110	KUHN
M.S.	Biology	Dr. Kuhn	823-2141	BIO 110	KUHN
M.S.	Chemistry, Industrial	Dr. Elsheimer	823-5728	CHM 117	
M.A.	Communication	Dr. Pryor	823-2681	HFA 528A	
M.S.& Ph.D.	Computer Science	Dr. Dutton	823-2779	CCII 142	DUTTON
M.A.	English	Dr. Schiffhorst	823-5417	HFA 302-B	
M.A.	History	Dr. Leckie	823-2224	HFA 551	
M.S. & Ph.D.	Mathematics	Dr. Mikusinski	823-2107	PH 403 D	
M.S.& Ph.D.	Physics	Dr. Heinonen	823-2325	HPB 310	
M.A.	Political Science	Dr. Handberg	823-2608	HFA 415	
M.S.	Psych., Clinical	Dr. McGuire	823-2219	PH 305G	
M.S.	Psych., Industrial	Dr. Burroughs	823-2219	PH 305G	
Ph.D.	Psych., Human Factors	Dr. Gilson	823-2219	PH 305G	DGILSON
M.A.	Applied Sociology	Ida Cook	823-2227	HFA 405	
M.S.	Statistical Computing	Dr. Schott	823-2289	CCII 226	
M.B.A.	Business Administration	Dr. Pennington	823-2184	BA 240	PENNINGT
M.A.A.E.	Applied Economics	Dr. Pennington	823-2184	BA 240	PENNINGT
M.S.A.	Accounting	Dr. Pennington	823-2184	BA 240	PENNINGT
M.S.T.	Taxation	Dr. Pennington	823-2184	BA 240	PENNINGT
Ph.D.	Business Administration	Dr. Pennington	823-2184	BA 240	PENNINGT
M.Ed. &	Elementary, Secondary and K-12	Dr. Middleton	823-3382	ED 328	JOHNM
M.Ed.	Instr.Tech.: Educ. Media	Dr. Middleton	823-3382	ED 328	JOHNM
M.A.	Instr.Tech.: Instr. Sys.	Dr. Middleton	823-3382	ED 328	JOHNM
M.S.	School Psychology	Dr. Middleton	823-3382	ED 328	JOHNM
Ed.S.	Educational Leadership or Curriculum and Instruction	Dr. Middleton	823-3382	ED 328	JOHNM
Ed.D.	Educational Leadership or Curriculum and Instruction	Dr. Middleton	823-3382	ED 328	JOHNM
M.S., M.S.C.E., Ph.D.	Civil and Environmental Engineering	Dr. Hartman	823-2128	ENG 281F	HARTMAN
M.S., M.S.E.E., M.S. Cp.E., Ph.D.	Electrical and Computer Engineering, Optical Sciences and Engr.	Dr. Liou	823-3027	ENG 418	

M.S., M.S.I.E., Ph.D.	Industrial Engineering, Computer Integrated Manufacturing, Engineering Management, Operations, Research, Product Assurance Engineering, Simulation Systems	Dr. Armacost	823-5642	ENG 307	
M.S.M.E., Ph.D.	Mechanical and Aerospace Engineering, Aerospace Systems, Material Sci. and Engr., Mechanical Systems, Thermofluids	Dr. Eno	823-5448	ENG 381E	BENO
M.A.	Communicative Disorders	Dr. Utt	823-2121	HPB 113	
M.S.	Criminal Justice	Dr. Griset	823-5929	PH 116	
M.S.	Health Sciences	Dr. Frazer	823-2359	HPB 126	
M.S.	Molecular Biology and Microbiology	Dr. Gennaro	823-5932	BIO 330	GENNARO
M.S.	Nursing	Dr. Noll	823-5133	HPB 410	
M.P.A.	Public Administration	Dr. Denhardt	823-6096	PH 102	DENHARDT
M.S.W.	Social Work	Dr. Colby	823-2114	TR 542	

\*NAME@ucf1vm.cc.ucf.edu

## GRADUATE POLICY AND CURRICULUM COMMITTEE

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

The Graduate Policy and Curriculum Committee deals with policy issues and standards for the university. A major activity is the review of new graduate programs. New graduate program requests are handled by the Graduate Policy and Curriculum Committee. The program proposals will be sent to the Office of Graduate Studies for initial review, and forwarded to the Office of Academic Affairs for review. The proposal may undergo some editing changes, corrections, and format changes to meet Board of Regents requirements. Once the final program review request is ready, it is forwarded to the Graduate Policy and Curriculum Committee for final approval. The Graduate Policy and Curriculum Committee will then transmit its recommendations to the Faculty Senate Steering committee (Chair, Faculty Senate), which will then forward these recommendations to the Vice President for Academic Affairs, for submittal to the Board of Regents.

## DUTIES OF THE GRADUATE POLICY AND CURRICULUM COMMITTEE:

1. To review and recommend university-wide graduate policies and standards.
2. To review all new proposals for Board of Regents planning and implementation of graduate programs including deletion of existing programs.
3. To review all matters referred by the Graduate Council.
4. To transmit its recommendations to the Faculty Senate Steering Committee which will normally submit these recommendations to the Office of Graduate Studies on behalf of the Provost.

## GRADUATE COUNCIL

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

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

### Duties of the Graduate Council (Subcommittee)

1. To review annual reports from all the colleges on status of the graduate programs and make recommendations to the Graduate Policy and Curriculum Committee, if necessary.
2. To review graduate course additions, revisions, and deletions.
3. To review new tracks, options, or speciality areas proposed within an existing degree-granting program.
4. To hear academic exceptions to graduate policy and procedures from students or coordinators.
5. To review all graduate programs on a periodic basis, including the five year SUS Program Review.
6. To select the Excellence in Graduate Teaching Award Recipient each year.
7. To recommend to the Graduate Policy and Curriculum Committee policies and procedures which it deems appropriate.



# UNIVERSITY GRADUATE REGULATIONS

The following are minimum University-wide standards for the operation of graduate programs. Additional requirements for each graduate program are described in the individual college descriptions (see Arts & Sciences, Business Administration, Education, Engineering, Health & Public Affairs).

## MASTER'S PROGRAMS

### UNIVERSITY ADMISSIONS STANDARDS

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

### STUDENT'S RESPONSIBILITY

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

### EXCEPTION TO GRADUATE REGULATIONS

When unusual situations arise, petitions for exceptions to graduate regulations must be approved by the appropriate department and college. Only formal appeals of denials by the college or program will be heard by the Graduate Council. Appeals must be submitted in writing to the Director of Graduate Studies who will transmit them to the Graduate Council.

## MASTER'S COMMITTEE OR ADVISOR

### Appointment of Committee or Advisor

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

### Advisory Committee

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

## PROGRAM OF STUDY

A total program of study is in essence a contract between the student and the degree program specifying all degree requirements. It must be established prior to enrollment in the second term 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 copy of the Program of Study must be completed by a student and maintained within the college. Each student must file a program of study within the first 9 hours of graduate work.

## **UCF EMPLOYMENT**

The employment of full-time graduate students is limited to a half-time work load (20 hours/week). Students who work more than 20 hrs./wk. will be classified as OPS employees and subject to withholding (FICA and FUTA) taxes.

## **COURSE REQUIREMENTS**

### **Course Loads**

A full-time graduate student must take at least 6 hours each semester, with 12 semester hours being the maximum load. During a short summer term (A or B), full-time would be 3 hours and half time would be 2 hours. However, in order to meet residency requirement, doctoral students must register for 9 hours in two contiguous terms.

During the terms a student is employed as a teaching assistant or registered for special courses such as thesis, dissertation research, or dissertation writing, the hours may vary. Students taking only thesis or dissertation hours will be required to be enrolled in at least one hour of thesis or dissertation to be considered full-time.

Students receiving veterans education benefits should refer to the sections of this catalog on VETERANS BENEFITS and OFFICE OF VETERANS' AFFAIRS.

### **Total Hours Required**

A minimum of 30 semester hours (combined course work and thesis) is required, although this varies by program.

### **Thesis Degrees**

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

### **Non-Thesis Degrees**

At least 50 percent of the credits offered for the degree must be in a single field of concentration. Some colleges offer a course work only option, in which a thesis is not required, although a research report may be.

### **Enrollment Requirement**

Master's level students who are engaged in thesis or research report related activity must be enrolled for at least 1 credit hour each semester during which this activity takes place. This requirement does not negate the requirement that all graduate students be enrolled the term they graduate. (See "Registration in Term of Graduation".)

### **Language Requirements**

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

### **Directed Independent Studies Courses**

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

## **APPLICABLE CREDITS AND COURSES**

### **Residence Credit**

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

### **Credit By Examination**

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

## **Transfer of Credit**

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

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

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

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

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

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

## **Recency of Credit**

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

## **EXAMINATIONS**

### **Evaluation**

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

## **COURSE LEVELS OF GRADUATE WORK**

**6000-Level Courses.** A minimum of one-half of the credit hours (including thesis hours) of an individual's program of study must be in 6000-level courses, which are designed exclusively for graduate students. Exceptions to this requirement must be approved by the college Graduate Program Coordinator. Exceptions to this rule have been granted to the Computer Science, Mathematics, and Statistics programs.

Undergraduate registration in 6000-level courses is allowed only with prior approval by the college. 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.

**5000-Level Courses.** Courses at the 5000 level may be utilized toward satisfying the graduate degree requirements.

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

## **ACADEMIC STANDARDS**

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

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

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

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

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

Graduate students whose overall GPA falls below 2.0 will be reverted to post-baccalaureate status.

### **Thesis and Research Report Grades**

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

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

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

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

### **Incomplete Grade**

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

### **Review of Performance**

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

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

If a student is reverted to post-baccalaureate status, reinstatement to graduate student status can occur only through a successful petition to the college by the student.

## **DEGREE COMPLETION PROCESS**

### **Application for Degree**

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

### **Certification for Degree**

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

### **Registration in Term of Graduation**

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

## **TRAVELING SCHOLAR PROGRAM** (Applicable to both Masters and Doctoral degrees)

The University participates in the Board of Regent's Traveling Scholar Program (6C-6.07) enabling a graduate student to take advantage of special resources available on another campus but not available on his own 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 and the application fee 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 own graduate advisor, who will initiate a visiting arrangement with the appropriate faculty member of the host institution. After agreement by the student's advisor and the faculty member at the host institution, graduate deans at both institutions will be fully informed by the advisor and have the authority to approve or disapprove the academic arrangement. A student will register at the host institution and will pay tuition and/or registration fees according to fee schedules established at that institution.

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 on the campus of the host institution. (6-hour restriction).

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.

The Traveling Scholar form, available in the departmental offices, must be used for documentation. This form must be completed and prior approval obtained before any course work can be taken.

## **DOCTORAL PROGRAMS**

### **UNIVERSITY ADMISSIONS STANDARDS**

Admission to graduate status requires a minimum of a 3.0 GPA in the last 60 semester hours of undergraduate studies, or a score of at least 1000 on the combined verbal-quantitative portion of the appropriate admissions examination (GRE or GMAT), or a master's degree from an accredited institution and GRE or GMAT scores. The GRE or GMAT is required of all applicants. Admission to graduate status does not constitute admission to a doctoral program. Meeting minimum University admission standards for graduate status 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 is used for the examination (optional by programs) which the student takes prior to being admitted to Doctoral (or Specialist) status.

**Candidacy Examination.** This title is used for the examination which the student takes prior to admission to Candidacy Status. This is a written examination and is permanently filed in the student's permanent records.

It may be a defense of a written dissertation proposal. After passing the general Candidacy Examinations, the student will write and defend a Dissertation Proposal in an oral examination.

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

## **DOCTORAL STATUS**

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

## **PROGRAM OF STUDY**

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

## **COURSE REQUIREMENTS**

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

## **ACADEMIC STANDARDS**

Academic standards for doctoral and specialist students will meet or exceed those previously stated for masters 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 hours requirements.

## **RESIDENCY REQUIREMENTS**

Each student is expected to complete two contiguous semesters in full-time graduate student status after acceptance into a doctoral program. Doctoral students must be registered a minimum of 9 semester hours during this time.

## **TRANSFER CREDIT**

The number of transfer credit hours to be applied to the minimum course requirement for a doctoral degree at UCF will be up to 30 semester hours of credit and will be determined on a case-by-case basis by the graduate committee of the program area at the time the student is admitted to the program. The transfer hours from the master's degree or post-master's work will consist of a maximum of six hours of 4000-level work, no 3000-level courses, and no courses with grades of less than "B." The College of Engineering allows up to 36 credit hours, including up to 6 thesis credits, to be transferred from the masters program.

## **TIME LIMITATION**

The student has seven years from the date of admission to the doctoral program to complete the dissertation.

## **CANDIDACY**

### **Doctoral Committee Composition**

The Committee, which will consist of a minimum of four faculty members (three from the college in which the program is located and one from outside that college), must be approved by the Dean or designee of that College. Program areas may further specify additional committee membership. All members should be in fields related to the dissertation topic. All members vote on acceptance or rejection of the dissertation. The dissertation must be approved by a majority of the committee.

### **Admission to Candidacy**

Students may not be admitted to candidacy until a Doctoral Committee has been appointed, and the Committee has certified that the student has successfully completed the Candidacy examination and demonstrated the qualifications necessary to successfully complete requirements for the degree. Only after admission to candidacy may a student register for Dissertation hours (7980). The admission to candidacy will be approved by the College Graduate Coordinator and forwarded to the Graduate Admissions Office 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 a permanent file.

### **Status as Candidate**

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

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

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

**Dissertation.** Dissertations are required in all doctoral programs. An oral defense of the dissertation is required with copies of the approved dissertation being prepared in accordance with program requirements and sent to University Microfilms International (UMI). Final unbound copies of the dissertation will be submitted to the college before the specified deadline.

**Dissertation Defense.** The Dean of the college or his/her designee will normally attend all dissertation defenses.

### **Certification for Degree**

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

## 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. Faculty advisors and students should consult the Instructions for Preparing Theses and Dissertations for deadlines. 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 candidate before this stage begins.

## PATENTS AND INVENTIONS POLICY FOR GRADUATE STUDENTS

**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 coursework, programmed exhibits, and combinations of the above materials, which were prepared or produced in whole or part by a graduate student, and which are used to assist or enhance instruction.
  - (d) **UNIVERSITY SUPPORT** includes the use of university funds, personnel, facilities, equipment, materials, or technological information, and includes such support provided by other public or private organizations when it is arranged, administered, and/or controlled by a university.
  - (e) **STUDENT GENERATED EFFORT** means that the ideas come from the graduate student alone outside the field or discipline for which the graduate student is employed by the University, the work was not made with the use of University support, and the University is not held responsible for any opinions expressed in the effort.
  - (f) **RESEARCH** means the inquiry or examination in some field of knowledge undertaken to establish facts or principles that are true. Research, as used in this policy, does not include work done in an internship or coop setting where new knowledge in a field is not actively sought, but rather a setting that offers a real life experience for the graduate student.
3. **WORK(S)**
  - (a) **Student-Generated Effort**

A **WORK** made solely by the graduate student, outside the field or discipline for which the graduate student is employed by the University, is the property of the graduate student, who has the right to determine the disposition of such **WORK** and the revenue derived from such **WORK**.



(b) **University Supported Efforts**

If the **WORK** was not made solely in the course of student-generated efforts, the **WORK** is the property of the University, and the graduate student shall share in the proceeds therefrom.

(c) **Disclosure**

1. Upon creation of a **WORK** that is potentially patentable, and prior to any publication, the graduate student shall disclose to the vice President for Research and Graduate Studies, or representative, any **WORK** made in the course of University supported efforts, together with an outline of the project and the conditions under which it was done.
2. The Vice President for Research and Graduate Studies, or representative, shall gather information to assess the relative equities of the graduate student and the University in the **WORK**.
3. Within sixty days after such disclosure, the vice President for Research and Graduate Studies, or representative, will inform the graduate student whether the University seeks an interest in the **WORK**.
4. The graduate student and the University shall not commit any act which would tend to defeat the University's or graduate's 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 by using University support, is the property of the University and the graduate student shall share in the proceeds therefrom.

(c) **Disclosure**

1. A graduate student shall fully and completely disclose to the Vice President for Research and Graduate Studies, or representative, all **INVENTIONS** which the graduate student may develop or discover while a graduate student of the University, together with an outline of the conditions under which it was done. With respect to **INVENTIONS** made during the course of approved outside employment, the graduate student may delay such disclosure, when necessary to protect the outside employer's interest, until the decision has been made by the outside employer whether to seek a patent.
2. If the University wishes to assert its interest in the invention, the Vice President for Research and Graduate Studies, or representative, shall inform the graduate student within 120 days of the graduate student's disclosure.
3. The division of proceeds generated by the licensing or assignment of an **INVENTION**, shall be according to the established royalty division set forth in the patent policy of the University, pp. 1461-2, paragraph (c).
4. The graduate student and the University shall not commit any act which would tend to defeat the University's or graduate student's interest in the **INVENTION** and shall take any necessary steps to protect such interests.

5. **Release of Rights**

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

6. **University Policy**

1. The University has a policy addressing the division of proceeds between graduate students and faculty when the **RESEARCH** is done and results in a dissertation, Department of Education (6C7-2.029 Copyrights and Patents, pp. 1461 and 1462). The University also has a policy addressing the division of proceeds between faculty

and the University. It is contained in the Patents and Copyrights Policy of the Division of Sponsored Research. This same division of royalties will apply in the disbursement of royalty income to graduate students, unless this has been negotiated in a contractual agreement at the start of research.

2. Graduate students who are accepted at the University will be required to sign a Patent and Invention Agreement before they are enrolled in classes.
3. 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.
4. The Graduate Policy and Procedures Manual details when dissertation or thesis dissemination can be delayed because of patent concerns. This can only occur when a contractual agreement has been entered into including provisions for review and delay for dissertation purposes.



# STUDENT AFFAIRS

## INTRODUCTION

The term "student affairs" is used collectively to refer to the Student Affairs Division and its many functional departments responsible for the administration and management of programs, services, facilities, and activities designed to support the educational mission of the University. The Division of Student Affairs, exist primarily to enhance the teaching and learning process through its many programs and services. The Division, headed by a Vice President for Student Affairs, administers programs involving orientation, personal counseling, testing, housing, health services, international student services, recreational services, career planning and placement, student organizations, veterans' affairs, and other special activities. Students are invited to consult the staff of Student Affairs concerning any aspect of campus life.

Personal development may be enhanced through informed, experienced, and dedicated participation in University and community activities. Frequently, activities are referred to as "extracurricular," but at the University of Central Florida student activities are regarded as a part of the total educational program — a supplement to the individual student's academic program. The University sponsors a variety of cultural and entertainment programs which contribute to the student's social, cultural, recreational, and academic development. Students can become better acquainted with fellow students and faculty members through participation in student activities. The University provides ample opportunity to become a member of occupational, professional, social, and honorary organizations.

## OFFICE OF THE DEAN OF STUDENTS

The Office of the Dean of Students is the primary source for students seeking information on non-academic areas of the University. The office staff strives to introduce students to educational opportunities designed to provide personal, social, and academic growth outside the classroom. Additionally, the Deans supervise the judicial affairs process as well as counsel students confronted with a variety of difficulties, referring students for specialized professional services as necessary.

The Division of Student Affairs annually publishes the student handbook, *The Golden Rule*, which contains more detailed information on student life. Copies may be obtained in the Student Affairs Suite, Room 282, Administration Building. Students are urged to take advantage of the many services and educational programs available through the Dean of Students Office and the Division.

## 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 judicial action through the Dean of Students Office as outlined in *The Golden Rule*.

## CONFIDENTIALITY OF STUDENT RECORDS

The procedures for the confidentiality of student records are based on state regulations and the federal Family Educational Rights and Privacy Act of 1974. Students who have

questions or specific requests concerning the confidentiality of records should contact the Office of the Dean of Students. Details of the University practices for confidentiality are presented in *The Golden Rule*.

## **STUDENT GOVERNMENT**

The purpose of Student Government is to provide a system whereby students can effect progressive changes that bring about improvements in campus life. Student Government also endeavors to promote better communication and understanding among the UCF family and to provide certain services which impact student life. All enrolled students at UCF campuses, both graduate and undergraduate, are considered active members of Student Government who are allowed to voice their opinions through senate representatives. Funds available from the Activity and Service Fee paid by students are used to provide numerous activities and services to students to support their academic endeavors at UCF. SG is effective at lobbying for the rights of students at local, state, and national levels.

The democratic processes of SG are grounded in the fundamental structure of the U.S. Government. The executive, legislative, and judicial branches have representatives from each college at UCF. The structure of SG provides an atmosphere that reflects the democratic processes of the real world thus providing students an opportunity to become educated and experienced in practical situations.

Some of the services made available to students and funded by student activity and service fees are: legal services, computer lab, discount entertainment tickets, free local telephones, vehicles for clubs and organizations, and providing funding for recreational services as well as campus programming.

Students interested in working with SG may obtain information from the SG offices located in the Student Center.

## **STUDENT LEGAL SERVICES**

Student Legal Services provides students with advice and consultation including court representation in selected areas of law such as landlord/tenant, consumer, simple wills, and non-criminal traffic. Each eligible student (an undergraduate enrolled in six UCF hours or graduate enrolled in four UCF hours) is entitled to consult with the Program Attorney about any legal matter not excluded by program guidelines, free of charge. Students in need of legal services should contact Student Legal Services at (407) 823-2538, or Student Center Room 210. This service is by appointment only, and no legal advice is given over the phone.

## **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.

## **STUDENT CONDUCT**

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

A person applying for admission to UCF who has been charged with a criminal offense may have the circumstances of the case reviewed by the appropriate Student Affairs administrator to consider eligibility for admission.

## **SERVICES**

### **UNIVERSITY COUNSELING AND TESTING CENTER**

The University Counseling and Testing Center (Recreational Services Building, Room 203) offers a professional staff of psychologists and counselors to assist students through educational, vocational, and career counseling; and personal, social, relationship, marriage, and family counseling.

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

### **CAREER RESOURCE CENTER — CAREER PLANNING AND PLACEMENT**

The Career Planning and Placement Office, located in Suite 124 of the Administration Building, is a career resource center for all University of Central Florida students and alumni. The Center provides individualized counseling about current and projected trends in the job market. Services also include: resume advice and critiquing, CHOICES — (computerized career guidance), career planning mini-classes, resume referrals at employers' request, on-campus interviews by employers, lists of full-time and part-time job vacancies, interviewing tips, and help in organizing a job search.

The Career Resource Center provides information about a broad cross section of employers. To make the most effective use of the Placement Service, students are urged to register with the office two semesters prior to graduation. Further information may be obtained by visiting the Center or telephoning (407) 823-2361.

### **HOUSING**

Regularly enrolled single students paying registration fees for a minimum of nine semester hours may apply for assignment to University residential units. Currently, there are seven residence halls on the campus of the **University of Central Florida**. The total combined designed capacity of the seven halls is **867 spaces**. Because of the limited amount of space in University housing facilities, the University does not require any student to live on campus. **There are no on-campus accommodations for married students.**

Priority for assignment is given to incoming Freshmen who will occupy approximately **50 percent** of the University's housing capacity and current residents who will occupy most of the remaining spaces. Applicants should **CAREFULLY READ** the application before submitting it to the Housing Office along with a **Letter of Acceptance** to the University and the **\$150 prepayment**.

### **OFF-CAMPUS HOUSING**

Within two miles of the UCF campus are numerous apartments and duplex communities in addition to a privately-owned residence hall complex. Sidewalks, bike paths, and LYNX bus service connect many of these facilities with the University. Students living off-campus are invited to participate in one of the University meal plans.

### **STUDENT HEALTH SERVICES (SHC)**

Recognizing the importance of lifestyle in health and the prevention of disease, the Student Health Service combines quality care for illness and accidents with an aggressive health education and lifestyle enhancement program. A Student Wellness Advocate Team enhances the health promotion efforts of the Student Health Center.

The Student Health Center (SHC) is staffed by medical doctors, certified nurse practitioners, physician's assistants, Registered Nurses, and a full complement of other medical support personnel. Full referral service to Orlando area specialists is established. Charges incurred outside the Student Health Center are the responsibility of the student. A variety of laboratory and x-ray tests are available at the Student Health Center. Testing for HIV (AIDS virus) is not done in our laboratory. Referral arrangements may be made for anonymous AIDS testing by contacting the Chief Nurse at the Student Health Center at (407) 823-2701, ext. 5275.

When the Student Health Center is not open, students can use the "Hot Line" phones at the front and back doors of the building to obtain help for urgent needs.

By Board of Regents regulation, each student must demonstrate Rubella and Rubeola immunity prior to registration. The Student Health Center cannot provide immunization services to meet this requirement. It is a pre-registration requirement and prospective students are not eligible for services at the SHC. A routine health history form is also completed prior to registration, and this information is used for background purposes in providing medical care services. Medical records are held in the strictest confidence.

Each health fee paying student is entitled to the benefits outlined in the SHC brochure; faculty and staff can only be seen on an emergency basis, and then for a fee (except Worker Compensation cases). Optional health and accident insurance may also be pur-

chased by contacting the office of Student Affairs or Student Government (please note optional health and accident insurance is not part of the Student Health Center program and will provide a variety of coverage for health needs beyond the scope of Student Health Services).

Blood drives are held several times annually by the Central Florida Blood Bank. Students, faculty, and staff are eligible for credits from the blood bank upon demonstrating need.

## **STUDENT CENTER**

Student life at the University of Central Florida emanates from the Student Center. As the focal point for campus activities, the Student Center serves students, faculty, staff, patrons, alumni, and guests with its many programs, services, and facilities. The Student Center is funded through Activity and Service fees as allocated by Student Government.

Several student organizations flourish in the Student Center. The Campus Activities Board sponsors a wide variety of educational and entertaining programs for the UCF campus community. The Student Government Association provides for active leadership experiences through the Senate and committees working for student rights. The Orientation Team coordinates the orientation programs. Greek Council promotes membership in, and operation of, Fraternities and Sororities.

The Student Center provides other services for students as well. The Game Room offers billiards, ping pong and video games. Student Government Association operates a Macintosh computer lab. There are four food services facilities, an information desk, conference and meeting rooms, and the Student Center Auditorium. Reservations for university facilities can be made at the Student Center Information Desk. The Student Center Director is located in SC 198. For more information regarding the Student Center, call (407) 823-2611.

## **STUDENT ORGANIZATIONS**

Student Organizations play a vital role in enhancing student life at the University of Central Florida. Academic, pre-professional, honorary, military, minority/international, religious, service, social, special interest, and sports are the ten categories of the over 150 organizations available. The Student Organizations Office publishes a Student Organization Handbook listing all of the organizations at UCF and their purposes.

For further information regarding clubs and organizations, call (407) 823-5107 or visit the Student Organizations Office, Student Center, Room 215.

## **RECREATIONAL SERVICES**

The Office of Recreational Services offers a wide variety of sports and recreational opportunities to the students of UCF and their immediate families and some opportunities to UCF faculty, staff, and the surrounding community. These opportunities include intramural sports leagues and tournaments, organized recreation and fitness programs, unstructured open recreation, sports-related special events, screen printing and racquet stringing. Equipment may be checked out for use on and off campus.

The Office of Recreational Services is located next to the pool. The phone number is (407) 823-2408.

## **OFFICE OF STUDENT INFORMATION AND EVENING/WEEKEND STUDENT SERVICES**

The Office of Student Information and Evening/Weekend Student Services is a one-stop communications network and information center committed to gathering and disseminating information to students. The office is also responsible for the administrative supervision of student affairs functions for all University students taking evening and weekend classes and for the administration and programming of the 24-hour Student Information Buzzline, (407) 823-5479. The office phone number is: (407) 823-3111.

## Information Booth & Evening Student Services

9:00 a.m. to 9:00 p.m.

Monday through Thursday —  
second floor Administration Building,  
Education Building Lobby, and College of  
Business Information Booth  
Friday (same locations as above)

9:00 a.m. to 5:00 p.m.

## Weekend Student Services

10:00 a.m. to 2:00 p.m.

2:00 p.m. to 5:00 p.m.

Saturday at SG Kiosk (407) 823-2060

Sunday at SG Kiosk (407) 823-2060

## INTERNATIONAL STUDENT SERVICES

The International Student Office provides services for all international students and resident aliens. Its central role is to assist International students and scholars attending UCF to adjust to the changing lifestyle in order to achieve their educational goals and gain a meaningful living experience in the United States. A wide range of special services is provided to the UCF international community, such as issuance of immigration forms 1-20 A/B and IAP-66, assistance in locating off-campus apartments, counseling on personal, financial, academic, and cross-cultural communication matters, advisement in immigration and tax matters, promotion of social activities, and home visits in Central Florida. Further information may be obtained from the International Office, Administration Building, Room 145D, or by calling (407) 823-2337.

## MINORITY STUDENT SERVICES

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

## STUDENT DISABILITY SERVICES

Student Disability Services provides information and orientation to campus facilities and services, assistance with classroom accommodations, assistance with course registration, handicapped parking decals, counseling, and referral to campus and community services for students with disabilities.

Services are available to students whose disabilities include, but are not limited to, hearing impairment, manual dexterity impairment, mobility impairment, specific learning disability (such as dyslexia), speech impairment, visual impairment, or other disabilities which require administrative or academic adjustments.

If a student needs special admission consideration based on a disability, the student should answer this question on the Application for Admission form and send the requested official documentation to the Graduate Admissions Office. Students who have a disability which may require special assistance also are requested to voluntarily contact the Office of Student Disability Services. All information is confidential and will be used only to assist the student.

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

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

Further information may be obtained from the Student Disability Services Office, Administration Building Suite 282, Phone (407) 823-2371.

## CREATIVE SCHOOL FOR CHILDREN

The Creative School for Children provides an educational program, including kindergarten — first grade, for children two through five years old. The daily program is planned and conducted by Florida-certified teachers. The program provides a wide variety of experiences in art, music, language, motor skills, science, math, social studies, perceptual development, socialization, and self-discovery. Planned and spontaneous field trips and special family programs are a part of the yearly schedule. Experiences in observation and training in academic areas are also made available to University students. Opportunities for educational research are available to University faculty and graduate students.

A Flex Time program is provided for children three through twelve years old. This program provides educational activities for children who need part time schedules. This program is open evenings Monday - Thursday.

The school conducts a Summer Day Camp for elementary school children during Summer "B" semester.

For further information, call the Creative School for Children, (407) 823-2726.

## **OFFICE OF VETERANS' AFFAIRS**

The Office of Veterans' Affairs (OVA) is a center for all veterans, including students who are using VA educational benefits to further their education. The office, located in room 132 of the Student Center, has a professional staff augmented by student veterans to assist in providing information concerning entitlements, filing claims to the Department of Veterans Affairs (DVA), and certifying enrollment at the University. The office also provides counseling for personal and academic concerns, tutorial assistance, and referral to various community agencies. Veterans and eligible dependents must be certified through the Office of Veterans' Affairs to receive DVA educational benefits. The office monitors the academic progress of all those receiving DVA educational benefits.

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

## **VETERANS' BENEFITS**

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

Students eligible for DVA education benefits, may also be eligible for a VA Deferral of Tuition and Fees. This deferment is authorized once each academic year, beginning with the Fall semester. The VA Deferment due date is published in the Class Schedule each semester. **STUDENTS ELIGIBLE FOR FINANCIAL AID ADEQUATE TO COVER TUITION AND FEES ARE NOT ELIGIBLE FOR THIS DEFERMENT.**

Veterans and eligible dependents who are fully accepted in a graduate degree program, or post-baccalaureate students pursuing a Florida Teaching Certificate, are required to carry 6 semester hours in courses numbered 5000 and above for full-time benefits; 4-5 semester hours in courses numbered 5000 and above for three-quarter time benefits; and 3 semester hours in courses numbered 5000 and above for half-time benefits. Students may take undergraduate courses, if a required part of the program, but when taken, a different method is used to compute training time. Contact the Office of Veterans Affairs for clarification and guidance.

Students who are classified as post-baccalaureate, and working towards a graduate degree, must carry at least twelve (12) semester hours for full VA benefits, 9-11 semester hours for three-fourths, and 6-8 semester hours for one-half. Five (5) semester hours or less will be reimbursed at the cost of tuition and fees or quarter time depending on DVA Chapter. Veterans and eligible dependents who are pursuing course work while in a post-baccalaureate status can only receive benefits for courses which will be accepted for transfer into a graduate program when they are given graduate status (normally 9 semester hours). Students pursuing CPA or Real Estate examination review, or other special non-degree programs will receive benefits for all courses required by their program of study.

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







# COLLEGE OF ARTS AND SCIENCES

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

## COLLEGE ADMINISTRATION

<i>K. L. Seidel</i> .....	Interim Dean
<i>B. B. Morgan, Jr.</i> .....	Associate Dean
<i>B. A. Whisler</i> .....	Associate Dean
<i>D. Velez</i> .....	Assistant Dean

## ADVISEMENT

### Graduate Studies in the College of Arts & Sciences

Graduate Studies assists students in the College of Arts and Sciences in matters concerning College and University requirements and procedures. Admission materials, acceptance notification, program of study, graduate committee memberships, thesis and dissertation approvals, fellowship and financial aid information, waiver and petition forms, graduation certifications, etc., are processed through this office for all graduate students in the college. Questions concerning University and College graduate policies affecting Arts and Sciences majors should be directed to Graduate Studies in HFA-518 or by calling (407) 823-0218.

### Doctor of Philosophy

Computer Science  
Mathematical Science  
Physics  
Psychology (Human Factors)

### Master of Arts

Communication  
English  
History  
Political Science  
Sociology, Applied

### Master of Science

Biology  
Chemistry, Industrial  
Computer Science  
Mathematical Science  
Physics  
Psychology (Clinical and Industrial/Organizational)  
Statistics

## GENERAL REQUIREMENTS

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

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

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

## ART

*Robert T. Reedy* . . . . . Chair  
Office: VAB 117A, Phone (407) 823-2676

## Art Faculty

*K. Congdon, Ph.D.* . . . . . Associate Professor  
*M. Wahlman, Ph.D.* . . . . . Professor

## BIOLOGY

*D. T. Kuhn* . . . . . Graduate Program Coordinator  
Office: BIO 110, Phone (407) 823-2141

## Biology Faculty

*L. M. Ehrhart, Ph.D.* . . . . . Professor  
*L. L. Ellis, Ph.D.* . . . . . Professor Emeritus  
*J. L. Koevenig, Ph.D.* . . . . . Professor  
*D. T. Kuhn, Ph.D.* . . . . . Professor  
*J. A. Osborne, Ph.D.* . . . . . Professor  
*F. F. Snelson, Jr., Ph.D.* . . . . . Professor  
*I. J. Stout, Ph.D.* . . . . . Professor  
*H. C. Sweet, Ph.D.* . . . . . Professor  
*W. K. Taylor, Ph.D.* . . . . . Professor  
*H. O. Whittier, Ph.D.* . . . . . Professor  
*D. H. Vickers, Ph.D.* . . . . . Acting Chair and Associate Professor

## Admission

Deadline for application material for fall semester is March 1st. Applicants will be notified of the Graduate Committee decision in April.

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 semester hours of undergraduate study or a score of at least 1000 on the combined quantitative-verbal sections of the GRE. In addition, the department requires 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 helpful but not required. The department requires international students and students whose native language is not English to have a minimum TOEFL score of 550.

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

Applicants need not have an undergraduate degree in a biological science but are expected to have the equivalent of 16 semester hours credit in the biological sciences, including at least 3 credit hours each in botany, and zoology; plus organic chemistry with laboratory; and basic college mathematics and statistics. After acceptance, minor deficiencies can be remedied by enrollment at the first opportunity in an appropriate course. Students receiving teaching or research assistantships are expected to maintain a minimum of 6 semester hours of approved graduate credit every term of departmental support.

## Examinations

A comprehensive examination is required of all students in the program. The comprehensive exam must be taken no later than the semester preceding that of thesis defense. If a student fails the comprehensive examination, a minimum of four weeks must elapse before re-examination. The comprehensive exam may be taken a maximum of two times. In addition, an oral thesis defense is required in the thesis option. A minimum of four weeks must elapse between the comprehensive and thesis defense examinations.

## Programs in Biology

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

### Master of Science Degree Requirements — BIOLOGY

#### Thesis Option

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

<b>Group A</b> (three of the six courses)			<b>12-14 Semester Hours</b>
PCB 5046C	Advanced Ecology		5 hours
PCB 5675C	Evolutionary Biology		4 hours
or			
BOT 5705C	Plant Biosystematics		4 hours
PCB 6585C	Advanced Genetics		5 hours
PCB 6721	Comparative Animal Physiology		3 hours
or			
PCB 6365	Environmental Physiology		3 hours
<b>Group B</b> (both courses)			<b>8 Semester Hours</b>
BSC 6938	Biology Seminar		2 hours
BSC 6971	Thesis		6 hours
<b>Group C</b>			<b>8-10 Semester Hours</b>
Restricted electives acceptable to the student's graduate committee.			
Total Minimum Semester Hours Required:			<b>30</b>

#### Non-Thesis Option

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

<b>Group A</b> (three of the six courses)			<b>12-14 Semester Hours</b>
PCB 5046C	Advanced Ecology		5 hours
PCB 5675C	Evolutionary Biology		4 hours
or			
BOT 5705C	Plant Biosystematics		4 hours
PCB 6585C	Advanced Genetics		5 hours
PCB 6721	Comparative Animal Physiology		3 hours
or			
PCB 6365	Environmental Physiology		3 hours
<b>Group B</b> (both courses)			<b>4 Semester Hours</b>
BSC 6909	Research Report		2 hours
BSC 6938	Biology Seminar		2 hours
<b>Group C</b>			<b>22-24 Semester Hours</b>
Restricted electives acceptable to the student's graduate advisor.			
Total Minimum Semester Hours Required:			<b>40</b>

## CHEMISTRY, INDUSTRIAL

Seth Elsheimer, Ph.D. . . . . Graduate Program Coordinator  
Office: CH 117, Phone (407) 823-2246

### Chemistry Faculty

C. A. Clausen, Ph.D. . . . . Professor  
G. N. Cunningham, Ph.D. . . . . Chair and Professor  
F. E. Juge, Ph.D. . . . . Associate Vice President and Professor  
B. C. Madsen, Ph.D. . . . . Professor  
G. Mattson, Ph.D. . . . . Professor  
W. W. McGee, Ph.D. . . . . Professor  
D. H. Miles, Ph.D. . . . . Professor  
L. M. Trefonas, Ph.D. . . . . Professor  
S. R. Elsheimer, Ph.D. . . . . Associate Professor

<i>M. D. Hampton, Ph.D.</i> .....	Associate Professor
<i>K. M. Beck, Ph.D.</i> .....	Assistant Professor
<i>K. A. Cerqua-Richardson</i> .....	Assistant Professor
<i>B. I. Schweitzer, Ph.D.</i> .....	Assistant Professor

## Admission

The Graduate Record Examination (GRE) is required of all graduate students. Minimal requirements for admission include a grade point average (GPA) of 3.0 for the last 60 semester hours of undergraduate study or a score of at least 1000 on the combined quantitative-verbal sections of the General (Aptitude) test of the GRE. In addition, the departmental evaluation relies on letters of recommendation. Proficiency examinations 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.

## Program in Industrial Chemistry

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

## Master of Science Degree Requirements — INDUSTRIAL CHEMISTRY

Required Core Courses			12 Semester Hours
CHS	6240	Chemical Thermodynamics	2 hours
CHM	6440	Kinetics and Catalysis	2 hours
CHM	6710	Applied Analytical Chemistry	2 hours
CHM	6938	Seminar	2 hours
CHS	6251	Applied Organic Synthesis	2 hours
CHS	6260	Chemical Unit Operations and Separations	2 hours

### Electives 12 Semester Hours

At least nine (9) of the total twelve (12) credits must be taken from the following list (All elective courses must be approved by the student's advisory committee.):

CHM	5235	Applied Molecular Spectroscopy	3 hours
CHM	5450	Polymer Chemistry	3 hours
CHM	5451	Polymer Chemistry Lab	2 hours
CHM	5711	The Chemistry of Materials	2 hours
CHS	5262	Industrial Chemical Processes	2 hours
CHM	5305	Applied Biological Chemistry	3 hours
CHS	6261	Chemical Process and Product Development	2 hours
CHM	5580	Advanced Physical Chemistry	

### Thesis 6 Hours

### Examination Requirements

Satisfactory completion of a final examination is required.

Total Minimum Semester Hours Required for M.S. in Chemistry: **30**

## COMMUNICATION

*B. Pryor*..... Graduate Program Coordinator  
Office: HFA 528A, Phone (407) 823-5670 or 823-2681

## Communication Faculty

<i>R. H. Davis, Ph.D.</i> .....	Professor
<i>F. E. Fedler, Ph.D.</i> .....	Professor
<i>C. H. Harpole, Ph.D.</i> .....	Professor

<i>J. G. Hoglin, Ph.D.</i>	Professor
<i>M. D. Meeske, Ph.D.</i>	Interim Director and Professor
<i>M. T. O'Keefe, Ph.D.</i>	Professor
<i>B. Pryor, Ph.D.</i>	Professor
<i>K. P. Taylor, Ph.D.</i>	Professor
<i>D. Weider-Hatfield, Ph.D.</i>	Professor
<i>J. W. Welke, Ph.D.</i>	Professor
<i>J. F. Butler, Ph.D.</i>	Associate Professor
<i>W. K. Grasty, Ph.D.</i>	Associate Professor
<i>W. J. Hall</i>	Associate Professor
<i>J. Maunez-Cuadra, Ph.D.</i>	Associate Professor
<i>J. B. O'Hara, Ph.D.</i>	Associate Professor
<i>R. F. Smith</i>	Associate Professor
<i>E. B. Wycoff, Ph.D.</i>	Associate Professor

## Admission

The Graduate Record Examination is required of all graduate students. Minimal requirements for admission are a grade point average (GPA) of 3.0 for the last 60 semester hours of undergraduate study and a score of at least 1000 on the verbal-quantitative sections of the General (Aptitude) test of the GRE. Students interested in applying for financial assistance must supply three letters of recommendation. Admission is restricted to fall semester only. Students must have graduate status to be eligible for 6000-level communication courses.

## Programs in Communication

The following curriculum emphasizes communication research. The courses prepare students for research positions, some teaching positions, and entry to most Ph.D. programs in the field.

## Master of Arts Degree Requirements— COMMUNICATION

Students are required to complete 34 semester hours of work, including a thesis and a basic core of courses in theory and methodology. The curriculum for the master's degree includes the following courses:

Required Courses			12 Semester Hours
	EDF 6401	Statistics for Educational Data	3 hours
or	STA 4163	Statistical Methods II	
or	STA 5206	Statistical Analysis	
or	SYA 4450	Data Analysis	
	SPC 6219	Modern Comm. Theory	3 hours
	SPC 5200	Evolution of Com. Theory	3 hours
or	COM 6121	Communication Management	
or	COM 6468	Communication Conflict	
	COM 6303	Communication Research I	3 hours
	COM 6304	Communication Research II	3 hours
	MMC 6603	Communication and Society	3 hours
	SPC 6442	Small Group Communication	3 hours
<b>Electives</b>			<b>9 Semester Hours</b>
<b>Thesis</b>			<b>4 Semester Hours</b>
Total Minimum Semester Hours Required for M.A. in Communications:			<b>34</b>

## COMPUTER SCIENCE

*Ronald D. Dutton* . . . . . Graduate Program Coordinator  
Office: CC II 206, Phone (407) 823-2341

## Computer Science Faculty

<i>M. A. Bassiouni, Ph.D.</i>	Professor
<i>R. C. Brigham, Ph.D.</i>	Professor

<i>N. Deo, Ph.D.</i>	.....	Millican Endowed Chair in Computer Science and Professor
<i>R. D. Dutton, Ph.D.</i>	.....	Associate Chair and Professor
<i>T. J. Frederick, Ph.D.</i>	.....	Chair and Professor
<i>C. E. Hughes, Ph.D.</i>	.....	Professor
<i>A. Mukherjee, Ph.D.</i>	.....	Professor
<i>R. K. Guha, Ph.D.</i>	.....	Professor
<i>J. M. Moshell, Ph.D.</i>	.....	Professor
<i>L. K. Cottrell, Ph.D.</i>	.....	Associate Professor
<i>J. R. Driscoll, Ph.D.</i>	.....	Associate Professor
<i>H. C. Gerber, Ph.D.</i>	.....	Associate Professor
<i>F. Gomez, Ph.D.</i>	.....	Associate Professor
<i>K. Hua, Ph.D.</i>	.....	Associate Professor
<i>S. D. Lang, Ph.D.</i>	.....	Associate Professor
<i>J. Leeson, Ph.D.</i>	.....	Associate Professor
<i>A. Orooji, Ph.D.</i>	.....	Associate Professor
<i>M. A. Shah, Ph.D.</i>	.....	Associate Professor
<i>D. A. Workman, Ph.D.</i>	.....	Associate Professor
<i>N. da Vitoria Lobo, Ph.D.</i>	.....	Assistant Professor
<i>M. Goudreau, Ph.D.</i>	.....	Assistant Professor
<i>G. Pantziou, Ph.D.</i>	.....	Assistant Professor
<i>R. Parson, Ph.D.</i>	.....	Assistant Professor
<i>U. Vemulapati, Ph.D.</i>	.....	Assistant Professor

### Admission

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

- a. A baccalaureate degree from an accredited institution and an earned grade point average (GPA) of at least 3.0 in the last two years of undergraduate work or a combined score of 1000 or more on the quantitative-verbal sections of the General (Aptitude) Test of the Graduate Record Examination (GRE)
- b. A previous graduate degree from an accredited institution.
- c. The general GRE must be taken, regardless of satisfying (a) or (b).

The minimum department requirements are the following:

- a. Each student is required to submit a score on the Subject (Advanced) GRE in Computer Science that is not more than two years old at the time of admission to regular graduate status.
- b. 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	Introduction to Computer Architecture
COP	4710	Databases
COT	4500	Numerical Calculus
COP	4020	Programming Languages I
COP	4600	Programming 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% of this GRE deals directly with the material covered in these courses.

- c. International students must obtain a minimum score of 550 on the TOEFL exam.

### Programs in Computer Science

The Department of Computer Science offers a Master of Science and a Doctor of Philosophy degree in Computer Science. Students receive a broad background in the areas of programming systems and languages, computer architecture, and computer science theory before specializing in a research area.

Research interests of the faculty include computer architecture, VLSI systems, parallel processing, design and analysis of algorithms, graph theory, microprocessors, programming languages, operating systems, natural language processing, computer vision, machine learning, data base management systems, computer graphics, interactive graphic systems of instruction, distributed processing/networking and computational complexity.



The department houses the Center for Parallel Computation, directed by Dr. N. Deo, containing a BBN Butterfly 64 processor machine and a DECnpp 12000.

## Master of Science Degree Requirements — COMPUTER SCIENCE

### Required Courses

9 Semester Hours

(Students must receive an A or B grade in these courses.)

CDA	5106	Advanced Computer Architecture 1	3 hours
COT	5405	Design and Analysis of Algorithms	3 hours
and one of the following three courses			
COP	5611	Operating Systems Design Principles	3 hours
COP	5021	Program Analysis	3 hours
COT	5310	Formal Languages and Automata Theory	3 hours

### Restricted Electives

21-27 Semester Hours

Restricted electives must include two 6000-level Computer Science courses taught by the Department of Computer Science. These two 6000-level courses are exclusive of independent study and may not include any courses for which the grade received is below a B. Additional credits will normally be taken from 5000- and 6000-level Computer Science courses. Approval may be granted for at most six credits to be taken from graduate courses outside Computer Science.

Three options are available. The Research Survey option is a 36 hour program allowing at most 6 hours of independent study and requires that the student write a comprehensive literature survey paper, while enrolled in 3 hours of research on a current topic of interest in Computer Science. The Research Project and Research Thesis options are both 30 hour programs exclusive of independent study. The research project normally entails the implementation and description of a substantial piece of software, while the thesis requires the analysis and description of a much more theoretical endeavor. These tasks are intended to span two semesters, and students are to enroll in 3 credits of research each semester.

Regardless of the electives or option chosen, the plan of the student must satisfy the following:

- The plan of study must contain 30-36 semester hours depending upon the option selected.
- Grades received in these hours must be letter grades of A, B, or C with no more than 6 hours of C work and a grade point average of 3.0 or better.
- The plan of study can contain no courses below the 5000-level.
- The plan of study can contain no more than 6 hours (or two courses) of independent study in the Research Survey option and none in the other options.
- No course may be applied toward the degree which was completed more than 7 years prior to the date of graduation.
- Each student must also complete a research survey (exactly 3 credits), a research project or thesis (exactly 6 credits). The student must enroll for at least one hour in the semester graduation is to occur.

Total Minimum Semester Hours Required for M.S. Computer Science: **30-36**

## Doctor of Philosophy Degree Requirements — COMPUTER SCIENCE

### Admission to Ph.D. 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 University requirements, the department requires that the applicant pass Phase I of the Ph.D. Qualifying Examination and find a qualified faculty member in Computer Science willing to chair the student's advisory committee. Any transfer credits toward requirements for the Ph.D. program must be approved by the University and the department. Normally, these credits must correspond to equivalent requirements and performance levels expected for the program.

\*NOTE: Meeting minimum University admission standards for graduate status does not satisfy doctoral program admission requirements.

## **Ph.D. Qualifying Examination**

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

### **Phase 1 (Written Exam)**

Phase 1 of the Qualifying Examination consists of three written examinations over areas of algorithms, architecture, and theory. The coverage includes material prerequisite to, and including, graduate level courses in Computer Architecture, Formal Languages and Automata Theory, and Design and Analysis of Algorithms.

This phase will be offered twice per year in September and January, and each student will be allowed at most two attempts, in two consecutive offerings, to pass this phase.

Upon successful completion of Phase 1, the student will be admitted to the Ph.D. program.

### **Phase II (Committee Exam)**

Upon successful completion of Phase 1, the student must identify an area of research and an advisory committee chaired by a Computer Science graduate faculty member. A tentative plan of study approved by the student's advisory committee should be filed. The advisory committee will then examine the student to ascertain the student's ability to conduct independent research. This examination will be a narrowly focused examination in and around the area of the student's specialty. The format and length of the examination will be determined by the student's committee (e.g., may be oral and/or written and may involve surveying literature and submitting critical reviews of selected research articles). Each student will be allowed at most two attempts to pass Phase II. However, the student is expected to pass Phase II within no more than one year from passing Phase 1.

### **Plan of Study**

The Ph.D. plan of study will consist of a minimum of fifteen (15) semester hours of Ph.D. dissertation (CAP, CDA, COP or COT 7980) credits and at least fifty-seven (57) semester hours of non-dissertation graduate (5000-level or above) credits. The latter must include at least fifteen semester hours of advanced (6000-level) computer science courses, exclusive of Special Topics courses, and six (6) graduate hours from outside computer science. The remaining credits are normally selected from computer science regularly scheduled courses, Special Topics courses, seminar courses and Independent Study. No more than twelve (12) credits of Independent Study can be used, and at least half the program must be 6000-level or above.

### **Research Committee**

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

### **Candidacy Examination**

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

### **Residence Requirement**

Students in the Ph.D. program are normally expected to be full-time students. Students must spend at least two consecutive semesters as a full-time student at UCF (that is, registered for a minimum of nine hours each of the two terms).

### **Time Limitation**

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

## Special Degree Requirements

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

## Dissertation and Oral Defense

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

## ENGLISH

Gerald Schiffhorst . . . . . Graduate Program Coordinator  
Office: HFA 302D, Phone (407) 823-5417

## English Faculty

R. R. Adicks, Ph.D. . . . .	Professor
R. Astro, Ph.D. . . . .	Professor
S. E. Omans, Ph.D. . . . .	Professor
J. F. Schell, Ph.D. . . . .	Chair and Professor
G. J. Schiffhorst, Ph.D. . . . .	Professor
K. L. Seidel, Ph.D. . . . .	Interim Dean and Professor
R. E. Umphrey, Ph.D. . . . .	Professor
W. Wyatt . . . . .	Professor
B. Barnes, Ph.D. . . . .	Associate Professor
K. L. Bell, Ph.D. . . . .	Associate Professor
J. J. Donnelly, Ph.D. . . . .	Associate Professor
J. Hemschemeyer . . . . .	Associate Professor
D. R. Jones, Ph.D. . . . .	Associate Professor
K. Z. Keller, Ph.D. . . . .	Associate Professor
A. Lillios, Ph.D. . . . .	Associate Professor
P. J. Rushin . . . . .	Associate Professor
E. Smith, Ph.D. . . . .	Associate Professor
M. E. Sommer, Ed.D. . . . .	Associate Professor
D. L. Stap, Ph.D. . . . .	Associate Professor
M. Flammia, Ph.D. . . . .	Associate Professor
B. Murray, Ph.D. . . . .	Assistant Professor
J. Bartkevicius, Ph.D. . . . .	Assistant Professor
N. Greenberg, Ph.D. . . . .	Assistant Professor

## Admission

Minimum requirements for admission are a grade point average (GPA) of 3.0 for the last 60 semester credit hours earned as an undergraduate and a total score of 1000 on the aptitude section of the Graduate Record Examination (GRE). International students must score at least 575 on the Test of English as a Foreign Language (TOEFL).

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

An applicant for the concentration in creative writing should submit a portfolio of poetry, drama, or fiction.

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

Applicants are urged to apply for the program and take the GRE before April 1 for the subsequent fall term and before November 1 for the spring term.

## Master of Arts Degree Requirements — ENGLISH/LITERATURE:

Each student must complete at least 33 hours, including one course in linguistics and five core courses. Near the end of the degree program, each candidate will write a comprehensive examination based on a prescribed reading list and a) write a thesis or b) take an oral examination on a specific area of literature.

<b>Required Courses</b>			<b>18 Semester Hours</b>
ENG	5009	Graduate Research in English	3 hours
LIN	5137	Linguistics (or an equivalent)*	3 hours
LIT	6009	Literary Genres	3 hours
LIT	6105	World Literature	3 hours
LIT	6365	Movements in Literature	3 hours
LIT	6506	Major Authors	3 hours

\*May be waived if student has completed a course in linguistics on the 4000 level or above with an A or B.

**Electives** **12 Semester Hours**

### Comprehensive Examination

**Specialization — Choose A or B** **3 Semester Hours**

#### A. THESIS OPTION:

The candidate will complete a formal thesis on a topic selected in consultation with an advisory committee and will meet both departmental and university requirements for the thesis. The student will enroll at least once in LIT 6971, Thesis, for three hours of credit.

#### B. EXTENDED RESEARCH AND ORAL EXAMINATION OPTION:

The candidate will enroll in LIT 6908, Directed Independent Study, and read extensively in an area of speciality — English romantic poetry, for example. The student will then complete a formal oral examinaion on the area of expertise.

Total Minimum Semester Hours Required for M.A. English/Literature: **33**

## ENGLISH/CREATIVE WRITING:

Each student must complete at least 33 hours, including six hours of writing workshops. Near the end of the degree program, each candidate will write a creative thesis.

<b>Required Courses</b>			<b>12 Semester Hours</b>
CRW	5004	Graduate Writing Workshop	3 hours
CRW	6009	Advanced Writing Workshop	3 hours
LIT	5097	Studies in Contemporary Fiction	3 hours
LIT	5039	Studies in Contemporary Poetry	3 hours

<b>Restricted Electives</b>			<b>9 Semester Hours</b>
LIT	6105	World Literature	3 hours
LIT	6009	Literary Genres	3 hours
LIT	6365	Movements in Literature	3 hours
LIT	6506	Major Authors	3 hours

### Open Electives:

(selected with assistance of advisor)

**9 Semester Hours**

### Thesis:

**3 Semester Hours**

The candidate will complete a book-length manuscript (fiction, poetry, or other genre) of publishable quality, written and revised in CRW 6971 Thesis (3 hours). The manuscript will be submitted for review and approval by the graduate creative writing faculty.

Total Minimum Semester Hours Required for M.A. English/Creative Writing: **33**

## ENGLISH/TECHNICAL WRITING:

Each student must complete at least 33 hours, as outlined below. Near the end of the degree program, each candidate will write a comprehensive examination and enroll in ENC 6971 (3 hours), completing a formal thesis or project approved by the faculty.

### Required Courses

15 Semester Hours

ENC	6261	Technical Writing: Theory and Practice
ENG	5009	Research Methods
ENC	5214	Production and Publication Methods
ENC	6217	Technical Editing
ENC	5337	Modern Rhetorical Theory

### Restricted Electives

9 Semester Hours

ENC	5219	Graphics in Technical Writing
ENC	5344	Proposal Writing
ENC	6244	Teaching Technical Writing
ENC	6292	Project Management
ENC	6296	Computer Documentation
ENC	6306	Persuasive Writing

### Advised Electives

6 Semester Hours

Two courses from outside the Department of English or other graduate-level English courses

### Comprehensive Examination

### Thesis or Approved Project

3 Semester Hours

Candidates will complete a formal thesis or project approved by the faculty while enrolling for a minimum of three hours in ENC 6971.

Total Minimum Semester Hours Required for English/Technical Writing: **33**

## HISTORY

*Shirley A. Leckie* ..... Graduate Program Coordinator  
Office: HFA 553, Phone (407) 823-2224

### Program in History

The Master of Arts in History is designed to serve the needs of a variety of students. Some will one day seek admittance into a Ph.D. program at a doctoral-granting institution. Others enter the program to improve their proficiency as secondary school teachers. Still others are adults who wish to enrich their intellectual lives. These students will be served by departmental members whose areas of research include American cultural and social history, local history, the South, the American frontier, women and gender roles, twentieth-century mass movements, Nazism and anti-Semitism in Central Europe. Latin American History, British History, and Russian History, as well as other areas.

### History Faculty

<i>T. Colbourn, Ph.D.</i> .....	Professor
<i>R. C. Crepeau, Ph.D.</i> .....	Chair and Professor
<i>J. B. Fernandez, Ph.D.</i> .....	Professor
<i>E. B. Fetscher, Ph.D.</i> .....	Professor
<i>E. F. Kallina, Jr., Ph.D.</i> .....	Professor
<i>S. A. Leckie, Ph.D.</i> .....	Professor
<i>B. F. Pauley, Ph.D.</i> .....	Professor
<i>J. H. Shofner, Ph.D.</i> .....	Professor
<i>C.E. Adams, Ph.D.</i> .....	Associate Professor
<i>J. L. Evans, Ph.D.</i> .....	Associate Professor
<i>R.J. Beiler, Ph.D.</i> .....	Assistant Professor
<i>T. D. Greenhaw, Ph.D.</i> .....	Assistant Professor

## Admission

The Graduate Record Examination (GRE) is required of all graduate students. Minimal requirements for admission to the program are an undergraduate degree in history (or an equivalent), a grade point average (GPA) of 3.0 for the last 60 semester hours of undergraduate study, and a score of 1000 on the Graduate Record Examination (GRE), with a score of 500 or higher on the verbal section of this test.

Applicants who meet all of the above requirements but do not have an undergraduate degree in history must complete 12 hours of history coursework 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 towards 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 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 hours of undergraduate coursework or a score of 1000 on the GRE and a score of 500 on the verbal portion of the GRE, they must complete 12 hours of coursework at the 3000 and 4000 level with a GPA of 3.5 before they can be admitted to the graduate program.

Applicants who hold an undergraduate degree in history but do not have a GPA of 3.0 in the last 60 hours or do not score 1000 or more on the GRE with a score of 500 in the verbal portion, may take up to 9 hours of graduate courses as Post-baccalaureate students. To be admitted into the graduate program, however, they must earn a GPA of 3.3 or better in the history courses they have taken under this status.

All applicants to the program must submit a written statement, describing their personal goals and objectives in seeking a graduate degree in history. In addition, transfer students from outside the History Department must submit two letters of recommendation.

## Master of Arts Degree Requirements — HISTORY

The Master of Arts in History requires 36 semester hours with no graduate credit given for any grade lower than "B." Specific requirements are:

HIS	6159	Historiography	3 hours
HIS	6971	Thesis	6-9 hours

**Area of Concentration (American or European) 18 Semester Hours**

**Outside Area of Concentration in History 6-9 Semester Hours**

**Electives 0-3 Semester Hours**

Students will also be expected to demonstrate a reading competence in one foreign language or to display a proficiency in statistical methods. The foreign language competence must be completed one semester prior to the thesis defense.

The statistical option is open only to those in American history. Students selecting this option must meet with the Chair of the Statistics Department to determine a sequence of courses that will help them achieve their stated research objectives. Upon satisfactory completion of that sequence, they must pass a proficiency examination administered by the Statistics Department, no later than one semester prior to their thesis defense.

### Examination Requirements

Each candidate for the Master of Arts in History must pass a written examination upon the conclusion of regular course work. Each candidate will also be expected to conduct a thesis defense.

Total Minimum Semester Hours Required for M.A. in History: **36**

## MATHEMATICS

Piotr Mikusinski . . . . . Graduate Program Coordinator  
Office: PH 403D, Phone (407) 823-2826

### Mathematics Faculty

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

### Joint Appointees:

T. Clarke, Ph.D.	Associate Faculty
A. J. Kassab, Ph.D.	Assistant Professor of Engineering
D. W. Nicholson, Ph.D.	Professor of Engineering
R. L. Phillips, Ph.D.	Professor of Engineering

### Graduate Programs in Mathematics

The Department of Mathematics offers a Master of Science degree in Mathematical Science and a Doctor of Philosophy degree in Mathematics. Both are intended to provide a broad base in applied and industrial mathematics. Research interests of the faculty include applied analysis, differential equations, methods of mathematical physics, probability and mathematical statistics, functional analysis, numerical analysis, approximation theory, non-linear dynamics, fluid mechanics, and combinatorics and graph theory.

### Admission

The Graduate Record Examination (GRE) is required of all graduate students. Admission requirements are the standard University criteria of either: (1) at least the equivalent of a 3.0 (out of 4.0) grade point average (GPA) for the last 60 semester hours of credit earned towards 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 5 years old. Transfer of credits from other programs will be considered on a course by course basis.

Additionally, students entering the graduate program with regular status are assumed to have a working knowledge of undergraduate calculus, differential equations, linear algebra (or matrix theory), boundary value problems, statistics, and computer programming. 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 initially admitted to the University in a post-baccalaureate status. Students whose native language is not English will be required to obtain a minimum score of 550 in TOEFL.

### Admission to Ph.D. Program

Admission to the Ph.D. Program in Mathematics is formalized by the University upon the recommendation of the Graduate Committee of the Department of Mathematics. In addition to the regular University requirements, the applicant must pass the Ph.D. Qualifying Examination. To be eligible to take this examination, the student must have a minimum grade point average of 3.0 (out of 4.0) in all work beyond baccalaureate.

### Master of Science Degree Requirements — MATHEMATICAL SCIENCE

The Mathematical Science degree requires a total of 30 credit hours composed of at least 27 credit hours of course work and a 3 credit hour thesis or research report.

#### A typical plan of study:

MAA	5210	Topics in Advanced Calculus	4 hours
MAA	5405	Complex Variables	3 hours
MAP	5385	Applied Numerical Mathematics	3 hours
MAP	5407	Applied Mathematics I	3 hours
MAP	6110	Introduction to Measure and Probability	3 hours
MAP	6111	Mathematical Statistics	3 hours
MAP	6408	Applied Mathematics II	3 hours
		Electives	6 hours
MAP	6971	Thesis/Research Report	3 hours

Total Minimum Semester Hours Required for the M.S. in Mathematical Science: **30**

#### Electives

Electives may be chosen from approved mathematics courses. Approved graduate courses outside the department may also be used. The student can take up to 6 credit hours of approved 4000 level mathematics courses.

#### Thesis/Research Report

3 semester hours of credit will be given for the writing of a research report. An oral defense of the report will be required. It is strongly recommended that the student select a thesis/ research report advisor by the completion of 18 credit hours of course work.

### Doctor of Philosophy Degree Requirements — MATHEMATICS

The total program consists of at least 75 credit hours of course work of which 15 credit hours are required for dissertation. In addition to the dissertation hours, the course requirements include:

33 credit hours of core courses:

18 credit hours of foundation core

3 credit hour course on the teaching of mathematics

12 credit hours of selected core

6-12 credit hours of course work at the graduate level outside the department

15-21 credit hours of elective courses

Students can take up to 6 credit hours of approved 4000 level mathematics courses. The courses outside the department are to be taken in a single area of application of mathematics which is related to the student's doctoral work. Students are encouraged to include in their plan of study the maximum of 12 semester hours of course work outside the department. The courses taken from other departments are to be selected in consultation with the student's advisory committee. In addition to the 75 credit hours of the program, a minimum of 6 credit hours of an approved foreign language and a minimum 3 credit hours of an approved computer language are required. The language and computer courses may have been taken at any point in a student's post-secondary career.



<b>Core Courses</b>			<b>33 Semester Hours</b>
<b>Required Course (Foundation Core)</b>			<b>18 Semester Hours</b>
MAS	5937ST	Abstract Algebra With Applications	3 hours
MAA	5416	Foundations of Analysis	3 hours
MAP	5407	Applied Mathematics I	3 hours
MAA	5404	Complex Analysis	3 hours
MAP	6506	Functional Analysis	3 hours
MAP	6110	Introduction to Measure and Probability	3 hours

<b>Required Course</b>			<b>3 Semester Hours</b>
MAP	5937ST	Post-Secondary Mathematics Instruction	3 hours

<b>Any four of the following (Selected Core)</b>			<b>12 Semester Hours</b>
MAP	5385	Applied Numerical Mathematics	3 hours
MAP	6385	Numerical Solution of Partial Differential Equations	3 hours
MAP	6421	Integral Equations	3 hours
MAP	5404	Ordinary Differential Equations and Control Theory	3 hours
MAP	6356	Partial Differential Equations	3 hours
MAP	6111	Mathematical Statistics	3 hours
MAP	6207	Optimization Theory	3 hours
MAA	6508	Hilbert Spaces with Applications	3 hours

### Examinations

In accordance with University requirements, a prospective doctoral student has to successfully pass the following examinations:

1. Qualifying Examination
2. Candidacy Examination
3. Dissertation Defense

### Qualifying Examination

This examination is based on the six required Foundation Core courses of the program. The examination is divided into three parts as follows:

- Part 1: Abstract Algebra with Application, Foundations of Analysis
- Part 2: Applied Mathematics I, Complex Analysis
- Part 3: Introduction to Measure and Probability, Functional Analysis

The Qualifying Examination is a written examination which will be administered twice a year. Students are expected to take the examination 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. A student who passes the Qualifying Examination is admitted to doctoral status. The Qualifying Examination may be attempted no more than twice. A student who fails two or more parts must retake the entire examination. If only one part is failed, the student needs to retake only that part.

As soon as a student is admitted to doctoral status, he/she must select a dissertation advisor. Finding a dissertation advisor is the responsibility of the student and this should be done as soon as possible. In consultation with the dissertation advisor, the student should form an Advisory Committee. The dissertation advisor will be the Chairman 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 his/her individual program. It should be taken at least one year after the Qualifying Examination and prior to the end of the third year following the Qualifying Examination. The Candidacy Examination can be taken at most twice.

### Dissertation Defense

Upon completion of a student's research, his/her 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.

## MUSIC

Lyman Brodie . . . . . Chair  
Office: FA 105A, Phone (407) 823-2869

## MUSIC EDUCATION

### Music Education (M.Ed.)

Contact Person: Dr. Carol Scott-Kassner (407) 823-2874

This program, in cooperation with the Department of Music, is for students who are certified to teach music (K-12). The Master of Education program, organized to increase knowledge and improve teaching skills, includes advanced work in research and educational foundations; a practicum in music education; and courses in foundations of music education, general music, teaching performing organizations and curriculum. Advanced courses in music history, music theory, conducting and performance are included. See the Music Education listing in the College of Education.

## PHYSICS

O. Heinonen . . . . . Graduate Program Coordinator  
Office: HPB 310, Phone (407) 823-2325  
Email: graduate@physics.ucf.edu

M. Bass, Ph.D.	Professor
J. R. Bolte, Ph.D.	Vice Pres of Admin. and Finance and Professor
S. K. Bose, Ph.D.	Professor
J. J. Brennan, Ph.D.	Assistant Chair and Professor
C. D. Caldwell, Ph.D.	Professor
B. Chai, Ph.D.	Professor
L. Elias, Ph.D.	Professor
J. J. Kim, Ph.D.	Professor
R. A. Llewellyn, Ph.D.	Professor
J. E. Neighbor, Ph.D.	Associate Vice Pres for Academic Affairs and Professor
M. C. Richardson, Ph.D.	Professor
W. Silfvast, Ph.D.	Chair and Professor
G. Stegeman, Ph.D.	Cobb-Hooker Eminent Scholar Chair of Optical and Laser Sciences and Engineering
E. W. Van Stryland, Ph.D.	Professor
B. Zeldovich	Professor
J. S. Bolemon, Ph.D.	Associate Professor
L. Chow, Ph.D.	Associate Professor
P. Delfyett	Associate Professor
O. G. Heinonen, Ph.D.	Associate Professor
M. D. Johnson, Ph.D.	Associate Professor
H. P. Saha, Ph.D.	Associate Professor
Weili Luo, Ph.D.	Assistant Professor
R. E. Peale, Ph.D.	Assistant Professor
R. L. Renken, Ph.D.	Assistant Professor
A. Schulte, Ph.D.	Assistant Professor
I. Kimel, Ph.D.	Adjunct Professor
N. Ying, Ph.D.	Adjunct Professor

### Joint Appointees:

M. J. Soileau, Ph.D. . . . . Dir. CREOL and Prof., Electrical Engineering  
K. Beck . . . . . Assistant Professor of Chemistry

### Admission

The Graduate Record Examination (GRE) is required of all applicants. Minimum requirements in order to be considered for admission to the graduate program in Physics are the standard University criteria of a 3.0 (A=4) grade point average (GPA) for the last 60 semester hours of credit earned towards the baccalaureate or a GRE score of at least 1000 on

the combined verbal-quantitative sections of the General (Aptitude) Test. The GRE subject test in Physics is required for admission to the doctoral program. All admissions to graduate status are competitive and based on availability of faculty for sponsoring research. Students entering the graduate program with regular status are normally expected to have completed course work generally required for a Bachelor's Degree in Physics, including mechanics, electricity and magnetism, thermodynamics and quantum mechanics. The admission deadline for the fall semester of each academic year is usually February 15 of the preceding spring, although exceptions may be granted.

### Program in Physics

The Department of Physics offers a Master of Science degree and a Doctor of Philosophy degree. Research opportunities are available in optics, laser physics, electro-optics, atomic and molecular physics, condensed matter physics, biophysics, particle physics, plasma physics, and chemical physics. Many opportunities exist to interact with local high technology industries. Research for a physics degree can also be conducted within the Center for Research and Education in Optics and Lasers (CREOL).

### Master of Science Degree Requirements — PHYSICS

The Master of Science in Physics degree requires a total of 33 semester credit hours, with a minimum of 27 hours of course work and 6 hours of thesis. The course work is divided into core requirements (15 hours) and electives (12 hours). All electives must be approved by the student's advisory committee.

#### Core Courses

			<b>15 Hours</b>
PHY	6246	Classical Mechanics	3 hours
PHY	5524	Statistical Physics	3 hours
PHY	5346	Electrodynamics I	3 hours
PHY	5606	Quantum Mechanics I	3 hours
PHY	6624	Quantum Mechanics II	3 hours

#### Electives

**12 Hours**

A minimum of 3 semester hours must be selected from the following:

PHY	5446	Laser Principles	3 hours
PHZ	5405	Condensed Matter Physics	3 hours
PHZ	5304	Nuclear Physics	3 hours
PHZ	5505	Plasma Physics	3 hours
PHY	6347	Electrodynamics II	3 hours

Courses for teachers do not satisfy elective requirements for the Master's Degree in Physics.

#### Thesis

**6 Hours**

The Master of Science in Physics candidate is required to conduct a program of original scientific research or some other investigation involving a creative element and to submit a written thesis detailing these investigations. An oral defense and examination of the thesis is required.

Total Minimum Semester Hours Required for M.S. in Physics:

**33**

### Doctor of Philosophy Degree Requirements — PHYSICS

A student has the option of either choosing a general physics track or a track in optical physics. Both tracks require a total of 72 hours for completion and specify a set of six (18 hours) required core courses and four (12 hours) electives. A minimum of 15 hours of Dissertation is required; the remaining 27 hours consist of any combination of research, dissertation, or additional course electives. The electives are advanced courses in physics or other fields and are chosen by the student in consultation with the student's advisory committee. At least 3 hours of the electives must be outside the student's research specialty. In addition, each student is required to participate in the Physics Colloquium/Seminar program.

## Core Courses

Regardless of the track, all students are required to take:

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

A student will choose either the General Physics courses or courses in Optical Physics, listed below.

### General Physics

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

### Optical Physics

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

## Elective Courses

PHZ	6115	Theoretical Methods	3 hours
PHY	6448	Specific Laser Systems	3 hours
PHY	6434	Non-linear Optics	3 hours
PHZ	5405	Condensed Matter Physics	3 hours
PHZ	6425	Advanced Condensed Matter Physics	3 hours
PHY	5431	Optical Properties of Materials 1	3 hours
PHZ	6424	Optical Properties of Solids	3 hours
PHY	6667	Advanced Quantum Mechanics	3 hours
PHZ	6204	Atomic and Molecular Spectroscopy	3 hours
PHZ	6156	Advanced Computational Physics	3 hours
PHY	6353	Accelerator Physics	3 hours
PHY	6355	Physics of Free Electrons	3 hours
PHY	6918	Directed Research	3 hours
PHY	6938	Special Topics/Seminars	3 hours
PHZ	5304	Nuclear Physics	3 hours
PHZ	5505	Plasma Physics	3 hours
PHZ	6234	Atomic Physics	3 hours
PHY	6435	Non-Linear Guided Wave Optics	3 hours
PHY	7919	Research	

The courses in the core track not chosen may be used as electives.

Courses titled for teachers do not satisfy elective requirements for the Ph.D. degree in physics.

## Qualifying Examination

Admission into doctoral status is contingent upon passing a qualifying examination consisting of both written and oral portions which cover all material included in the core courses and undergraduate preparation in physics. The written examination is divided into two sections appropriate to each of the above tracks, and also covers statistical mechanics and classical mechanics at the advanced undergraduate level. Typically, students sit for this exam after having completed three semesters of graduate study. The exam may be attempted no more than twice. A student failing at the second attempt may continue toward a Master's Degree.

## Candidacy Examination and Dissertation Proposal

The student writes a proposal of the research planned for his or her dissertation, and is then orally examined on it and the general research area by the dissertation committee. This examination can be attempted anytime after passing the qualifying exam, and after the student has begun research. Typically it should be taken a semester or two after the qualifier. Only after passing the candidacy, the student can register for official dissertation hours (PHY 7980).

## Dissertation Defense

This is the final oral defense of the dissertation. It will be administered by the student's dissertation committee following completion of a written dissertation describing the student's research.

## POLITICAL SCIENCE

Roger Handberg . . . . . Graduate Program Coordinator  
Office: HFA 415, Phone (407) 823-2608

R. Bledsoe, Ph.D. . . . .	Chair and Professor
R. Handberg, Ph.D. . . . .	Professor
W. Q. Morales, Ph.D. . . . .	Professor
T. S. Fine, Ph.D. . . . .	Associate Professor
D. Kiel, Ph.D. . . . .	Associate Professor
J. R. Lilie, Ph.D. . . . .	Associate Professor
S. A. Lilie, Ph.D. . . . .	Associate Professor
P. H. Pollock, Ph.D. . . . .	Associate Professor
M. E. Vittes, Ph.D. . . . .	Associate Professor
G. Hall, Ph.D. . . . .	Assistant Professor
K. Hamann, Ph.D. . . . .	Assistant Professor
R. Kurfurst, Ph.D. . . . .	Assistant Professor

### Master of Arts in Political Science

The Master of Arts in Political Science degree program is designed to accommodate a range of professional and intellectual needs. These include: (1) preparing students to enter positions in government and the private sector in which the ability to comprehend, influence, and respond to government policy is critical; (2) preparing students, through the M.A., for pursuit of a Ph.D. degree in Political Science at other institutions; and, (3) providing a well-rounded substantive curriculum for secondary school teachers seeking higher degrees, and for teachers in community colleges.

### Admission to the Political Science Program

Minimum requirements for admission to UCF as a post-baccalaureate student are outlined in the graduate catalog. In addition, any student wishing to enroll in graduate courses in political science must meet the Department's requirements for Graduate Status (either Classified or Conditional Graduate Status), or must hold regular graduate status in another program at UCF.

Requirements for Classified Graduate Status are:

1. At least 12 semester hours of undergraduate course work in political science, including Scope and Methods of Political Science (POS 3703) or its equivalent. Students must have a grade of B or better in this course work.  
AND
2. 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 Coordinator.  
AND
3. An undergraduate grade point average of at least 3.0 overall.  
OR
4. A combined (quantitative and verbal) GRE score of at least 1000.

Note: All applicants are required to take the GRE. Admission generally will be denied to any applicant whose GRE score is below 850 (quantitative plus verbal), regardless of his or her undergraduate grade point average.

### Conditional Graduate Status

Applicants who are not qualified for Classified 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 classified status. Students holding conditional graduate status must meet the following requirements before applying for classified status:

1. 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.

2. For persons otherwise not qualified for classified graduate status, completion of three graduate courses, with grade B or better.
3. Completion of any other requirements determined by the Graduate Committee and stated on the student's Program of Graduate Study form.

## Master of Arts Degree Requirements — POLITICAL SCIENCE

The Department of Political Science offers students two tracks toward the master's degree. The Political Analysis track provides an in-depth understanding of political life in the American case and in comparative perspective: The nature of institutions, the role of political organizations, and the effect of mass political behavior. The political analysis track is recommended for students who want to enter community college teaching or who wish to seek a doctorate at another institution. The Public Policy track prepares students to handle complex questions arising from key areas of government activity: Issues in science and technology, health and environmental regulation, foreign and defense policy, and other important areas. The public policy track is recommended for students most interested in developing a professional expertise in a policy specialty or who would like to enhance their current sphere of knowledge.

After being admitted (either as classified or conditional), the students must meet with one of the graduate advisors to discuss his or her 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 or the public policy track. Both tracks require 30 semester hours of credit (24 hours of course work plus 6 hours of thesis) and both share these core requirements:

	POS 6746	Quantitative Methods in Political Research	3 hours
	POS 6045	Seminar in American Politics	3 hours
	POS 6007	Seminar in Political Theory	3 hours
	and		
	INR 6007	Seminar in International Politics	
or	CPO 6007	Seminar in Comparative Politics	3 hours
	<b>Total Core Requirements</b>		<b>12 hours</b>

### A program of study in the political analysis track consists of

Core requirements			12 hours
Three special topics courses from:			
	POS 6938	American Politics	3 hours
	POS 6938	Political Theory	3 hours
	INR 6938	International Relations	3 hours
	CPO 6938	Comparative Politics	3 hours
	POS 6938	Political Analysis	9 hours
Electives			3 hours
	POS 6971	Thesis	6 hours
	<b>Total Political Analysis Track</b>		<b>30 hours</b>

### A program of study in the public policy track consists of:

Core requirements			12 hours
	POS 6007	Public Policy Analysis	3 hours
Two special topics courses from:			
	PUP 6938	Science Policy	3 hours
	PUP 6938	Social Policy	3 hours
	PUP 6938	Foreign & Defense Policy	3 hours
		Electives	3 hours
	POS 6971	Thesis	6 hours
	<b>Total</b>		<b>30 hours</b>

The political science seminars provide the common core of knowledge for students in both tracks. The specific subject matter of the topics courses will vary, depending upon the specialization of the instructor or the interests of the students in each track. Upon approval of the Graduate committee, topics courses may be repeated for credit.

Ordinarily, elective credits will be taken within political science. Students wishing to earn elective credits from another department must obtain the approval from the Graduate Committee.

After completion of the 24 hours of course work in their chosen track, a student will form a committee of three advisors and submit a written thesis prospectus which, upon acceptance by the committee, will become a part of the student's permanent file. Guidelines for the prospectus are available from the graduate coordinator. The completed thesis must be submitted to the thesis committee at least eight weeks prior to the date on which the degree is to be awarded. The student will then orally defend the thesis.

**Examination**

All candidates for a master's degree must take a comprehensive written examination. The examination will usually be administered after satisfactory completion of 24 hours. The examination will be based on the political science course work contained in the student's program of study. In addition, all students will be tested in the area of quantitative methods. The examination will be offered two times each academic year, during the final examination period for the Fall and Spring semesters. Students must inform the graduate 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**

*John M. McGuire* . . . . . Graduate Program Coordinator  
Office: PH 309F, Phone (407) 823-2216 . . . . . Clinical Psychology Program

*Wayne A. Burroughs* . . . . . Graduate Program Coordinator  
Office: PH 302K, Phone (407) 823-2216 . . . . . Industrial/Organizational Program

*Richard D. Gilson* . . . . . Graduate Program Coordinator  
Office: PH 302F, Phone (407) 823-2216 . . . . . Human Factors Program

**Psychology Faculty**

- D. W. Abbott, Ph.D.* . . . . . Professor
- W. A. Burroughs, Ph.D.* . . . . . Professor
- R. D. Gilson, Ph.D.* . . . . . Professor
- J. C. Hitt, Ph.D.* . . . . . President and Professor
- J. M. Koonce, Ph.D.* . . . . . Director, CAHFA and Professor
- J. M. McGuire, Ph.D.* . . . . . Professor
- B. B. Morgan, Jr., Ph.D.* . . . . . Associate Dean and Professor
- E. J. Rinalducci, Ph.D.* . . . . . Professor
- J. B. Rollins, Ph.D.* . . . . . Professor
- M. H. Thomas, Ph.D.* . . . . . Interim Chair and Professor
- R. D. Tucker, Ph.D.* . . . . . Professor
- J. J. Turnage, Ph.D.* . . . . . Professor
- B. I. Blau, Ph.D.* . . . . . Associate Professor
- J. C. Brophy, Ph.D.* . . . . . Associate Professor
- R. D. Fisher, Ph.D.* . . . . . Associate Professor
- B. J. Jensen, Ph.D.* . . . . . Associate Professor
- E. C. Shirkey, Ph.D.* . . . . . Associate Professor
- P. M. Tell, Ph.D.* . . . . . Associate Professor
- A. Y. Wang, Ph.D.* . . . . . Associate Professor
- W. Wooten, Ph.D.* . . . . . Associate Professor
- J. L. Dyck, Ph.D.* . . . . . Assistant Professor
- S. S. Houston, Ph.D.* . . . . . Assistant Professor
- J. A. Smither, Ph.D.* . . . . . Assistant Professor
- B. J. Walker, Ph.D.* . . . . . Visiting Assistant Professor

## Admission

The Graduate Record Examination (GRE) is required of all graduate students. In addition to the University minimum admission criterion of a quantitative-verbal score of 1000 on the GRE or a GPA of 3.0 for the last two years of the baccalaureate degree, three standard letters of reference (at least two from academic sources) must be initiated by the student and sent by the reference directly to the department. A departmental admissions committee reviews the student's credentials and may invite a group of candidates for an interview. Final selection is based on both paper credentials and the interview, if held. Admission to the program occurs only in the fall semester.

A completed file, which includes the application, official test scores, letters of reference, and transcripts to date, are due in the department by February 1. (Materials received prior to May 1 may be reviewed for a late admission decision if there are positions available.) Unless there is a complete file by this date, you will not be considered for admission for the forthcoming fall term.

## Competency/Prerequisite Requirements

**Clinical Program.** Applicants must have a baccalaureate degree with a major in Psychology or have completed the following undergraduate psychology content course areas prior to matriculation: Introduction to Psychology; Abnormal Psychology; Developmental Psychology (Life Span preferred) or Child Psychology; Personality Theories; Learning; Physiological Psychology; and a course in Research Methods or Statistics.

**Industrial/Organizational Program.** Applicants must either have a baccalaureate degree with a major in Psychology or a baccalaureate degree and completion of undergraduate psychology courses in statistics and research methods, and four additional upper division courses (12 semester hours) in the core content areas of psychology.

## Master's Degree Programs in Psychology

There are two different Master of Science programs in Psychology.

The Master of Science degree program in Clinical Psychology is concerned with the application of psychological principles to individuals. Major areas of emphasis include assessment or evaluation skills, intervention or counseling and psychotherapy skills, plus an academic foundation in research methods. The program was initiated for the purpose of providing training and preparation at the master's level for individuals desiring to deliver clinical services through community agencies. Graduates have been involved in mental health rehabilitation through individual, marital, family and group psychotherapy, as well as crisis intervention and specialized therapeutic procedures. Graduates have met the education criteria for licensure as mental health counselors in Florida. Coursework includes experiential clinical labs in which some degree of personal self-disclosure is expected in order to fulfill the goals of the training program. Admissions into the clinical masters program is highly competitive with all information that might be available to the committee (e.g., GRE scores, GPA, letters of reference, personal statement, clinical experience, research experience, interview performance, etc.) considered in admissions decisions.

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 which maximize the satisfaction and productivity of employees, and the study of technological influences on human performance.

## Master of Science Degree Requirements — CLINICAL PSYCHOLOGY

The M.S. degree program in Clinical Psychology is a two-year, four-semester program for full-time students with no summer course work. The program consists of a minimum of 50 semester hours of work as follows:



**Academic Course Work****31 Semester Hours**

CLP	6441	Introduction to Individual Psychological Assessment*	3 hours
CLP	6456	Individual Counseling—Theory and Practice*	3 hours
CLP	6457	Group Psychotherapy*	3 hours
CLP	6459	Human Sexuality, Marriage and Sex Therapies*	3 hours
CLP	6932	Ethical and Professional Issues in Mental Health Practice*	3 hours
DEP	5057	Developmental Psychology	3 hours
PSB	6446	Advanced Abnormal and Clinical Psychopharmacology	3 hours
CLP	6460	Introduction to Child, Adolescent, and Family Therapies*	3 hours
PPE	5055	Personality Theories	3 hours
PSY	6216	Advanced Research Methodology I	4 hours

\* Must coregister for the appropriate section of lab.

\*\*Must coregister with CYP 6948.

**Labs****5 Semester Hours**

Must coregister for one hour with each course as shown above.

CLP	6456L	Clinical Lab: Counseling	1 hour
CLP	6457L	Clinical Lab: Group Therapy	1 hour
CLP	6459L	Clinical Lab: Marriage and Sex Therapy	1 hour
CLP	6441L	Clinical Lab: Individual Assessment	1 hour
CLP	6460L	Clinical Lab: Child, Adolescent, and Family Therapies	1 hour

**Internship (See details of program)****6 Semester Hours**

CYP	6948	Psychology Internship	6 hours
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**Treatise (Thesis)****8 Semester Hours**

PSY	6938	Research Planning	1 hour
PSY	6939	Research Planning II	1 hour
PSY	6971	Thesis	6 hours

Total Minimum Semester Hours Required for M.S. in Clinical Psychology: **50**

**Clinical Internship Requirement**

The purpose of the internship requirement is to provide the M.S. candidate in Clinical Psychology with a comprehensive, practical-based experience under direct supervision. A public agency or nonprofit institution offering services to individuals, with nondiscriminatory practices (including ability to assume financial responsibilities) is the prototype. The intern is assigned to an acceptable agency for two consecutive academic semesters (20 hours per semester). An additional commitment of two hours per week is required for the group of interns to meet with a departmental faculty member for review, feedback and discussions. The intern participates in a wide variety of psychological assessment procedures, including intellectual, personality, educational, neuropsychological and differential diagnosis. A major portion of the training is in the area of psychotherapy/counseling.

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

Facilities are provided by the intern or agency for audio and/or video tape recording of selected assessment and intervention experiences. The intern is provided with a system for maintaining an accurate account of his activity during the week. In addition, an Internship Expectation form is completed by the intern and supervisors. A maximum of 20 percent of the training time may be assigned to special services within the agency, or upon approval, in an area of interest to the intern at another facility. Satisfactory completion (grades of "A" or "B") of all first-year clinical coursework, and concurrent registration in all second-year clinical coursework are the pre-requisites for internship placement eligibility, and concurrent registration in all second-year clinical coursework.

## Treatise (Thesis)

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

## Master of Science Degree Requirements — INDUSTRIAL/ORGANIZATIONAL PSYCHOLOGY

The M.S. degree program in Industrial/Organizational Psychology is a four-semester program for full-time students with no summer course work; however, practicum placements and thesis research may be completed in the summer. The program consists of a minimum of 40 semester hours of work. The required courses, which are scheduled primarily in the evenings to accommodate working students, are as follows:

Academic Class Work			26 Semester Hours
INP	6215	Assessment Centers and Leadership	3 hours
INP	6317	Organizational Psychology and Motivation	3 hours
INP	6605	Training and Performance Appraisal	3 hours
INP	6939	Current Topics and Applied Problems in Industrial/Organizational Psychology	3 hours
PSY	6216	Advanced Research Methodology I	4 hours
PSY	6217	Advanced Research Methodology II	4 hours
PSY	6308	Psychological Testing I	3 hours
PSY	6318	Applied Testing and Selection	3 hours
Practica and Labs			6 Semester Hours
INP	6946	Industrial Psychology Practicum I	3 hours
INP	6947	Industrial Psychology Practicum II	3 hours
Treatise (Thesis)			8 Semester Hours
PSY	6971	Treatise (Thesis)	8 hours
Total Minimum Semester Hours Required in M.S. Industrial/Organizational Psychology:			40

## Qualifying Examinations

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

## Practica

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. Practica possibilities generated by the I/O faculty and students may involve settings in private industry, federal, state, or local government, educational institutions, or consulting firms.

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

For each practicum a meeting is held between the student, the supervising faculty member, and a representative of the organization in which the work will be accomplished. Behavioral objectives are agreed upon, and it is expected that the student will carry out these objectives during the assigned time. Each practicum placement is supervised by a faculty member and the student is also responsible to the "contact" person in the organization where the work is occurring. Full-time students are typically assigned practicum projects for the fall and spring terms of their second year.

## Treatise (Thesis)

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

## **Doctor of Philosophy Degree Program**

### **HUMAN FACTORS PSYCHOLOGY**

A Ph.D. professional's degree program in Human Factors Psychology is offered to those with a baccalaureate or master's degree in psychology or an allied area. The program 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 program is designed to meet the accreditation requirements of the Education Committee of the Human Factors and Ergonomics Society. A variety of research, consulting and internship arrangements are included in the program.

Students receive training in the content and techniques of human factors psychology — including statistical and quantitative procedures, experimental design, survey methods, computer techniques and other research methodologies. Students must also select a concentration area, which may be in human-computer interaction, human-machine-environment interface, human performance, human factors in simulation and training or other areas of interest with the advisor's authorization. A dissertation representing a significant research contribution to the field is required.

#### **Admissions Policy**

The Graduate Record Examination (GRE) is required of all applicants. To be considered for acceptance as a regular graduate student, successful applicants are expected to have a minimum cumulative GRE score of about 1100 and an undergraduate GPA of about 3.20 in the last two years of study. However, the final admission criteria will normally be more stringent because of the competitiveness of the application process. Students whose native language is not English will be required to submit scores of at least 550 on the Test of English as a Foreign Language (TOEFL).

In addition, students will not normally be admitted to the program 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:

1. Courses in Research Methods, computer applications, and Statistical Methods.
2. General experimental psychology courses, e.g., Learning, Physiological, Perception, Human Learning, Cognition, Motivation and Measurement.

Applicants will be evaluated for program prerequisites and advised of any needs for additional preparation. Previous graduate work will be evaluated for credit on a case-by-case basis.

#### **Admission Requirements**

To be considered for admission, applicants must present:

1. A completed UCF graduate degree program application form,
2. Evidence of successful completion of undergraduate courses in statistics and in the general area of experimental psychology,
3. Official scores on the Graduate Record Examination (taken within the last five years),
4. Completed transcripts showing a baccalaureate degree (and master's degree, if conferred) and grades for all undergraduate and graduate work,
5. A written statement outlining the student's academic and professional goals, and
6. Three letters of reference, with at least two furnished by college or university professors who are acquainted with the applicant.

A file of all requested material must be submitted by February 1. Acceptance decisions are made only in the Spring semester for admission in the Fall of each year.

#### **Residency Requirements**

A minimum of one year full-time student status is required. (Full-time is defined by UCF as a minimum of 9 hours per semester for two contiguous semesters.) Students are advised that the program is designed to be completed in 3-4 years of full-time study from the baccalaureate level and in 2-3 years from the master's level.

## Required Courses

The Doctor of Philosophy degree in Human Factors Psychology requires a total of 90 semester hours of graduate study. All students must complete both the Psychology core and the Allied areas core.

<b>Fall (Year 1)</b>			<b>13 Semester Hours</b>
EXP	5256	Human Factors I	3 hours
PSY	6216	Advanced Research Methodology I	4 hours
EXP	6506	Human Cognition and Learning	3 hours
PSB	5005	Physiological Psychology	3 hours
<b>Spring (Year 1)</b>			<b>11 Semester Hours</b>
EXP	6257	Human Factors II	3 hours
PSY	6217	Advanced Research Methodology II	4 hours
EXP	5208	Sensation and Perception	3 hours
PSY	6938	Research Planning	1 hour
<b>Summer (Year 1)</b>			<b>6 Semester Hours</b>
EIN	5248C	Ergonomics	3 hours
PSY	6918	Directed Research	3 hours
<b>Fall (Year 2)</b>			<b>12 Semester Hours</b>
EXP	6255	Human Performance	3 hours
INP	6317	Organizational Psychology and Motivation	3 hours
PSY	6918	Directed Research	3 hours
Elective*	3 hours		
<b>Spring (Year 2)</b>			<b>12 Semester Hours</b>
EXP	6946	Internship	6 hours
PSY	6919	Research Report	3 hours
Elective*	3 hours		
<b>Fall (Year 3)</b>			<b>12 Semester Hours</b>
PSY	6919	Research Report	3 hours
EIN	6258C	Ergonomics in High Tech. Environments	3 hours
EXP	6258	Human Factors III	3 hours
Elective*	3 hours		
<b>Spring (Year 3)</b>			<b>12 Semester Hours</b>
EXP	6938	Teaching Seminar	3 hours
PSY	6908	Directed Independent Studies	3 hours
Elective*	3 hours		
Elective*	3 hours		
<b>Fall (Year 4)</b>			<b>6 Semester Hours</b>
PSY	7980	Doctoral Dissertation	6 hours
<b>Spring (Year 4)</b>			<b>6 Semester Hours</b>
PSY	7980	Doctoral Dissertation	6 hours
Total Minimum Semester Hours Required for Ph.D. in Human Factors Psychology: <b>90</b>			

### \*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.

### Mathematic and Computer Skills

Students must demonstrate for graduation proficiency in both mathematics and computer skills; equivalent to first-level calculus and to a programming language beyond basic, respectively.

### Candidacy Examinations

Candidacy examination will be required prior to registering for dissertation courses.

## SOCIOLOGY, APPLIED

*Ida Cook* ..... Graduate Program Coordinator  
Office: FA 405, Phone (407) 823-2227

- D. A. Fabianic, Ph.D.* ..... Professor
- I. J. Cook, Ph.D.* ..... Associate Professor
- D. R. Dees, Ph.D.* ..... Associate Professor
- D. A. Gay, Ph.D.* ..... Associate Professor
- J. P. Lynxwiler, Ph.D.* ..... Associate Professor
- A. D. Carey, Ph.D.* ..... Assistant Professor
- J. Morris, Ph.D.* ..... Assistant Professor
- E. Mustaine, Ph.D.* ..... Assistant Professor

### Catalog Program Description

The Graduate Record Examination (GRE) is required of all applicants. To be considered for acceptance as a regular graduate student, applicants must have a minimum cumulative GRE score of 1000 and an undergraduate GPA of 3.0 or better in the last 60 hours of study. In addition, the Department requires three letters of reference including at least one from an academic source familiar with the applicant's abilities. The Graduate Record Examination scores should be no more than seven years old.

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

### Program in Applied Sociology

The Department of Sociology and Anthropology offers a graduate program leading to the Master of Arts degree in Applied Sociology with an opportunity for concentrated studies in deviant behavior and community policy. A primary focus of the graduate program is to enhance the abilities of the students to apply a sociological perspective and specific analytical skills to research topics in the Central Florida area. 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, 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.

### Master of Arts Degree Requirements — APPLIED SOCIOLOGY

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 options. Both options require 30 hours of course work.

<b>Required Courses</b>			<b>12 Semester Hours</b>
SYA	5625	Proseminar	3 hours
SYA	6126	Social Theory	3 hours
SYA	6305	Social Research	3 hours
SYA	6455	Research Analysis	3 hours

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

**Thesis Option** **Semester Hours**  
 A minimum of six semester hours of thesis credit and a successful defense of a thesis is required. The thesis option is highly recommended for students interested in community college teaching and/or graduate work beyond the Master of Arts Degree.

**Non-Thesis Option** **6 Semester Hours**  
 All of the Department's graduate courses are research oriented seminars; however, in lieu of the thesis, students must take two 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 Advisory Committee.

**Examination Requirements**

**Thesis Option:** **1-8 Semester Hours**  
 Mandatory requirements include the successful completion of a two-part written comprehensive examination and a final oral defense of thesis.

**Non-Thesis Option:**  
 Mandatory requirements include the successful completion of a two-part comprehensive written examination and an additional specialty examination in the selected area of specialization.

Total Minimum Semester Hours Required for an M.A. in Applied Sociology: **30**

**STATISTICAL COMPUTING**

*James R. Schott* . . . . . Graduate Program Coordinator  
 Office: CC II 226, Phone (407) 823-2797

**Statistical Computing Faculty**

- M. E. Johnson, Ph.D.* . . . . . Professor and Chair
- G. D. Richardson, Ph.D.* . . . . . Professor
- J. R. Schott, Ph.D.* . . . . . Professor
- P. N. Somerville, Ph.D.* . . . . . Professor
- L. L. Hoffman, Ph.D.* . . . . . Associate Professor
- D. Nickerson, Ph.D.* . . . . . Associate Professor
- M. Wang, Ph.D.* . . . . . Assistant Professor

**Admission**

The Graduate Record Examination (GRE) is required of all graduate students. Minimum requirements in order to be considered for admission to the graduate program in Statistical Computing are the standard University criteria of a grade point average (GPA) of 3.0 for the last 60 semester hours of credit earned towards the baccalaureate or a GRE score of at least 1000 on the combined verbal-quantitative sections of the General (Aptitude) Test. The GRE score must be less than five years old. Students entering the graduate program should have a good working knowledge of at least one programming language, and should have taken undergraduate courses in calculus, matrices (or linear algebra), and statistical methods. Those students who are not adequately prepared in these areas may need to complete some undergraduate coursework before beginning their graduate program.

Applicants not qualified for regular graduate status may be initially admitted to the University in post-baccalaureate status and later admitted to regular status once all deficiencies have been eliminated.

## Program in Statistical Computing

The program provides a sound foundation in statistical theory, statistical methods, numerical methods in statistical computing, and in the application of computer methodology to statistical analyses. The program is particularly well-suited for those individuals who have completed an undergraduate program in mathematics, statistics, or computer science, but is also available to persons in other disciplines who wish to develop an expertise in data analysis and statistical computing. Most graduate courses are offered during the late afternoon or evening hours in order to accommodate part-time and working students.

## Master of Science Degree Requirements — STATISTICAL COMPUTING

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

### Required Courses

		<b>21 Semester Hours</b>	
STA	6236	Regression Analysis	3 hours
STA	5205	Experimental Design	3 hours
STA	6326	Theoretical Statistics I	3 hours
STA	6327	Theoretical Statistics II	3 hours
STA	6329	Statistical Applications of Matrix Algebra	3 hours
STA	6246	Linear Models	3 hours
STA	6106	Statistical Computing I	3 hours

### Restricted Electives

**15 Hours**

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

### Examination

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

Total Minimum Semester Hours Required for an M.S. Statistical Computing: **36**





## COURSE OFFERINGS

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

- AMH 5116 AS 3(3,0)  
Colloquium in U.S. Colonial History
- AMH 5137 AS 3(3,0)  
Colloquium in U.S. Revolutionary Period
- AMH 5149 AS 3(3,0)  
Colloquium in Early U.S. History, 1789-1815
- AMH 5169 AS 3(3,0)  
Colloquium in the Age of Jackson
- AMH 5176 AS 3(3,0)  
Colloquium in Civil War and Reconstruction
- AMH 5219 AS 3(3,0)  
Colloquium in Late 19th Century U.S.
- AMH 5296 AS 3(3,0)  
Colloquium in 20th Century U.S.
- AMH 5391 AS 3(3,0)  
Colloquium in U.S. Cultural History
- AMH 5407 AS 3(3,0)  
Colloquium in the American South
- AMH 5446 AS 3(3,0)  
Colloquium in U.S. Frontier
- AMH 5508 AS 3(3,0)  
Colloquium in Women in American History.
- AMH 5515 AS 3(3,0)  
Colloquium in U.S. Diplomatic History: May be repeated for credit when content is different.
- AMH 5937 AS 3(3,0)  
AP American History: Participants will enhance their knowledge of weighing evidence and interpretations presented in historical scholarship with respect to the social, cultural, intellectual, economic, and political-diplomatic history of the U.S.
- AMH 6939 AS 3(3,0)  
Seminar in U.S. History: May be repeated for credit when content is different.
- AML 5156 AS 3(3,0)  
Modern American Poetry: Study of trends, modes, major figures (Eliot, Pound, H.D., Stevens, Hart Crane, Moore, W.C. Williams, etc.) within the Modernist movement in American Poetry.
- ANT 5479 AS 3(3,0)  
Comparative Cultural Analysis: The dynamics of cultural processes in a multi-ethnic setting.
- ARE 5251 ED 3(2,1)  
Art for Exceptionalities: Concepts, principles, and methods of integrating art processes into the education of the physically, emotionally, and mentally handicapped.
- ARE 5454 ED 3(3,0)  
Found Arts: PR: ARE 4440 and ARE 4443 or C.I. Materials available for instruction in the public schools will be explored in depth in relation to their appropriateness and productive qualities.

- ARE 5648** **ED 3(3,0)**  
**Contemporary Visual Arts Education:** PR: ARE 4443 or C.I. Continued study of current programs and innovations in public school Visual Arts Programs.
- ARE 6195** **ED 3(2,1)**  
**Teaching Art Appreciation With Interdisciplinary Strategies:** PR: Grad. Status and public school teaching experience. This course will focus on the examination of art appreciation examples & concepts toward planning curriculum (interdisciplinary for the study of art history, criticism and aesthetics).
- ARE 6666** **ED 3(2,1)**  
**Arts Advocacy:** The content of this course will deal with the study and development of plans to produce arts advocacy programs for the public school system.
- ARE 6971**  
**Treatise**
- ARH 5451** **AS 3(3,0)**  
**Artistic Worldviews:** PR: Post-bac status, nine hours of art courses or C.I. Art from individual and cultural perspectives of varying ethnic, religious, occupational, regional, and generational groups.
- ARH 5454** **AS 3(3,0)**  
**Found Arts:** PR: C.I. Materials available for instruction in the public schools will be explored in depth in relation to their appropriateness and productive qualities.
- ARH 5478** **AS 3(3,0)**  
**Contemporary Women Artists:** PR: Six credits of art courses or C.I. An indepth study on contemporary women artists from a feminist perspective.
- ARH 5893** **AS 3(3,0)**  
**Critical Perspectives on Women Artists:** The cultural forces influencing women artists, and how those artists have been constrained or misrepresented by the language of art or by art history.
- ARH 5933** **AS 3(3,0)**  
**Seminar in African & African-American Arts:** 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.
- ART 5109C** **ED 3(2,1)**  
**Crafts Design:** Crafts design and production, including the use of rigid, flexible, and linear materials.
- ART 5109C** **AS 3(3,0)**  
**Multi-Cultural Crafts Design:** The content of this course will include an appreciation for and the production of Western and Non-Western art forms.
- BOT 5495C** **AS 3(2,3)**  
**Bryology:** PR: BOT 4303C or C.I. A lecture-laboratory survey course on the diversity and classification of mosses, liverworts and hornworts with special emphasis on those found in Florida.
- BOT 5686** **AS 4(3,3)**  
**Conservation and Management of Native Plants:** PR: BOT 4713C, PCB 3043 and/or BOT 4503C or C.I. Identification, conservation, propagation and management of Florida rare, endangered, indicator or reclamation species.
- BOT 5705C** **AS 4(3,2)**  
**Plant Biosystematics:** PR: Graduate standing or C.I. Evolutionary processes among plant taxa and populations utilizing cytology, morphology, biochemistry, breeding systems, and co-evolution.
- BOT 6146C** **AS 4(2,6)**  
**Terrestrial Vegetation:** PR: 8 hours in biological sciences or science teaching experience or C.I. Classification and identification among terrestrial plant groups and their natural association in the field. Major reference sources reviewed.
- BSC 5034** **AS 3(3,0)**  
**Biology and Society:** PR: C.I. Biological concepts applied to current human problems-food production, pollution, diseases, energy, life support systems, natural eco systems. Designed for teachers.

- BSC 5939** **AS 3(3,0)**  
**Biology for AP Teachers:** Participants will perform and evaluate the 12 required labs, analyze the design and grading of the Exam, and develop a representative program.
- BSC 6909** **AS 2**  
**Research Report**
- BSC 6938** **AS 1-3**  
**Biology Seminar**
- BSC 6950** **AS 3(3,0)**  
**Biological Research Resources:** PR: Graduate Status. Research methodology including literature resources, problem conceptualization, research proposals, data collection, and analysis and presentation of findings.
- BSC 6971** **AS 1-6**  
**Thesis**
- CAP 5415** **AS 3(3,0)**  
**Computer Vision:** PR: COP 3530. Image formation, binary vision, region growing and edge detection, shape representation, dynamic scene analysis, texture, stereo and range images, and knowledge representation.
- CAP 5610** **AS 3(3,0)**  
**Machine Learning:** 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 humans and computers.
- CAP 5636** **AS 3(3,0)**  
**Advanced Artificial Intelligence:** PR: CAP 4630. A theory of knowledge representation, the expert systems, memory organization, problem solving, learning, planning, vision and natural language.
- CAP 5725** **AS 3(3,0)**  
**Computer Graphics Systems 1:** PR: COP 3530. Architecture of graphics processors; display hardware; principles of programming and display software; problems and applications of graphic systems.
- CAP 6411** **AS 3(3,0)**  
**Computer Vision Systems:** PR: CAP 5410. Recent Systems contributing towards recognition, reasoning, knowledge representation, navigation, and dynamic scene analysis. Comparisons, enhancements and integrations of such systems.
- CAP 6412** **AS 3(3,0)**  
**Advanced Computer Vision:** PR: CAP 5410. Design of High-fidelity, high-performance algorithms for visual navigations rigid and non-rigid object modelling and recognition, combining activity with perception, and visual reasoning.
- CAP 6613** **ED 3(0)**  
**Utilizing Microcomputers in Education:** Instruction in microcomputers emphasizing applications of software in the classroom and for school record keeping.
- CAP 6640** **AS 3(3,0)**  
**Computer Understanding of Natural Language:** PR: CAP 5601. A study of the different approaches to build programs to "understand" natural language. The theory of parsing, knowledge representation, memory and inference will be studied.
- CAP 6671** **AS 3(3,0)**  
**Intelligent Systems:** PR: CAP 5610. Study of computer systems exhibiting intelligent attributes, particularly learning; basic concepts related to characteristics, capabilities, design and principles of operation; discussion of relevant philosophical/social issues.
- CAP 6676** **AS 3(3,0)**  
**Knowledge Representation:** PR: CAP 5636. Topics covered include: terminological languages, logicist approaches, ontologies, ontological and conceptual relativity, processes, intangibles, time, building large knowledge bases and complexity analysis.

- CAP 6701** **AS 3(3,0)**  
**Computer Graphic Systems II:** PR: CAP 5725. Modeling design and analysis of graphics systems; data structures, numerical techniques, algorithms and optimum seeking methods for various problems in computer graphics.
- CAP 6918** **AS 3**  
**Research**
- CAP 7919** **AS 3**  
**Doctoral Research**
- CAP 7980** **AS 3**  
**Doctoral Dissertation**
- CDA 5106** **AS 3(3,0)**  
**Advanced Computer Architecture 1:** PR: CDA 4150. Evolution of computer architecture; memory organization; cache; virtual memory; high speed processor design; pipeline multi-functional and array machines; special architecture case studies; overview of channel architecture.
- CDA 5110** **AS 3(3,0)**  
**Parallel Architecture & Algorithms:** PR: COT 4210, CDA 5106. General-purpose vs. special-purpose parallel computers; arrays; messagepassing; shared-memory; taxonomy; parallization techniques; communication, synchronization and granularity; parallel data structures; automatic program restructuring.
- CDA 5215** **AS 3(3,0)**  
**Architecture and Design of VLSI:** PR: CDA 4150 or equivalent. Overview of VLSI technology. Logical design of basic subsystems; integrated system design tools; design of a VLSI computer system.
- CDA 6107** **AS 3(3,0)**  
**Advanced Computer Architecture II:** PR: CDA 5106. Multiprocessor systems; interconnection network; stack architectures; high-level language architecture; design languages; performance evaluation.
- CDA 6108** **AS 3(3,0)**  
**Selected Topics in Computer Architecture:** PR: CDA 5106. Selected research papers on multiprocessors, data base machines, virtual machines, ultracomputer, connection machine, MPP, Butterfly flow architectures, object-based architectures, faulttolerant architectures.
- CDA 6211** **AS 3(3,0)**  
**VLSI Algorithms and Architecture:** PR: CDA 5210. VLSI algorithms, algorithms on regular geometries, hierarchically organized machines; illustrative algorithms: Matrix, DFT, recurrence evaluation, pattern matching, searching, sorting, graph, etc.; area-time complexity issues.
- CDA 6501** **AS 3(3,0)**  
**Computer Communications Networks Architecture:** PR: CDA 5106. Introduction to networking; architecture of circuit, message and packet switching networks; local computer networks architecture; modems, protocols.
- CDA 6520** **AS 3(3,0)**  
**Computer Networks Design and Distributive Processing:** PR: CDA 6501 and COP 5611. Computer communications networks design considerations, network operating system, distributive processing.
- CDA 6919** **AS 3**  
**Research**
- CDA 7919** **AS 3**  
**Doctoral Research**
- CDA 7980** **AS 3**  
**Doctoral Dissertation**
- CEN 5610** **AS 3(3,0)**  
**Software Engineering:** PR: COP 4020 and knowledge of ADA. Study of design techniques for large software systems, modularization, task assignment, management techniques, implementation techniques, testing, quality control, documentation and maintenance.
- CHM 5225** **AS 3(3,0)**  
**Advanced Organic Chemistry I:** PR: CHM 3211. Theoretical and physical organic concepts of organic systems from the perspective of modern structural theory, thermodynamics and kinetics.

- CHM 5226** **AS 3(3,0)**  
**Advanced Organic Chemistry II:** PR: CHM 3211. A survey of organic reaction mechanics and their application to synthetic chemistry.
- CHM 5235** **AS 3(3,0)**  
**Applied Molecular Spectroscopy:** PR: CHM 3120C and CHM 3211. Determination of chemical structure through interpretation of U.V, IR, NMR and Mass Spectra.
- CHM 5305** **AS 3(3,0)**  
**Applied Biological Chemistry:** PR: CHM 3211. The identification from plants, synthesis, assessment of bioactivity, and design of pharmaceuticals and agrochemicals, as well as the impact of biotechnology in the chemical industry.
- CHM 5450** **AS 3(3,0)**  
**Polymer Chemistry:** PR: CHM 3211. An introduction to the chemistry of synthetic polymers. Synthetic methods, polymerization mechanisms, characterization techniques and polymer properties will be considered.
- CHM 5451** **AS 2(0,6)**  
**Polymer Chemistry Laboratory:** PR: CHM 3211 and CHM 3410. A laboratory course designed to introduce students to the major polymerization mechanisms. Polymers synthesized in the laboratory will be characterized using modern instrumental methods.
- CHM 5580** **AS 3(3,0)**  
**Advanced Physical Chemistry:** CR: CHM 3411 and PR: MAC 3313. Selected topics of thermodynamics, kinetics, quantum mechanics, and structure.
- CHM 5711** **AS 2(2,0)**  
**The Chemistry of Materials:** PR: CHM 3211, CHM 4130C, and CHM 3411. Structure and properties of chemical products with an emphasis on the correlation between molecular form and the functional properties deemed desirable for the product.
- CHM 6440** **AS 2(2,0)**  
**Kinetics and Catalysis:** PR: CHM 3411 or equivalent. Classical kinetics with an emphasis on industrial applications and current catalysis methodologies.
- CHM 6710** **AS 2(2,0)**  
**Applied Analytical Chemistry:** PR: CHM 3211, CHM 4130C, and CHM 3411 or equivalent. Concepts in molecular structure that integrate structural, physical, and chemical properties with aspects of industrial and analytical chemistry.
- CHM 6938** **AS 1**  
**Seminar**
- CHM 6971** **AS 1-6**  
**Thesis**
- CHS 5262** **AS 2(2,0)**  
**Industrial Chemical Processes:** PR: CHM 3211 and 3411. Familiarization with basic considerations of large-scale inorganic and organic chemical manufacturing techniques, raw materials, and the petrochemical industry.
- CHS 6240** **AS 2(2,0)**  
**Chemical Thermodynamics:** PR: CHM 3411 or equivalent. Classical and statistical thermodynamics with emphasis on industrial applications and estimation methods.
- CHS 6251** **AS 2(2,0)**  
**Applied Organic Synthesis:** PR: CHM 3211, 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.
- CHS 6260** **AS 2(2,0)**  
**Chemical Unit Operations and Separations:** PR: C.I. A study of the elements and dynamics that are fundamental to industrial separation methods and transport processes.

- CHS 6261** **AS 2(2,0)**  
**Chemical Process and Product Development:** PR: C.I. Development of chemical products and processes including the determination of technical economic feasibility; use of experiment design in the optimization of variables and scale-up methods.
- CIS 5105** **AS 3(3,0)**  
**Computational Techniques in Management Information Systems:** PR: COP 4710. The role of computers in management information systems; analysis, design approaches, processing methods and data management; use of state-of-the-art software in design and development.
- CLP 5004**  
**Psychology of Adult Adjustment:** PR: C.I. A survey of situations encountered during adulthood, including marriage, birth, parenthood, trauma, illness, death, etc. Effective adjustment.
- CLP 5166** **AS 3(3,0)**  
**Advanced Abnormal Psychology:** PR: C.I. Consideration of classification, causation, management and treatment of emotional disorders. Review of theories and research in the field.
- CLP 6416** **AS 4(2,2)**  
**Biofeedback and Stress:** PR: Graduate admission and C.I. Assessment and management of physiological stress response through biofeedback. Biofeedback treatment of stress produced clinical problems.
- CLP 6441** **AS 3(3,0)**  
**Introduction to Individual Psychological Assessment:**\* PR: Graduate admission and C.I. Theories and techniques of psychological assessment with emphasis on intake interviewing, cognitive and personality assessment and report writing.
- CLP 6441L** **AS 1(0,2)**  
**Clinical Lab — Individual Assessment:** C.I. Practice in specific techniques in individual assessment. To be taken concurrently with CLP 6441.
- CLP 6445** **AS 3(3,0)**  
**Psychological Theory and Assessment:**\* PR: CLP 6441, Graduate admission and C.I. Theories of personality and techniques of personality assessment with primary emphasis on interviewing skills, objective and projective techniques, and report writing.
- CLP 6445L** **AS 1(0,2)**  
**Clinical Lab — Personality Assessment:** C.I. Practice in specific techniques in personality assessment. To be taken concurrently with CLP 6445.
- CLP 6456** **AS 3(2,2)**  
**Individual Counseling — Theory and Practice:**\* PR: Graduate admission and C.I. Introduction to Counseling Theory. Experiential Laboratory.
- CLP 6456L** **AS 1(0,2)**  
**Clinical Lab — Counseling:** C.I. Practice in specific techniques in counseling. To be taken concurrently with CLP 6456.
- CLP 6457** **AS 3(2,2)**  
**Group Psychotherapy:**\* PR: CLP 6456, Graduate admission and C.I. Group counseling: Theory and Process. Experiential Group Laboratory.
- CLP 6457L** **AS 1(0,2)**  
**Clinical Lab: Group Therapy:** C.I. Practice in specific techniques in group therapy. To be taken concurrently with CLP 6457.
- CLP 6458** **AS 3(2,2)**  
**Behavior Therapy:**\* PR: CLP 6456, Graduate admission and C.I. Introduction to the principles and procedures of behavior modification as a clinical intervention technique.
- CLP 6458L** **AS 1(0,2)**  
**Clinical Lab: Behavior Therapy:** C.I. Practice in specific techniques in behavior therapy. To be taken concurrently with CLP 6458.
- CLP 6459** **AS 3(3,0)**  
**Human Sexuality, Marriage, and Sex Therapies:**\* PR: CLP 6456, CLP 6456L, Graduate admission and C.I. A survey of human sexuality, theory and practice of marriage and sex therapy.

- CLP 6459L** AS 1(0,2)  
**Clinical Lab — Marriage and Sex Therapy:** CLP 6456, CLP 6456L, Concurrently with CLP 6459, Graduate Admission and C.I. Practice in specific techniques in marriage and sex therapy.
- CLP 6460** AS 3(3,0)  
**Introduction to Child, Adolescent, and Family Therapies:** PR: CLP 6456; CLP 6456L, GA & C.I. A survey of theories and practices of child, adolescent and family therapies.
- CLP 6460L** AS 1(0,2)  
**Clinical Lab, Child, Adolescent, and Family Therapies:** PR: CLP 6456; CLP 6456L, taken concurrently with CLP 6460, GA, C.I. Practice in specific techniques in child, adolescent and family therapies.
- CLP 6932** AS 3(3,0)  
**Ethical and Professional Issues in Mental Health Practices:**\* PR: Graduate admission, C.I. Examination of codes of ethics, laws, and professional standards in the mental health field.
- COM 6121** AS 3(3,0)  
**Communication Management:** Analysis and development with reference to particular media. Organizational theory, structure and behavior. Management principles and operations.
- COM 6303** AS 3(3,0)  
**Communication Research 1:** Analysis of theory and methodology in communication research, with emphasis on persuasion, nonverbal communication, and interpersonal communication.
- COM 6304** AS 3(3,0)  
**Communication Research II:** PR: Statistics and COM 6303. Planning and implementation of research in persuasion, nonverbal communication, and interpersonal communication.
- COM 6468** AS 3 (3,0)  
**Communication & Conflict:** Research seminar in the study of communication and conflict.
- COM 6908** AS 1-3  
**Independent Study**
- COM 6918** AS 1-3  
**Research**
- COM 6971** AS 4(4,0)  
**Thesis**
- COP 5021** AS 3(3,0)  
**Program Analysis:** 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.
- COP 5570** AS 3(3,0)  
**Software Tools:** PR: COP 4600 and COP 5021. Systems programming languages, concurrent programming, design and implementation of software development/maintenance tools. A large programming project is required.
- COP 5611** AS 3(3,0)  
**Operating Systems Design Principles:** PR: COP 4600. Structure and functions of operating systems, process communication techniques, high-level concurrent programming, virtual memory systems, elementary queueing theory, security, distributed systems, case studies.
- COP 5711** AS 3(3,0)  
**Principles of Data Base Systems:** PR: COP 4710. Physical data organizations, popular data base systems, data models, reorganization, security, recovery, concurrency, distributed data bases, data base machines.
- COP 6614** AS 3(3,0)  
**Operating Systems Techniques:** PR: COP 5611. Techniques in the design and implementation of operating systems. Case studies of several experimental and commercial operating systems.
- COP 6615** AS 3(3,0)  
**Operating Systems Theory:** PR: COP 5611. Scheduling and queueing theory, simulation, and performance evaluation of computer systems.

- COP 6621** **AS 3(3,0)**  
**Compiler Construction:** PR: COP 5021, COT 5310. Techniques in the design and implementation of compilers. Optimization, code generation, error recovery, attributed grammars. A project is required.
- COP 6730** **AS 3(3,0)**  
**Data Base System Techniques:** Recent and/or more advanced developments in data base systems (e.g., recovery protocols, concurrency control schemes, query processing techniques, user interfaces, expert data base systems.)
- COP 6731** **AS 3(3,0)**  
**Data Base System Theory:** PR: COP 5711. Theoretic aspects of data bases (e.g., relational data theory, security models, data models, performance optimization.)
- COP 6918** **AS 3**  
**Research**
- COP 7919** **AS 3**  
**Doctoral Research**
- COP 7980** **AS 3**  
**Doctoral Dissertation**
- COT 5310** **AS 3(3,0)**  
**Formal Languages and Automata Theory:** PR: COP 4020 and COT 4210. Classes of formal grammars and their relation to automata, normal forms, closure properties, decisions problems, LR(k) grammars.
- COT 5405** **AS 3(3,0)**  
**Design and Analysis of Algorithms:** PR: COT 4210 and COT 4110. Classifications of algorithms, e.g., recursive, divide-and-conquer, greedy, etc. Data structures and algorithm design and performance. Time and space complexity analysis.
- COT 5507** **AS 3(3,0)**  
**Computational Methods/Applications:** PR: COT 4500. Computational solution techniques for algebraic equations, ODE and PDE models of applications selected from science, engineering, applied mathematics and computer science.
- COT 5515** **AS 3(3,0)**  
**Computational Methods/Linear Systems:** PR: COT 4500 and MAS 3113. Mathematical models for linear systems, linear programming, the simplex method, integer and mixed-integer programming, introduction to nonlinear optimization and linearization.
- COT 5520** **AS 3(3,0)**  
**Computational Geometry:** PR: COT 5405 Design and Analysis of Algorithms. Geometric Searching. Point location. Convex Hulls. Proximity problems. Voronoi Diagrams. Spanning Trees. Triangulation. Intersections Arrangements Applications.
- COT 6300** **AS 3(3,0)**  
**The Theory of Parsing and Translation:** PR: COT 5310. Methods of top-down and bottom-up parsing, LL(k), recursive descent, precedence, bounded-context, SR(s,k), SLR(k), LALR(k), LR(k), parser compression and generation.
- COT 6410** **AS 3(3,0)**  
**Computational Complexity:** PR: COT 5405. Properties of algorithms, computational equivalence of machines, time-space complexity measures, examples of algorithms of different complexity, classification of algorithms, classes P and NP.
- COT 6415** **AS 3(3,0)**  
**Complexity of Parallel Computation:** PR: CDA 5110, COT 6410. Theoretical models — justification and buildability inherent parallelism and communication costs. Lower and upper complexity bounds. Parallel computation thesis. NC, SC classes; paradigms of parallel algorithms.
- COT 6505** **AS 3(3,0)**  
**Computational Methods/Analysis I:** PR: COT 5515. Analysis of direct and iterative solutions of systems of linear equations, eigenvalues and vectors and roots of nonlinear equations, error analysis.



- COT 6506** **AS 3(3,0)**  
**Computational Methods/Analysis II:** PR: COT 6505. Analysis of numerical methods for approximation, integration and solution of ordinary differential equations. Lagrange polynomials, splines, Gaussian quadrature, Fourier series. Stability and illconditioning. Error analysis.
- COT 6918** **AS 3**  
**Research**
- COT 7919** **AS 3**  
**Doctoral Research**
- COT 7980** **AS 3**  
**Doctoral Dissertation**
- CPO 6007** **AS 3(3,0)**  
**Seminar in Comparative Politics.** Introduction to the theory and methodology of comparative politics, institutions, and contextual factors of selected political systems such as Canada, European, and third world nations.
- CRW 5004** **AS 3(3,0)**  
**Graduate Writers' Workshop:** Student writers present their own work, receiving detailed analysis of its strengths and weaknesses from their fellow writers and from the teacher.
- CRW 5932** **AS 3(2,1)**  
**Teaching Creative Writing:** Creative writing practicum. May be repeated for credit.
- CRW 6009** **AS 3(3,0)**  
**Graduate Writing Workshop:** PR: Admission to the Creative Writing Specialization of the English M.A. program. Writing and revising in one established form. Graduate Writing Workshop must be taken three times (for a total of 9 hours) in order to produce a book-length manuscript (fiction, poetry, or other genre). May be repeated for credit.
- CYP 6948** **AS 3(2,20)**  
**Psychology Internship:** PR: Graduate admission, second year status and C.I. Supervised placement in community setting for 8-20 hours per week. (May be repeated for credit.)
- DEP 5057** **AS 3(2,2)**  
**Developmental Psychology:** PR: Graduate admission or C.I. Psychological aspects of development including intellectual, social, and personality factors.
- EAB 5765** **AS 3(3,0)**  
**Applied Behavior Analysis with Children and Youth:** PR: DEP 5057 and EXP 5445 or C.I. Advanced survey of principles, procedures and techniques of applied behavior analysis, with special attention to applications with children and youth.
- ELD 6944** **AS 1(0,1)**  
**Diagnostic Learning-Disabilities Laboratory:** A laboratory designed for individual competence measurement of testing-evaluation skills. Must be scheduled concurrently with ELD 6112, Foundations and Diagnosis of LD.
- ENC 5214** **AS 3(3,0)**  
**Production and Publication Methods:** Theory and practice of production and publication methods for technical writers.
- ENC 5219** **AS 3(3,0)**  
**Graphics in Technical Writing:** A study of the creation and editing of graphics in technical documents.
- ENC 5261** **AS 3(3,0)**  
**Technical Writing, Theory and Practice:** Study of major trends in technical communication theory and the practices this theory generates.
- ENC 5306** **AS 3(3,0)**  
**Persuasive Writing:** Theory and practice of writing persuasively.
- ENC 5337** **AS 3(3,0)**  
**Modern Rhetorical Theory:** With special attention to the rhetor-audience relationship, the course studies history and practice of modern rhetorical theory.

- ENC 5344** **AS 3(3,0)**  
**Proposal Writing:** Theory and practice of writing proposals.
- ENC 5372** **AS 3(2,1)**  
**Theory and Practice in Composition:** PR: Senior standing or C.I. Intensive study of theories of composition, with practical experience in the writing laboratory and in composition classes.
- ENC 6217** **AS 3(3,0)**  
**Technical Writing:** Study of language, style, mechanics, graphics, and management necessary for technical editing.
- ENC 6244** **AS 3(3,0)**  
**Teaching Technical Writing:** The techniques and theories of teaching technical writing.
- ENC 6292** **AS 3(3,0)**  
**Project Management for Technical Writers:** Managing a writing project from inception to production: planning, budgeting, personnel, writing and editing.
- ENC 6296** **AS 3(3,0)**  
**Computer Documentation:** The theory and practice of producing software documentation from planning through production.
- ENG 5009** **AS 3**  
**Graduate Research in English:** A study of the aims and methods of literary scholarship and research.
- ENG 5018** **AS 3(3,0)**  
**Literary Criticism:** Historical survey of major critics from classical antiquity to the modern era.
- ENL 5226** **AS 3(3,0)**  
**English Renaissance Poetry and Prose:** PR: Senior standing or C.I. The course will examine selected poetry and prose of Wyatt, Surrey, Sidney, Spenser, Marlowe, Raleigh, Daniel, Shakespeare, Chapman, Lyly, and others.
- ENL 5237** **AS 3(3,0)**  
**Eighteenth Century Studies.** Readings, analysis, and discussion of literature in English: 1660-1880.
- ENL 5335** **AS 3(3,0)**  
**Studies in Shakespeare:** Representative plays with emphasis on Shakespeare's development as an artist: aesthetics of dramatic literature.
- ENL 5347** **AS 3(3,0)**  
**The Age of Milton:** Emphasis on the non-dramatic works of John Milton. Selections from the non-dramatic works of other 17th Century figures.
- NOTE:** All EUH graduate colloquia listed below require intensive reading in the literature of a given field, class discussions, and the preparation of papers. The prerequisites for 5000-level courses are senior standing and the consent of the instructor. All seminars listed below involve supervised research and the writing of term papers. The consent of the instructor is required for every seminar.
- EUH 5237** **AS 3(3,0)**  
**Colloquium in Europe from 1815-1848**
- EUH 5238** **AS 3(3,0)**  
**Colloquium in Europe from 1848-1914**
- EUH 5247** **AS 3(3,0)**  
**Colloquium in Europe from 1919-1939**
- EUH 5285** **AS 3(3,0)**  
**Colloquium in Europe Since World War II**
- EUH 5371** **AS 3(3,0)**  
**Colloquium in Spanish History**
- EUH 5546** **AS 3(3,0)**  
**Colloquium in British History:** May be repeated for credit when content is different.

<b>EUH 5579</b> <b>Colloquium in Soviet Russia</b>	<b>AS 3(3,0)</b>
<b>EUH 5595</b> <b>Colloquium in Czarist Russia</b>	<b>AS 3(3,0)</b>
<b>EUH 5608</b> <b>Colloquium in European Intellectual History</b>	<b>AS 3(3,0)</b>
<b>EUH 6939</b> <b>Seminar in European History: May be repeated for credit when content is different.</b>	<b>AS 3(3,0)</b>
<b>EXP 5208</b> <b>Sensation and Perception: PR: C.I. A study involving the human information processing with regard to physical and psychological variables in sensory and perceptual phenomena.</b>	<b>AS 3(3,0)</b>
<b>EXP 5256</b> <b>Human Factors I: PR: None. Survey of human factors literature. Introduction to topics including human capabilities and human interfaces with human-machine systems.</b>	<b>AS 3(3,0)</b>
<b>EXP 5257</b> <b>Human Factors II: PR: EXP 5256 (HFI). The second in the series of basic human factors courses involving an in-depth examination of issues.</b>	<b>AS 3(3,0)</b>
<b>EXP 5258</b> <b>Human Factors III: PR: EXP 5256 (HF1). EXP 6257 (HF2). 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.</b>	<b>AS 3(3,0)</b>
<b>EXP 6126</b> <b>Psychoacoustics: PR: Graduate standing. The psychology, physics, and physiology of hearing and the auditory system.</b>	<b>AS 3(3,0)</b>
<b>EXP 6255</b> <b>Human Performance: PR: C.I. Human performance dimensions and concepts of assessment of human capabilities; performance acquisition, information processing and decision making; applications of principles to understanding of stress and performance effectiveness.</b>	<b>AS 3(3,0)</b>
<b>EXP 6506</b> <b>Human Cognition and Learning: PR: EXP 3404 and EXP 3513. Research and theory relating to attention, memory, problem solving and reasoning.</b>	<b>AS 3(3,0)</b>
<b>EXP 6938</b> <b>Teaching Seminar: PR: C.I. Orientation to and supervision in teaching assigned courses.</b>	<b>AS 3(3,0)</b>
<b>EXP 6946</b> <b>Human Factors Internship: PR: EXP 5256, EXP 6257, PSY 6216, PSY 6217, EXP 6255, INP 6330. Supervised placement in an industrial, governmental, or consulting setting. Student completes a specific project under the supervision of an organizational sponsor and a faculty member.</b>	<b>AS 8(0,12)</b>
<b>HIS 6159</b> <b>Historiography: Selected topics in the study of history. May be repeated for credit on consent of instructor.</b>	<b>AS 3(3,0)</b>
<b>HIS 6946</b> <b>Teaching Practicum: Student observation, participation, direction, and leadership in a college survey course.</b>	<b>AS 3(3,0)</b>
<b>HIS 6971</b> <b>Thesis</b>	<b>AS 1-6(1-6,0)</b>
<b>INP 6215</b> <b>Assessment Centers and Leadership: PR: Graduate admission and C.I. Survey of assessment center technology and application with emphasis on leadership theory and practice.</b>	<b>AS 3(3,0)</b>
<b>INP 6317</b> <b>Organizational Psychology and Motivation: PR: Graduate admission and C.I. Review of theories, research and application of psychological principles to organizational settings and human motivation.</b>	<b>AS 3(3,0)</b>

- INP 6605** **AS 3(3,0)**  
**Training and Performance Appraisal:** PR: Graduate admission and C.I. Survey of theories, research and practice in the areas of industrial/organizational training and performance appraisal.
- INP 6939** **AS 3(3,0)**  
**Current Topics and Applied Problems in Industrial/Organizational Psychology:** PR: Graduate admission and C.I. Survey of current topics in Industrial/Organizational psychology with emphasis on applied problems.
- INP 6946** **AS 3(1,6)**  
**Industrial Psychology Practicum I:** PR: Graduate admission and C.I. Supervised placement in an applied setting.
- INP 6947** **AS 3(3,0)**  
**Industrial Psychology Practicum II:** PR: Graduate admission and C.I. Supervised research in industry. (May be repeated for credit.)
- INR 6007** **AS 3(3,0)**  
**Seminar in International Politics:** Introduces the student to the advances in international relations theory and research through a broad sampling of approaches and methods.
- LAE 5367** **AS 3(3,0)**  
**English Composition and Literature for Teachers of Advanced Placement:** PR: Graduate standing and C.I. A two-week summer institute for secondary school teachers preparing to teach Advanced Placement courses.
- LAH 5713** **AS 3(3,0)**  
**Colloquium in U.S.-Latin American Relations**
- LAH 6938** **AS 3(3,0)**  
**Seminar in Latin American History:** May be repeated for credit when content is different.
- LIN 5137** **AS 3(3,0)**  
**Linguistics:** Modern linguistic theories and studies focusing on language acquisition and development, contemporary American English, semantics, and paralinguistics.
- LIN 6932** **AS 3(3,0)**  
**Problems in Linguistics:** PR: LIN 5137. Study of the application of linguistics to various aspects of teaching and communication.
- LIT 5039** **AS 3(3,0)**  
**Studies in Contemporary Poetry:** English language poetry from 1945 to the present. Emphasis will be on American poets, but others such as English or Australian will be included.
- LIT 5097** **AS 3(3,0)**  
**Studies in Contemporary Fiction:** Fiction in the last 20 years in the United States and Britain. May be repeated for credit.
- LIT 5269** **AS 3(3,0)**  
**Nineteenth-Century Essays:** PR: Graduate standing or C.I. English non-fiction prose of the 19th century.
- LIT 5250** **AS 3(3,0)**  
**The Romantic Revolt (19th Century Literature):** The romantic revolt in poetry and prose; English, American, and Continental literature, 1798-1832.
- LIT 5309** **AS 3(3,0)**  
**Media and Popular Literature:** PR: Senior standing or C.I. Study of the literary content of contemporary media and of popular fiction. Application to classroom teaching.
- LIT 5367** **AS 3(3,0)**  
**The Victorian Age:** Poetry: PR: Graduate standing or C.I. Poets of the Victorian period, including Tennyson, the Brownings, Arnold, Hopkins, the Rossettis, Emily Bronte, and other.
- LIT 6009** **AS 3(3,0)**  
**Literary Genres:** PR: Graduate standing. Provenance, structure and critical problems in a specific genre such as tragedy, the epic, the novel, or the lyric. May be repeated for credit when content is different.

- LIT 6105** **AS 3(3,0)**  
**World Literature:** PR: Graduate standing. Study of the influence on British and American literature of selected foreign works read in translation. May be repeated for credit when content is different.
- LIT 6365** **AS 3(3,0)**  
**Movements in Literature:** PR: Graduate standing. Study of a movement such as naturalism, romanticism, or classicism, or of a literary period such as the Baroque or the Southern Renaissance. May be repeated for credit when content is different.
- LIT 6506** **AS 3(3,0)**  
**Major Authors:** PR: Graduate standing. Study of a single author or of two or three associated authors, with emphasis on biography, bibliography, and style. May be repeated for credit when content is different.
- MAA 5210** **AS 4(4,0)**  
**Topics in Advanced Calculus:** PR: MAC 3313 or C.I. Selected topics in multivariable calculus including limits, continuity, Euler's theorem, the Jacobian, and double series; extension of single variable concepts including uniform convergence and improper integrals.
- MAA 5404** **AS 3(3,0)**  
**Complex Analysis:** PR: MAA 4226, Advanced Calculus I; or consent of the instructor. Analytic and harmonic functions, Cauchy's integral theorem, Cauchy's integral formula, Taylor and Laurent series, singularities and residue theory, conformal mapping.
- MAA 5405** **AS 3(3,0)**  
**Complex Variables:** PR: MAC 3313 or C.I. Analytic functions; integration in the complex plane; Laurent series and residue calculus, inversion of Laplace transforms; conformal mappings; application in engineering and the physical sciences.
- MAA 5416** **AS 3(3,0)**  
**Foundations of Analysis:** PR: MAA 4226. Topological spaces, compactness results, connectedness, analytical and differentiable manifolds, topological groups, Lie groups, representation theory for classical groups, Green, Stokes and Gauss' theorems.
- MAA 6508** **AS 3(3,0)**  
**Hilbert Spaces with Applications:** PR: MAP 3302, 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.
- MAD 5205** **AS 3(3,0)**  
**Combinatorics and Graph Theory II:** PR: MAD 4203 or C.I. Polya's theory of counting; Latin squares and rectangles; block designs; coding theory; probabilistic methods; hypergraphs; applications.
- MAD 6309** **AS 3(3,0)**  
**Advanced Graph Theory I:** A seminar devoted mainly to reading papers and presenting their content. Advanced areas of graph theory will be covered. Primarily for Ph.D. students in Computer Science.
- MAD 6608** **AS 3(3,0)**  
**Finite Fields and Coding Theory:** PR: MAP 5XXX - Abstract Algebra with Applications 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.
- MAP 5385** **AS 3(3,0)**  
**Applied Numerical Mathematics:** PR: MAP 3301 or C.I. Classical topics or numerical analysis and their applications, Romberg integration, Richardson extrapolation, Gaussian quadrature schemes.
- MAP 5396** **AS 3(3,0)**  
**Splines and Data Fitting:** PR: MAP 3302, MAS 3105 or 3106, or C.I. Topics on univariate splines and data fitting; applications to regression analysis, differential and integral equations; algorithms for different types of splines.
- MAP 5404** **AS 3(3,0)**  
**Ordinary Differential Equations and Applications:** PR: MAP 3302, Differential Equations; or consent of the instructor. Existence and uniqueness of solutions of differential equations, systems of ordinary differential equations, autonomous systems, phase plane analysis, stability, bifurcations.
- MAP 5407** **AS 3(3,0)**  
**Applied Mathematics 1:** PR: MAP 3302 or C.I. Calculus of variations, Hamilton's principle, eigenvalues and stationary points, Rayleigh-Ritz method, differential equations, and approximation methods.

- MAP 5426** **AS 3(3,0)**  
**Special Functions:** PR: MAP 3302 or C.I. Series and integral representations, generating functions, recurrence relations and orthogonality properties of the special functions. Emphasis on Bessel, Legendre, and hypergeometric functions.
- MAP 5514** **AS 3(3,0)**  
**Linear and Nonlinear Waves I:** PR: MAP 3302; MAP 4363; or C.I. Equations of motion in inviscid and viscous fluids, energy equation and energy flux, linear theory of gravity and capillary-gravity waves, variational principles for water waves.
- MAP 5937ST** **AS 3(3,0)**  
**Post-Secondary Mathematics Instruction:** Effective presentation techniques preparation, examinations, student difficulties, use of technology in the classroom.
- MAP 6104** **AS 3(3,0)**  
**Introduction to Nonlinear Dynamics:** PR: MAP 3302, PHY 3048 or equivalent, or C.I. Nonlinear differential equations; bifurcation theory; Hamiltonian dynamics; integrable systems and breakdown of integrability; chaos in conservative and dissipative systems.
- MAP 6111** **AS 3(3,0)**  
**Mathematical Statistics:** PR: MAS 6238 (Measure & Probability) or consent of instructor. Strong laws of large numbers, consistency and asymptotic normality, complete and sufficient statistics, maximum likelihood and least squares, optimal estimators, hypothesis testing.
- MAP 6112** **AS 3(3,0)**  
**Asymptotic Methods in Mathematical Statistics:** MAS 6237 (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.
- MAP 6118** **AS 3(3,0)**  
**Measure and Probability:** PR: MM 5210 or C.I. Measure and integration, probability measures, random variables, distribution and characteristic functions. Convergence in LP, probability, distribution and with probability one.
- MAP 6207** **AS 3(3,0)**  
**Optimization Theory:** PR: MAA 4226; or consent of the instructor. Lagrangian function and duality, Kuhn-Tucker theorem, quadratic programming and Wolfe's theorem, Griffith and Stewart's method, search methods for unconstrained optimization.
- MAP 6356** **AS 3(3,0)**  
**Partial Differential Equations:** PR: MAP 3302 or C.I. First and second order linear equations; classification and analytical methods of solution; Green's functions and integral representations; applications in engineering and physical sciences.
- MAP 6385** **AS 3(3,0)**  
**Numerical Solutions of PDE:** PR: MAP 6456; MAP 5385 or C.I. Numerical solution of linear and non-linear partial differential equations of parabolic, elliptic and hyperbolic type using finite difference and spectral methods.
- MAP 6408** **AS 3(3,0)**  
**Applied Mathematics II:** PR: MAP 5407, MAA 5210 or C.I. Linear vector spaces and linear operators, eigenvalue problems in Hilbert space, Fourier series, integral equations, partial differential equations and orthogonal functions.
- MAP 6419** **AS 3(3,0)**  
**Advanced Transform Methods:** PR: MAP 6424; or C.I. Fourier analysis and sliding-window Fourier transform, sampling theory and its applications in signal analysis and optics, Radon transforms, the technique of back projection.
- MAP 6420** **AS 3(3,0)**  
**Generalized Functions:** PR: MAP 6506; Consent of the Instructor. Spaces of test functions and their duals, calculus of distributions, convolution and tempered distributions, Fourier transforms of distributions, and applications to PDE's.
- MAP 6421** **AS 3(3,0)**  
**Integral Equations:** PR: MAA 5405; C.I. Successive approximations, Volterra equations, Fredholm theory, Hilbert-Schmidt theory, Neumann series, singular integral equations, the Riemann-Hilbert problem.

- MAP 6424** **AS 3(3,0)**  
**Transform Methods:** PR: MM 5405 or C.I. Laplace, Fourier, Hankel and other integral transforms, inversion theorems; the Z transform; applications to physical problems.
- MAP 6425** **AS 3(3,0)**  
**Advanced Complex Analysis and Applications:** PR: MAA 5404; C.I. Schwarz-Christoffel and Jaukowsky transformations, entire functions, Weierstrass factorization theorem and Blaschke's product, meromorphic functions and Mittag-Leffler theorem.
- MAP 6445** **AS 3(3,0)**  
**Approximation Techniques:** PR: MM 4228 or MM 5210 or C.I. Normed linear spaces; Weierstrass approximation theorem; Tchebycheff approximation by polynomials; trigonometric approximation; orthogonal expansions and least squares approximations.
- MAP 6455** **AS 3(3,0)**  
**Orthogonal Polynomials and Digital Signal Processing:** PR: MAP 6110; MAA 5404; or C.I. Orthogonal polynomials, Szego's orthogonal polynomials, Toeplitz matrix, Caratheodory functions and Schur functions, Levinson algorithm, associated Szego polynomials.
- MAP 6465** **AS 3(3,0)**  
**Wavelets and Their Applications:** PR: MAP 4364; MAA 6508; or C.I. Continuous wavelet transforms, discrete wavelet transforms, frams, Zak transform, multi-resolution analysis, orthonormal bases of compactly supported wavelets, spline wavelets.
- MAP 6506** **AS 3(3,0)**  
**Functional Analysis:** 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.
- MAP 6515** **AS 3(3,0)**  
**Linear and Nonlinear Waves II:** PR: MAP 5514; or C.I. Nonlinear shallow water waves and solitons, inverse scattering transform, Lie group methods, nonlinear dispersive waves, solitary waves and the nonlinear Schrodinger equations.
- MAP 6570** **AS 3(3,0)**  
**Fractal Image Compression:** PR: MTG 4302; MAP 5416; or C.I. Hausdorff metric H, Hutchenson maps, contraction maps on H, the collage theorem, measures and IFS with probabilities, fractal image compression, Huffman codes, addresses on fractals.
- MAP 6938** **AS 3(3,0)**  
**Multivariate Splines and Surface Fitting:** PR: MAP 5302; or C.I. Approximation of functions of several variables, tensor product splines, theory of multivariate splines, box splines, surface fitting, applications to statistics, computer graphics.
- MAP 6971** **AS 2-6**  
**Thesis**
- MAP 7119** **AS 3(3,0)**  
**Advanced Nonlinear Dynamics:** PR: MAP 6118; or C.I. Solitons, inverse scattering transform, breakdown or integrability, analytic structure of dynamical systems, fractal aspects of turbulence.
- MAP 7357** **AS 3(3,0)**  
**Advanced Topics in Partial Differential Equations:** PR: MAP 6356; C.I. Variational techniques, perturbation and asymptotic methods, hyperbolic systems, Lie group methods, parabolic, elliptic, or free boundary value problems, spectral analysis.
- MAS 5937ST** **AS 3(3,0)**  
**Abstract Algebra with Applications:** PR: MAS 4301 or C.I. Group actions, the class equation, Sylow theorems, polynomial rings, Euclidean domains, principal ideal domains, field extensions, modules and semi-simple rings.
- MAS 6463** **AS 3(3,0)**  
**Doubly Stochastic Measures:** PR: MAA 6506; MAP 5416; MAP 6111; or C.I. Doubly stochastic matrices, Birkhoff's theorem, doubly stochastic measures, Douglas-Linden-strauss theorem, copulas, Frechet bounds, dependence of random variables, Markov operators.

<b>MMC 6445</b>	<b>AS 3(3,0)</b>
<b>Mass Media Research 1:</b> An introduction to mass communication theories and to both applied and theoretical research in mass communication.	
<b>MMC 6446</b>	<b>AS 3(3,0)</b>
<b>Mass Media Research II:</b> PR: Statistics and MMC 6445. Planning and implementation of mass media research.	
<b>MMC 6603</b>	<b>AS 3(3,0)</b>
<b>Communication and Society:</b> The importance of the mass media, their structure, role, and problems.	
<b>MMC 6612</b>	<b>AS 3(3,0)</b>
<b>Communication and Government:</b> A study of the relationship between the media and government.	
<b>MUS 5526</b>	<b>AS 3 (3,0)</b>
<b>Music and Technology:</b> PR: Graduate Students. The emergence of technology in music including MIDI, CDROM, and the high-tech music classroom.	
<b>MUT 5325</b>	<b>AS 3(3,0)</b>
<b>Arranging and Composing Music:</b> 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.	
<b>MVB 5451</b>	<b>AS 2(1,0)</b>
<b>Trumpet V*</b>	
<b>MVB 5452</b>	<b>AS 2(1,0)</b>
<b>French Horn V*</b>	
<b>MVB 5453</b>	<b>AS 2(1,0)</b>
<b>Trombone V*</b>	
<b>MVB 5454</b>	<b>AS 2(1,0)</b>
<b>Baritone V*</b>	
<b>MVB 5455</b>	<b>AS 2(1,0)</b>
<b>Tuba V*</b>	
<b>MVK 5451</b>	<b>AS 2(1,0)</b>
<b>Piano V*</b>	
<b>MVK 5453</b>	<b>AS 2(1,0)</b>
<b>Organ V*</b>	
<b>MVO 5250</b>	<b>AS 1(1,0)</b>
<b>Advanced Secondary Instruction:</b> PR: Graduate standing and C.I. Advanced instructional techniques on a secondary instrument or in voice. May be repeated for credit.	
<b>MVP 5451</b>	<b>AS 2(1,0)</b>
<b>Percussion V*</b>	
<b>MVS 5451</b>	<b>AS 2(1,0)</b>
<b>Violin V*</b>	
<b>MVS 5452</b>	<b>AS 2(1,0)</b>
<b>Viola V*</b>	
<b>MVS 5453</b>	<b>AS 2(1,0)</b>
<b>Cello V*</b>	
<b>MVS 5454</b>	<b>AS 2(1,0)</b>
<b>Bass V*</b>	
<b>MVS 5455</b>	<b>AS 2(1,0)</b>
<b>Harp V*</b>	
<b>MVS 5456</b>	<b>AS 2(1,0)</b>
<b>Guitar V*</b>	



<b>MVV 5451</b> <b>Voice V*</b>	<b>AS 2(1,0)</b>
<b>MVW 5451</b> <b>Flute V*</b>	<b>AS 2(1,0)</b>
<b>MVV 5452</b> <b>Oboe V*</b>	<b>AS 2(1,0)</b>
<b>MVW 5453</b> <b>Clarinet V*</b>	<b>AS 2(1,0)</b>
<b>MVW 5454</b> <b>Bassoon V*</b>	<b>AS 2(1,0)</b>
<b>MVV 5455</b> <b>Saxophone V*</b>	<b>AS 2(1,0)</b>
<b>PCB 5326</b> <b>Ecosystems of Florida:</b> PR: PCB 3043, PCB 3043L or equivalent. Ecosystems of Florida will be discussed to include geography, geology, climate, energetics, nutrient cycling, community structure and conservation. Weekend field trips are required.	<b>AS 5(3,2)</b>
<b>PCB 5045C</b> <b>Conservation Biology:</b> PR: PCB 3043 and PCB 3063. Scientific basis of conservation; conservation of ecosystems, populations, exploited species, and endangered species. Weekend field trips are required.	<b>AS 4(3,2)</b>
<b>PCB 5046C</b> <b>Advanced Ecology:</b> PR: Ecology, statistics and 2 years of biological science. Population and community ecology with emphasis on growth, regulation, species interactions, succession, and community classification.	<b>AS 5(3,4)</b>
<b>PCB 5675C</b> <b>Evolutionary Biology:</b> PR: PCB 3043 and PCB 3063 or C.I. Review of concepts in evolutionary biology. Emphasis on evolution at and below the species level; consideration of genetics and ecological factors in divergence and speciation.	<b>AS 4(3,2)</b>
<b>PCB 6049</b> <b>Contemporary Studies in Biology:</b> 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.	<b>AS 2(2,0)</b>
<b>PCB 6365</b> <b>Environmental Physiology:</b> PR: Physiology and ecology or C.I. The effects of major environmental factors on the physiology of plants and animals.	<b>AS 3(3,0)</b>
<b>PCB 6585C</b> <b>Advanced Genetics:</b> PR: PCB 3063 or C.I. Recent advances in genetics, stressing molecular and developmental trends.	<b>AS 5(3,6)</b>
<b>PCB 6721</b> <b>Comparative Animal Physiology:</b> 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.	<b>AS 3(3,0)</b>
<b>PHY 5015C</b> <b>Physics For Teachers:</b> C.I. Hands-on lecture-lab course. Dynamics, electricity, magnetism, optics, nuclear radiation.	<b>AS 3(2,2)</b>
<b>PHY 5081C</b> <b>Physics of Astronomy for Teachers:</b> PR: C.I. Laws of Motion, Law of Gravity, Kepler's Laws, two body orbits, light and spectroscopy, the doppler shift, blackbody radiation, Gas Laws and stellar evolution.	<b>AS 1(0.5,1.5)</b>
<b>PHY 5100</b> <b>Topics in Contemporary Physics for Teachers:</b> PR: C.I. The study of recent findings in a selected area such as particle physics, surface physics, planetary atmospheres; lasers; geophysics, etc.	<b>AS 1(1,0)</b>

- PHY 5200C** **AS 1(0.5,1.5)**  
**Newtonian Mechanics for Teachers:** PR: C.I. A lab, lecture, demonstration course studying selected topics in classical mechanics.
- PHY 5240** **AS 3(3,0)**  
**Advanced Mechanics PH:** PHY 4220 or C.I. Elements of continuum mechanics. Generalized coordinates, virtual work, Lagrange's equations, Hamilton's equation. Inertia tensors, stress tensors. Eulerian description of rigid body motion. Theory of small vibrations.
- PHY 5300C** **AS 1(0.5,1.5)**  
**Electricity for Teachers:** PR: C.I. Circuits, multimeters, oscilloscopes, circuit elements.
- PHY 5302C** **AS 1(0.5,1.5)**  
**Electromagnetism for Teachers:** PR: C.I. Gauss' Law, Biot-Savat Law, Ampere's Law, Faraday's Law, Lenz's Law; motors, generators, AC circuits and Maxwell's equations.
- PHY 5346** **AS 3(3,0)**  
**Electrodynamics I:** PR: PHY 3320, MAP 3302, or C.I. Boundary value problems in electrostatics and magnetostatics. Maxwell's equations; EM fields in matter; wave generation and propagation; wave guides; and resonant cavities.
- PHY 5401C** **AS 1(0.5,1.5)**  
**Optics for Teachers:** PR: C.I. Geometrical and physical optics, spectrometers and lasers.
- PHY 5431** **AS 3(3,0)**  
**Optical Properties of Materials:** PR: PHY 4324, MAP 3302, PHY 4424. Normal modes (dipole and Raman active); microscopic theory of absorption, dispersion, and refraction; wave propagation, crystal optics; scattering mechanisms, optical activity.
- PHY 5446** **AS 3(3,0)**  
**Laser Principles:** PR: PHY 3101, MAP 3302, PHY 4424. Classical introduction to the basic principles of laser gain media, properties of laser resonators and modes, description of specific laser systems.
- PHY 5455** **AS 3(3,0)**  
**Modern X-Ray Science:** PR: Basic Properties of X-Rays An introduction to the science and applications of modern X-Ray optics, X-Ray lasers etc, with a review of basic properties of X-Ray.
- PHY 5465C** **AS 1(0.5,1.5)**  
**Wave Motion for Teachers:** PR: C.I. Water waves, waves on strings, sound and vibrations.
- PHY 5500C** **AS 1(0.5,1.5)**  
**Thermal Physics for Teachers:** PR: C.I. Engines, heat pumps, kinetic theory, phase changes, radiation, weather.
- PHY 5524** **AS 3(3,0)**  
**Statistical Physics:** PR: PHY 3046, STA 3032, PHY 4045 or C.I. A study of physical concepts and methods appropriate for the description of systems involving many particles. Ensemble theory, partition functions. Maxwell-Boltzmann, Bose-Einstein, Fermi-Dirac statistics.
- PHY 5601** **AS 1(1,0)**  
**Quantum Physics for Teachers:** PR: C.I. Hydrogen atom, diatomic molecules, heat capacity transition rates.
- PHY 5606** **AS 3(3,0)**  
**Quantum Mechanics I:** PR: PHY 4604 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.
- PHY 6246** **AS 3(3,0)**  
**Classical Mechanics:** PR: PHY 5240 or C.I. Variational principles. Lagrange, Hamiltonian, and Poisson bracket formulations of mechanics. Hamilton's principle of least action. Hamilton-Jacobi theory. Perturbation theory. Continuous systems.
- PHY 6347** **AS 3(3,0)**  
**Electrodynamics II:** PR: PHY 5346 or C.I. Dynamics of charged particles in electromagnetic fields. Antennas; radiation by moving charges; magnetohydrodynamics; and multipole radiation.

- PHY 6353** **AS 3(3,0)**  
**Accelerator Physics:** PR: PHY 5346, PHY 6347. Dynamics of charged particles in electromagnetic fields, electron optics, details of the electrostatic accelerator, the linear accelerator, and cyclic accelerators; properties of cavities and orbiting electrons; new accelerator schemes, including the free electron laser.
- PHY 6355** **AS 3(3,0)**  
**Physics of Free Electrons:** PR: PHY 5346, PHY 6347. Interaction between electrons and fields, transmission lines, microwave tubes and waveguides, synchrotron radiation and undulators, the free electron laser in both the Compton and Raman regimes.
- PHY 6434** **AS 3(2.5, 0.5)**  
**Nonlinear Optics:** PR: PHY 5346. Maxwell's equations in nonlinear media, frequency conversion techniques (SHG, SFG, OPO), stimulated scattering, phase conjugation, wave-guided optics, nonlinear crystals.
- PHY 6435** **AS 3(3,0)**  
**Nonlinear Guided Wave Optics:** PR: PHY 5346, 6347, 6434. The physics and applications of nonlinear optical interactions in fibers and planar waveguides is discussed, including parametric processes, all-optical effects and solutions.
- PHY 6447** **AS 3(3,0)**  
**Quantum Optics:** PR: PHY 5606, PHY 5346, PHY 5446. Semiclassical treatment of light/matter interactions (quantized atomic states plus Maxwell's equations). Density matrix theory, coherent optical transients, pulse propagation.
- PHY 6448** **AS 3(3,0)**  
**Specific Laser Systems:** PR: PHY 5446 or 6560 or C.I. Review of Laser Principles, Specifics of gas, ion, solid state, dye, metal vapor, free electron, and semiconductor lasers and power supplies.
- PHY 6624** **AS 3(3,0)**  
**Quantum Mechanics II:** PR: PHY 5606 or C.I. Time dependent perturbation theory, exchange symmetry, Dirac Equation, second quantization, and scattering theory.
- PHY 6667** **AS 3(3,0)**  
**Advanced Quantum Mechanics:** PR: PHY 5606, PHY 6624. This course will introduce the advanced graduate students to the methods of Quantum field theory, essential for the understanding of many branches of physics.
- PSY 6939** **AS 1(0,1)**  
**Research Planning Seminar II:** PR: PSY 6938. Clinical graduate student continued progress on thesis proposal formulation under faculty supervision.
- PHZ 5150C** **AS 1(0.5,1.5)**  
**Computer Methods in Physics for Teachers:** PR: C.I. Trajectories with air resistance, trajectories in rotating space colonies, refraction of waves in continuous media, luminosity patterns, temperature profiles.
- PHZ 5301C** **AS 1(0.5,1.5)**  
**Nuclear Physics for Teachers:** PR: C.I. The interaction of ionizing radiation with matter, alpha, beta, gamma decay, fission, fusion, neutron activation, half lives and equilibrium.
- PHZ 5304** **AS 3(3,0)**  
**Nuclear and Particle Physics:** PR: PHY 4604 or equivalent. Particles and nuclei, symmetries and conservation laws, interactions, models.
- PHZ 5405** **AS 3(3,0)**  
**Condensed Matter Physics:** PR: PHY 4604, PHY 3101 or C.I. Crystal lattice cell structure, phonons, free electron model, band theory of solids, Fermi surface, solid state applications, polymers.
- PHZ 5505** **AS 3(3,0)**  
**Plasma Physics:** PR: PHY 4220, PHY 3044, or C.I. Introduction to theory and experimental basis of both weakly and highly ionized plasmas. Instabilities, plasma waves, nonlinear effects, controlled thermonuclear fusion.
- PHZ 5600** **AS 1(1,0)**  
**Special Relativity for Teachers:** PR: C.I. Length contraction, time dilation, simultaneity, conservation of mass-energy, conservation of momentum, Compton scattering.
- PHZ 6115** **AS 3(3,0)**  
**Theoretical Methods:** Basic Mathematical methods applicable to all branches of physics.

- PHZ 6156** **AS 3(3,0)**  
**Advanced Computational Physics:** PR: PHZ 3151. Computational methods applied to the solution of problems in Atomic and molecular physics and Solid State physics.
- PHZ 6204** **AS 3(3,0)**  
**Atomic and Molecular Spectroscopy:** PR: PHY 5606. Atomic structure, LS and jj coupling, Diatomic molecular spectra, Anharmonic oscillator, Polyatomic molecular spectra, Normal modes of vibration, Dipole selection rules, Franck-Condon principle, Spectroscopic techniques.
- PHZ 6234** **AS 3(3,0)**  
**Atomic Physics:** PR: PHY 5606. Brief review of spectroscopy, photoionization, inner shell processes, Auger effect, atom-atom collisions, electron-atom collisions, spin polarization.
- PHZ 6424** **AS 3(3,0)**  
**Optical Properties of Solids:** PR: PHY 5431, PHY 5606, PHY 5346. Interband transitions, free carriers, excitons, plasmas in metals and semiconductors; k.p theory, low dimensional structures, dynamic nonlinear interactions, multiphoton absorption.
- PHZ 6425** **AS 3(3,0)**  
**Advanced Condensed Matter Physics:** PR: PHY 5606, PHY 6624, PHZ 5405. Many-body techniques in condensed matter physics.
- PHZ 6971** **AS 6**  
**Thesis**
- POS 6045** **AS 3(3,0)**  
**Seminar in American National Politics:** Examines major aspects of the American system, including mass behavior, public opinion, and political institutions.
- POS 6746** **AS 3(3,0)**  
**Quantitative Methods in Political Research:** 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.
- POS 6938** **AS 3(3,0)**  
**Special Topics/Political Analysis:** This course title covers all political analysis special topics courses which are not listed in the catalog with a course number. May be repeated for credit.
- POS 6946** **AS Variable Credit**  
**Supervised Teaching Internship**
- POS 6971** **AS Variable Credit**  
**Thesis**
- POT 6007** **AS 3(3,0)**  
**Seminar in Political Theory:** An examination of analytic and normative theories of politics and society, using selected topics as a substantive focus.
- PSB 5005** **AS 3(3,0)**  
**Physiological Psychology:** PR: PSB 3002 or C.I. An advanced survey of the physiological basis of behavior emphasizing the relationship between the nervous system and behavior.
- PSB 6446** **AS 3(3,0)**  
**Advanced Abnormal and Clinical Psychopharmacology:** PR: Graduate admission and C.I. Diagnosis of psychopathology and drug treatment of these disorders. Examination of the efficacy of psychoactive drugs.
- PSY 6216** **AS 4(3,2)**  
**Advanced Research Methodology I:** PR: Graduate admission and C.I. Logic and procedures of psychological research and evaluation; application of experimental and non-experimental techniques in analyzing psychological variables; review of relevant psychological research.
- PSY 6217** **AS 4(3,2)**  
**Advanced Research Methodology II:** PR: PSY 6216, Graduate admission and C.I. Structure and planning of complex psychological experiments; internal and external validity; application of advanced experimental procedures in analyzing psychological variables; review of relevant psychological research.

- PSY 6308** **AS 3(3,0)**  
**Psychological Testing I:** PR: Graduate admission and C.I. Theory of test construction including test reliability and validity.
- PSY 6318** **AS 3(3,0)**  
**Applied Testing and Selection:** PR: PSY 6308, Graduate admission and C.I. Issues in selecting employees and an examination of currently used tests in industry.
- PSY 6908** **AS 3(3,0)**  
**Directed Independent Studies:** PR: C.I. Conduction of a selected research study under the supervision of a faculty member in the field of Human Factors Psychology.
- PSY 6909** **AS 1-3(0,0)**  
**Research Report**
- PSY 6918** **AS 3(3,0)**  
**Directed Research:** PR: PSY 6217, EXP 6257, PSY 6938, ten additional graduate hours in PSY, and C.I. Directed Research involves supervised research activity in an agency setting. The student will devote 15 hours per week in the assigned setting to work on an applied research problem with joint supervision by faculty and agency staff.
- PSY 6919** **AS 3(3,0)**  
**Research Report:** PR: PSY 6918. Preparation of a written report of the project completed in PSY 6918. This report will be in the form of a research publication of technical report.
- PSY 6938** **AS 1(0,0)**  
**Research Planning**
- PSY 6939** **AS 1(0,1)**  
**Research Planning Seminar II:** PR: PSY 6938. Clinical graduate student continued progress on thesis proposal formulation under faculty supervision.
- PSY 6971** **AS 1-8(0,0)**  
**Thesis**
- PSY 7919** **AS 6(0,0)**  
**Doctoral Research**
- PSY 7980** **AS 6(0,0)**  
**Doctoral Dissertation**
- PUP 6007** **AS 3(3,0)**  
**Public Policy Analysis:** Examination of the role of the state and the policy process (agenda-setting, formulation, implementation), and case studies in environmental, economic, education, or welfare or other policy.
- PUP 6938** **AS 3(3,0)**  
**Special Topics/Public Policy:** This course title covers all public policy special topics courses which are not listed in the catalog with a course number. May be repeated for credit.
- SPC 5200** **AS 3(3,0)**  
**Evolution of Communication Theory:** General Survey — major communication trends from classical era to the present. Comparison of Aristotelian and non-Aristotelian rhetorics. Contributions of principal figures will be discussed.
- SPC 6219** **AS 3(3,0)**  
**Modern Communication Theory:** Comparative analysis of theories and models of human communication, behavior systems, encoding and decoding processes, interaction variables, and social context.
- SPC 6442** **AS 3(3,0)**  
**Small Group Communication:** A study of communication and its effect on small group behavior.
- SPN 5920** **AS 3(3,0)**  
**AP Spanish Language:** Participants will enhance their knowledge of the language and culture of Spanish-speaking peoples and develop further proficiency in listening, comprehension, speaking, reading, and writing.

- SPS 6125** **AS 2(2,1)**  
**Infant Development Assessment:** PR: Graduate admission and C.I. Analysis of test theory and practice in administration, scoring, and interpretation of instruments assessing cognitive, visual-motor ability and adaptive behavior to pre- and primary school children.
- SPS 6175** **AS 2(2,1)**  
**Multicultural Issues and Assessment:** PR: Graduate admission and C.I. An investigation of some of the major multicultural issues with emphasis on administration, scoring and interpretation of instruments related to this population.
- STA 5205** **AS 3(3,0)**  
**Experimental Design:** PR: STA 4164, STA 5206 or STA 5156. Construction and analysis of designs for experimental investigations. Blocking, randomization, replication; Incomplete block designs, factorial and fractional designs; design resolution.
- STA 5206** **AS 3(3,0)**  
**Statistical Analysis:** PR: STA 3023; not open to students who have completed STA 4164. Data analysis; statistical models; estimation; tests of hypotheses; analysis of variance, covariance and multiple comparisons; regression and nonparametric methods.
- STA 5505** **AS 3(3,0)**  
**Categorical Data Methods:** PR: STA 4163 or STA 5206. Considers discrete probability distributions, contingency tables, measures of association and advanced methods including loglinear modeling, logistic regression, McNemar's Test, Mantel-Haenszel tests.
- STA 5825** **AS 3(3,0)**  
**Stochastic Processes and Applied Probability Theory:** 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.
- STA 6106** **AS 3(3,0)**  
**Statistical Computing I:** PR: Knowledge of a programming language, STA 4164, STA 4321, C.I. Computer systems, approximating probabilities/percentiles, random number generation, linear model computations, density estimation.
- STA 6107** **AS 3(3,0)**  
**Statistical Computing II:** PR: STA 6106. Dynamical graphics, multivariate structures, statistical optimization problems, multivariate generation, relation to evolving computational environments.
- STA 6207** **AS 3(3,0)**  
**Response Surface and Mixture Experiments:** PR: STA 5205. Approximating response functions; first-order and second-order response surfaces; ridge systems; mixture problems, component proportions, and the analysis of mixture data.
- STA 6226** **AS 3(3,0)**  
**Sampling Theory and Applications:** PR: STA 4321. Different techniques of sampling, sampling for proportions, choosing sample size, ratio estimates, effects of sampling and non-sampling errors.
- STA 6236** **AS 3(3,0)**  
**Regression Analysis:** PR: MAS 3105 and STA 4164. General linear model, model aptness and remedial measures, regression through the origin, independent and dependent indicator variables, multicollinearity, outliers, biased regression.
- STA 6246** **AS 3(3,0)**  
**Linear Models:** PR: STA 6329, STA 4164, and STA 4322. Theoretical development of full rank linear statistical models, least squares and maximum likelihood estimation, interval estimation, hypothesis testing, introduction to less than full rank models.
- STA 6326** **AS 3(3,0)**  
**Theoretical Statistics I:** PR: MAC 3313. Distribution of random variables, conditional probability and independence, some special distributions, distributions of functions of random variables, limiting distributions.
- STA 6327** **AS 3(3,0)**  
**Theoretical Statistics II:** PR: STA 6326. Point estimation, sufficient statistics, completeness, exponential family, maximum likelihood estimators, statistical hypotheses, best tests, likelihood ratio tests, non-central distributions.

- STA 6329** **AS 3(3,0)**  
**Statistical Applications of Matrix Algebra:** PR: MAC 3313 and STA 4164 or STA 5206. Basic theory of determinants, inverses, generalized inverses, eigenvalues and eigenvectors, partitioned matrices. Diagonalization and decomposition theorems, least squares and statistical applications.
- STA 6857** **AS 3(3,0)**  
**Applied Time Series Analysis:** PR: STA 4322, MAS 3105. Stationarity, autocorrelation, moving averages and autoregressive processes. Non-stationary time series. Identification and estimation. Forecasting.
- STA 6507** **AS 3(3,0)**  
**Nonparametric Statistics:** PR: STA 4321. Theory and methods for one and two sample problems; one and two way layouts; independence problems; regression problems.
- STA 6662** **AS 3(3,0)**  
**Statistical Methods for Industrial Practice:** PR: STA 4163, STA 5206, or STA 5156. Variance components, PCRs, autocorrelation structures, charting, EVOP, design strategies, calibration, standards and associated awards, specification limits and tolerances, international quality systems, accelerated testing.
- STA 6707** **AS 3(3,0)**  
**Multivariate Statistical Methods:** 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.
- SYA 5xxx** **AS 3(3,0)**  
**Advanced Population.** Examines the theories, methods and information utilized by demographers and focuses on techniques of application of those skills.
- SYA 5625** **AS 3(3,0)**  
**ProSeminar:** Survey of conceptual issues, methodological concerns, and findings in substantive sociological areas that currently dominate scholarly inquiry, including such topics as crime, deviance, community, alcoholism, education.
- SYA 6126** **AS 3(3,0)**  
**Social Theory:** PR: C.I. The study of selected sociological theories in terms of relevance, usefulness, and adequacy for applied sociology.
- SYA 6305** **AS 3(3,0)**  
**Social Research:** PR: C.I. Research methodology including problem conceptualization, sampling designs, research proposals, data collection and evaluation techniques for applied settings.
- SYA 6455** **AS 3(2,2)**  
**Research Analysis:** PR: SYA 6305, Undergraduate statistics, or C.I. Data management, selection of statistics, data analysis, evaluation, data presentation, and computer skills.
- SYA 6656** **AS 3(3,0)**  
**Social Organization and Human Resources:** PR: C.I. Complex organization theory; social systems analysis, competence in group dynamic skills and use of human resources in agencies, businesses, and industries.
- SYA 6657** **AS 3(3,0)**  
**Program Design and Evaluation:** PR: C.I. Techniques of system and policy assessment, evaluation and design. Determination of consequences and implications of policies and practices in applied settings.
- SYA 6971** **AS 1-8(0,0)**  
**Thesis**
- SYO 6515** **AS 3(3,0)**  
**Issues in Social Disorganization:** PR: C.I. Sociological study and analysis of the manner in which American society is organized and the consequences of the way in which its cultural premises are arranged.
- SYP 6515** **AS 3(3,0)**  
**Deviant Behavior Issues:** PR: C.I. An examination and evaluation of the forms of social deviance, and the organizations designed to respond to them.

- TSL 5142** **AS 3(3,0)**  
**Critical Approaches to ESOL:** Analysis, planning, design, and evaluation of curriculum and curricular models.
- TSL 5250** **AS 3(3,0)**  
**Applied Linguistics:** Applying linguistics, psycholinguistics, and sociolinguistics to teaching English as a second language with emphasis on pronunciation, intonation, structural analysis, morphophonemics, and decoding from print to sound.
- TSL 5440** **AS 3(3,0)**  
**Problems in Evaluation in ESOL:** Survey, selection, and design of instruments of evaluation for use with limited English proficient students.
- ZOO 5456C** **AS 4(2,6)**  
**Ichthyology:** PR: ZOO 3303C or C.I. Introduction to the biology of the fishes, their classification, evolution and life histories.
- ZOO 5463C** **AS 4(2,6)**  
**Herpetology:** PR: 6 hours of zoology or C.I. Introduction to the biology of the amphibians and reptiles, their classification, evolution and life histories.
- ZOO 5475C** **AS 4(2,6)**  
**Ornithology:** PR: 6 hours of zoology or C.I. Introduction to the biology of birds, their classification, evolution, and life histories.
- ZOO 5486C** **AS 4(2,6)**  
**Mammalogy:** PR: 6 hours of zoology or C.I. Introduction to the biology of mammals, their classification, evolution and life histories.
- ZOO 5815** **AS 4(4,0)**  
**Zoogeography:** PR: 8 hours of zoology or C.I. Principles and concepts concerning regional patterns of animal distributions of the world, both past and present.



# COLLEGE OF BUSINESS ADMINISTRATION

The College of Business Administration offers four professional programs leading to the master's degree: Master of Business Administration, Master of Science in Accounting, Master of Science in Taxation, and Master of Arts in Applied Economics. Also offered is a Doctor of Philosophy Degree (Ph.D.) in Business Administration with two grouped emphases: Accounting, Economics, and Finance; or Hospitality Management, Management, and Marketing. The Master of Business Administration program is also conveniently available to Brevard County and Daytona residents. Some foundation courses are offered at UCF's Brevard Campus in Cocoa, while other foundation and all the professional core courses are taught by UCF College of Business Administration faculty on the Melbourne Campus of Brevard Community College. Classes in Daytona are taught at the UCF Building on the campus of Daytona Beach Community College. All graduate programs in business administration are accredited by the American Assembly of Collegiate Schools of Business (AACSB).

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

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

## COLLEGE ADMINISTRATION

<i>R. C. Huseman</i> .....	Dean
<i>W. W. McHone</i> .....	Associate Dean
<i>R. L. Pennington</i> .....	Assistant Dean
<i>L. P. Jarvis</i> .....	Brevard Campus Coordinator Phone (407) 632-0098
<i>J. H. Potts</i> .....	Daytona Campus Coordinator Phone (904) 255-7423, ext. 4071

## Faculty

### School of Accounting

<i>H. R. Anderson, Ph.D.</i> .....	Professor
<i>C. D. Bailey, Ph.D.</i> .....	Professor
<i>D. D. Bandy, Ph.D.</i> .....	Knight's Professor of Taxation
<i>T. G. Evans, Ph.D.</i> .....	Professor
<i>J. H. Potts, Ph.D.</i> .....	Professor
<i>J. H. Salter III, Ph.D.</i> .....	Professor
<i>P. M. Goldwater, Ph.D.</i> .....	Associate Professor
<i>W. L. Johnson, Ph.D.</i> .....	Associate Professor
<i>A. J. Judd, Ph.D.</i> .....	Interim Director and Associate Professor
<i>T. E. Phillips, Ph.D.</i> .....	Associate Professor
<i>L. J. Savage, Ph.D.</i> .....	Associate Professor
<i>J. K. Welch, Ph.D.</i> .....	Associate Professor
<i>C. F. Kelliher, Ph.D.</i> .....	Assistant Professor
<i>M. K. Zarzeski, Ph.D.</i> .....	Assistant Professor
<i>P. B. Roush, Ph.D.</i> .....	Assistant Professor

### Economics

<i>R. A. Hoffer, Ph.D.</i> .....	Chair and Professor
<i>W. W. McHone, Ph.D.</i> .....	Associate Dean and Professor

<i>F. A. Raffa, Ph.D.</i>	Professor
<i>B. Rungeling, Ph.D.</i>	Professor
<i>B. M. Braun, Ph.D.</i>	Associate Professor
<i>A. E. Day, Ph.D.</i>	Associate Professor
<i>W. E. Gibbs, Ph.D.</i>	Associate Professor
<i>D. A. Hosni, Ph.D.</i>	Associate Professor
<i>T. L. Martin, Ph.D.</i>	Associate Professor
<i>R. L. Pennington, Ph.D.</i>	Assistant Dean and Associate Professor
<i>M. Soskin, Ph.D.</i>	Associate Professor
<i>K. R. White, Ph.D.</i>	Associate Professor
<i>J. A. Xander, Ph.D.</i>	Associate Professor
<i>W. R. Kilbride, Ed.D.</i>	Assistant Professor
<i>Y. Otsuka, Ph.D.</i>	Assistant Professor

#### Finance

<i>D. F. Scott, Jr., Ph.D.</i>	Chair in American Private Enterprise and Professor
<i>S. M. Atkinson, D.B.A.</i>	Associate Professor
<i>J. M. Cheney, D.B.A.</i>	Chair and Associate Professor
<i>R. J. Clayton, Ph.D.</i>	Associate Professor
<i>S. S. Graham, Ph.D.</i>	Associate Professor
<i>N. K. Modani, Ph.D.</i>	Associate Professor
<i>H. Park, Ph.D.</i>	Associate Professor
<i>W. C. Weaver, Ph.D.</i>	Associate Professor
<i>G. E. Porter, Ph.D.</i>	Assistant Professor
<i>A. K. Bird, Ph.D.</i>	Assistant Professor

#### Hospitality Management

<i>R. C. Ford, Ph.D.</i>	Chair and Professor
<i>A. Pizam, Ph.D.</i>	Professor
<i>E. T. Ellis, Ph.D.</i>	Associate Professor
<i>S. M. LeBruto, Ed.D.</i>	Associate Professor
<i>A. Milman, Ph.D.</i>	Associate Professor
<i>W. J. Quain, Ph.D.</i>	Associate Professor
<i>J. W. Chesser, Ed.D.</i>	Assistant Professor

#### Management

<i>L. W. Fernald, Jr., D.B.A.</i>	Professor
<i>J. D. Hatfield, Ph.D.</i>	Professor
<i>R. C. Huseman, Ph.D.</i>	Dean and Professor
<i>H. R. Jones, Ph.D.</i>	Professor
<i>W. A. Bogumil, Jr., Ph.D.</i>	Associate Professor
<i>W. G. Callarman, D.B.A.</i>	Associate Professor
<i>S. Goodman, Ph.D.</i>	Associate Professor
<i>J. S. Harrison, Ph.D.</i>	Associate Professor
<i>W. Leigh, Jr., Ph.D.</i>	Associate Professor
<i>P. S. Lewis, Ph.D.</i>	Chair and Associate Professor
<i>R. L. Martin, Ph.D.</i>	Associate Professor
<i>S. A. Rozenkrantz, Ph.D.</i>	Associate Professor
<i>F. F. Jones, Ph.D.</i>	Assistant Professor

#### Marketing

<i>D. L. Davis, D.B.A.</i>	Professor
<i>P. L. Gillett, Ph.D.</i>	Professor
<i>R. E. Michaels, Ph.D.</i>	Chair and Professor
<i>G. W. Paul, Ph.D.</i>	Professor
<i>R. S. Rubin, Ph.D.</i>	Professor
<i>E. E. Teeple, Ph.D.</i>	Professor
<i>J. Allen, Ph.D.</i>	Associate Professor
<i>R. Fisk, Ph.D.</i>	Associate Professor
<i>D. A. Fuller, Ph.D.</i>	Associate Professor

<i>L. P. Jarvis, Ph.D.</i> .....	Associate Professor
<i>K. L. Ellis, Ph.D.</i> .....	Assistant Professor

## ADMISSION TO MASTERS PROGRAMS

Before candidates will be considered for admission, all required application documents — application, official transcripts, GMAT test score (or GRE test score for the program in Applied Economics only) and for M.B.A. and M.A.E. only, two essays and three recommendations — must be received in the College of Business Graduate Office by:

Fall semester admission	—	June 15
Spring semester admission	—	November 1
Summer semester admission	—	March 15

Admission to graduate study in the College of Business Administration is open to individuals with a baccalaureate degree in any discipline from a regionally accredited college or university. Thus, all graduate programs are open to graduates in education, engineering, arts, sciences, and other fields as well as business.

Admissions are restricted each semester to an allotted number of individuals showing high promise of success in post-graduate studies. Admission criteria include academic achievement as an upper-division undergraduate student and satisfactory performance on the GMAT. For the M.A. in Applied Economics degree only, scores on either the GRE or GMAT may be submitted. Both GMAT and GRE scores have a limit of 5 years. Other indicators of promise include the applicant's extracurricular activities, work experience and job responsibilities, and leadership experience.

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

Enrollment in graduate courses in the College of Business Administration is limited to students who have been accepted and classified with regular graduate status in the M.B.A. program, M.S. in Accounting, M.S. in Taxation, or the M.A. in Applied Economics, and to other students with regular graduate status elsewhere in the University. Graduate level courses may not be taken unless a student is accepted into a graduate program, i.e., graduate courses may not be taken in a post-baccalaureate status.

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

## ACADEMIC STANDARDS

Graduate students in the College of Business Administration must maintain an overall 3.0 GPA in both their program of study and any graduate or undergraduate foundation core courses. In the event this is not maintained, a graduate student shall be placed in an academic provisional status. If a 3.0 GPA (grades of "B" or better) is then not obtained in the subsequent 9 semester hours of coursework, 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 a graduate student accumulates grades of "C" or lower or unresolved "I" grades in more than three (3) foundation core courses, the student will be disqualified from the program. If a graduate student accumulates more than six (6) hours of "C" or lower and/or unresolved "I" grades on coursework in the professional core, then the student will be disqualified from the graduate program. Grade forgiveness policy does not apply to any courses (graduate or undergraduate) taken by graduate students in the College of Business Administration.

## MASTER OF BUSINESS ADMINISTRATION

Program Advisor: ..... *R. L. Pennington*  
BA 241, Phone (407) UCF-2186

Brevard Campus Advisor: ..... *L. P. Jarvis*  
Phone (407) 632-0098

Daytona Campus Advisor: ..... *J. H. Potts*  
Phone (904) 255-7423 Ext.4071

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

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

The program can be completed on either a full-time or part-time basis on the Orlando Campus. For Brevard County residents the program is available on a part-time basis in the evening with some foundation coursework offered on UCF's Brevard Campus in Cocoa, with the remaining foundation and all professional core coursework taught by College of Business Administration faculty at Brevard Community College's Melbourne Campus. The program is also offered on a part-time basis, evenings, at the UCF Building on the Daytona Beach Community College campus.

## Master of Business Administration — Degree Requirements

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

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

<b>FOUNDATION CORE</b>			<b>33 Semester Hours</b>
ACG	5005	Financial and Managerial Accounting Concepts	3 hours
BUL	5125	Legal and Social Environment of Business	3 hours
ECO	5005	Economic Concepts	3 hours
ECO	5415	Statistics for Business and Economics	3 hours
FIN	5405	Financial Concepts	3 hours
MAC	1104	College Algebra	3 hours
MAC	3233	Concepts of Calculus	3 hours
MAN	5050	Management Concepts	2 hours
MAN	5501	Introduction to Production/Operations Management	2 hours
ISM	5021	Introduction to Management Information Systems	3 hours
MAR	5055	Marketing Concepts	3 hours

The professional core consists of 24 credit hours of required advanced coursework plus 9 hours of electives that substantially extends and applies knowledge developed in the foundation core. Through selection of the nine credit hours of approved electives, the student has the opportunity to develop some degree of specialization in one of the following: accounting, economics, finance, hospitality management, management, marketing, information systems or entrepreneurship.

<b>PROFESSIONAL CORE</b>			<b>24 Semester Hours</b>
ACG	6425	Managerial Accounting Analysis	3 hours
ECO	6115	Economic Analysis of the Firm	3 hours
ECO	6416	Statistical Methods for Business Decisions	3 hours
FIN	6406	Financial Analysis and Management	3 hours
MAN	6245	Organizational Behavior and Development	3 hours
MAN	6546	Quantitative Models for Business Decisions	3 hours
MAN	6721	Business Policy and Responsibility	3 hours
MAR	6816	Marketing Policy	3 hours

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

## ELECTIVES

## 9 Semester Hours

Electives in the Professional Core may be taken in accounting, economics, finance, hospitality management, marketing, management, or information systems management. One elective course may be taken outside the College of Business Administration with permission of the program coordinator. The M.B.A. program does not require a thesis. Students may not take more than 9 total semester hours in Accounting or Tax courses in the M.B.A. degree.

## M.B.A. Specializations

### Entrepreneurship

The entrepreneurship specialization requires nine hours of restricted electives within the M.B.A. degree. Students should take three of the four classes listed below:

GEB	6115	Entrepreneurship
MAN	6299	Creative and Innovative Management
FIN	6475	Business Evaluation
MAR	5941	Small Business Consulting

In addition, students may apply to take GEB 6946, the graduate Internship in Entrepreneurship, as a substitute for one of the three required courses in the specialization.

### Finance

An M.B.A. specialization in finance requires a minimum of nine hours of restricted graduate electives chosen from the list below. Undergraduate finance majors must choose an additional restricted elective instead of taking FIN 6406.

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

### Hospitality Management

An M.B.A. specialization in hospitality management requires a minimum of nine hours of graduate electives chosen from the list below.

FSS	6365	Management of Food Service Operations
HFT	6240	Managing Hospitality and Guest Services Organizations.
HFT	6251	The Management of Lodging Operations
HFT	6710	International Tourism Management

### International Business

An M.B.A. specialization in international business requires six hours of restricted graduate electives in addition to GEB 6365. Students may take their six hours from the following courses:

ACG	6255	International & Multinational Accounting
ECO	6705	Seminar in International Economics
INR	6007	Seminar in International Politics
FIN	6627	International Financial Management

### Marketing

Students seeking a specialization in marketing must be enrolled in the M.B.A. A specialization in marketing requires a minimum of nine hours of graduate electives in addition to MAR 6816. Students may take their nine hours of elective courses in marketing from the following courses:

MAR	6406	Sales Management and Control
MAR	6456	Advanced Industrial Marketing Management
MAR	6616	Marketing Research Methods
MAR	6666	Marketing Models
MAR	6706	Contemporary Marketing Problems

**Real Estate**

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

FIN	6314	Management of Financial Institutions
ECP	6605	Economics of Urban & Regional Problems
FIN	6475	Business Valuation
FIN	6425	Asset Management
FIN	6506	Investments

**EXAMINATION**

The end-of-program requirement for the Master of Business Administration degree will include the following:

1. Students completing the program in three (3) consecutive years (no interruptions) or less will complete the capstone, integrative course MAN 6721, Business Policy and Responsibility, with a grade of "B" or better.
2. Students requiring more than three (3) years to complete the professional core and those who do not complete MAN 6721 with a "B" or better must pass a comprehensive, integrative examination consisting of four (4) equal parts covering the areas of economics, finance, management and marketing. Each part of the test must be passed. If any part of the examination is failed on the initial attempt, the student will prepare a plan of study in cooperation with that Department Chair and the Director of the M.B.A. program in order to be eligible to retake that part of the exam the following term. Each section may be taken a maximum of two times.

Total Minimum Semester Hours Required: **33-63**

**MASTER OF SCIENCE IN ACCOUNTING**

Program Advisor: ..... *L. J. Savage*  
 BA 433, Phone (407) UCF-5661 or UCF-2871

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

The Master of Science in Accounting degree is awarded upon satisfactory completion of a graduate program of 30 semester hours. At least 15 of the 30 hours must be made up of courses at the 6000 level. Students, with the assistance and approval of the program advisor, may select an area of specialization in Management, Public, Tax, General, or Not-for-Profit Accounting. Following is a list of required courses and restricted electives.

**Master of Science in Accounting — Degree Requirements**

<b>REQUIRED COURSES</b>			<b>30 Semester Hours</b>
			<b>15 Semester Hours</b>
ACG	5346	Cost Accounting II	3 hours
TAX	5015	Federal Income Tax II	3 hours
ACG	5636	Advanced Auditing Topics	3 hours
ACG	6405	Accounting Information Systems II	3 hours
ACG	6805	Seminar in Accounting Theory	3 hours
<b>RESTRICTED ELECTIVE COURSES</b>			<b>15 Semester Hours</b>
Electives from the categories below must be selected with advisor approval.			
Two courses from the following:			
ACG	5206	Seminar in Financial Reporting	3 hours
ACG	5625	Auditing and EDP	3 hours

ACG	5675	Operational Auditing	3 hours
ACG	6255	International and Multinational Accounting	3 hours
ACG	6356	Seminar in Cost Accounting	3 hours
ACG	6519	Seminar in Governmental and Nonbusiness Organizations	3 hours
ACG	6696	Seminar in Auditing	3 hours
ACG	6806	Seminar in Professional Accounting Issues	3 hours
TAX	6065	Seminar in Tax Research	3 hours
TAX	6135	Seminar in the Taxation of Corporations and Shareholders	3 hours
TAX	6205	Seminar in Taxation of Partnership Income	3 hours
TAX	6405	Seminar in the Taxation of Estates, Gifts, and Trusts	3 hours
TAX	6845	Seminar in Tax Planning	3 hours

Three courses from the following:

ECO	6115	Economic Analysis of the Firm	3 hours
ECO	6416	Statistical Methods for Business Decisions	3 hours
FIN	6406	Financial Analysis and Management	3 hours
MAN	6245	Organizational Behavior and Development	3 hours
MAN	6546	Quantitative Models for Business Decisions	3 hours
MAR	6816	Marketing Policy	3 hours

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

## FOUNDATION CORE

**58 Semester Hours**

The courses in the foundation core for this program are usually satisfied if a person enters the M.S.A. program with a recent undergraduate degree in accounting from an institution whose business program is accredited by the AACSB. Otherwise, equivalent specific courses, as identified by the program advisor, are required. If deficiencies exist, they usually must be satisfied before advanced coursework can be taken. Some of the prerequisite coursework may be satisfied through credit by examination if approved by the school.

ACG	5005*	Financial and Managerial Accounting Concepts	3 hours
ACG	3101	Intermediate Financial Accounting I	3 hours
ACG	3111	Intermediate Financial Accounting II	3 hours
ACG	3361	Cost Accounting I	3 hours
ACG	4401	Accounting Systems	3 hours
ACG	3501	Financial Accounting for Governmental and Nonprofit Organizations	3 hours
ACG	4203	Advanced Accounting	3 hours
TAX	4001	Federal Income Tax I	3 hours
ACG	4651	Auditing	3 hours
BUL	3320	Business Law I	3 hours
BUL	3321	Business Law II	3 hours
CGS	3000	Computer Fundamentals for Business Applications	3 hours
ECO	3401	Mathematical Economics	3 hours
ECO	3411	Quantitative Methods and Business Decision Analysis	3 hours
ECO	5005*	Economic Concepts	3 hours
ECO	5415*	Statistics for Business and Economics	3 hours
FIN	5405*	Financial Concepts	3 hours
MAN	4720	Business Policy	3 hours
MAN	5050*	Management Concepts	2 hours
MAN	5501*	Introduction to Production/Operations Management	2 hours
MAR	5055*	Marketing Concepts	3 hours

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

Student must show clear evidence of proficiency in oral and written communication and computer usage.

## EXAMINATION

Satisfactory completion of an end-of-program comprehensive examination is required. The M.S. in Accounting program does not require a thesis.

## MASTER OF SCIENCE IN TAXATION

Program Advisor: ..... Dale Bandy  
BA 435, Phone (407) UCF-2964 or UCF-2871

The Master of Science in Taxation degree program provides candidates with an opportunity to specialize in taxation. The program emphasis is on the preparation of individuals for careers as professional accountants in public practice, government, and industry. (This program satisfies the requirements of the State Board of Accounting to qualify for the CPA examination if a candidate holding the appropriate undergraduate degree in accounting takes an auditing elective in the M.S.T. program.) The Master of Science in Taxation degree is awarded upon completion of a graduate program with a minimum of 30 semester hours. The program consists of 18 hours of required graduate tax courses and 12 hours of restricted electives. Electives are selected with the assistance and approval of the advisor. Required courses and available electives are described below.

### Master of Science in Taxation — Degree Requirements

#### REQUIRED COURSES

		18 Semester Hours	
TAX	5015	Federal Income Tax II	3 hours
TAX	6065	Seminar in Tax Research	3 hours
TAX	6135	Seminar in the Taxation of Corporations and Shareholders	3 hours
TAX	6205	Seminar in Taxation of Partnership Income	3 hours
TAX	6405	Seminar in Taxation of Estates, Gifts, and Trusts	3 hours
TAX	6845	Seminar in Tax Planning	3 hours

#### RESTRICTED ELECTIVE COURSES

#### 12 Semester Hours

A total of 12 semester hours of electives must be selected with advisor approval. Master of Science in Taxation electives may be selected from either the required courses or any category of elective courses available in the Master of Science in Accounting degree program (other than the 18 semester hours of tax courses listed above).

#### FOUNDATION CORE

#### 58 Semester Hours

The courses in the foundation core for this program are satisfied if a person enters the M.S.T. program with a recent undergraduate degree in accounting from an AACSB accredited college or university. The accounting undergraduate program at UCF meets this requirement. Students with non-accounting undergraduate degrees or degrees from unaccredited institutions must complete the 58 semester hour foundation core for the M.S.A. Credit is given for previously completed work. The courses included in the foundation core are listed in the Master of Science in Accounting degree requirements.

## EXAMINATION

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

## MASTER OF ARTS IN APPLIED ECONOMICS

Program Advisor: ..... B. M. Braun  
BA 325, Phone (407) UCF-2870

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



## Master of Arts in Applied Economics — Degree Requirements

30 Semester Hours

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

### PREREQUISITES

12 Semester Hours

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

ECO	5005	Economic Concepts	3 hours
ECO	5415	Statistics for Business and Economics	3 hours
MAC	1104	College Algebra	3 hours
ECO	3401	Mathematical Economics	3 hours

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

### REQUIRED COURSES

9 Semester Hours

ECO	6115	Economic Analysis of the Firm	3 hours
ECO	6206	Aggregate Economic Conditions and Analysis	3 hours
ECO	6416	Statistical Methods for Business Decisions	3 hours

### ECONOMICS ELECTIVES

12-21 Semester Hours

A minimum of twelve additional hours of economics elective coursework is required.

### NON-ECONOMICS ELECTIVES

0-9 Semester Hours

A maximum of nine hours of approved non-economics elective coursework may be completed in disciplines such as accounting, finance, management, marketing, mathematics, statistics, public administration, and computer science. Career-oriented elective coursework specializations are presented below; however, no more than 6 hours outside the College of Business Administration may be used.

### THESIS OR INTERNSHIP

6 Semester Hours

Six credit hours of thesis or internship may be used to complete the M.A. in Applied Economics degree. The candidate may fulfill this requirement by completing: (1) a formal thesis on a topic selected in consultation with the candidate's advisory committee and meeting both departmental and university requirements or (2) an internship consisting of work in a business or governmental agency and an end-of-project, thesis-quality report.

### FINAL EXAMINATION

Candidates must satisfactorily complete a comprehensive final examination. If the thesis or internship option is chosen to complete the degree, the examination will normally consist of an oral examination over the thesis or internship project. The candidate's supervisory committee will have discretion to determine the extent of this requirement. Candidates choosing the non-thesis option will be required to pass a written or oral examination covering economic theory and six hours of elective coursework.

Total Minimum Semester Hours Required:

30 Semester Hours

### CAREER-ORIENTED ELECTIVE SPECIALIZATIONS

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

### 1. Financial Economics

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

ECO	6266	Business Cycles and Forecasting
ECO	6226	Seminar in Money, Banking and Monetary Policy
ECP	6705	Managerial Economics
FIN	6406	Financial Analysis and Management
FIN	6425	Asset Management and Financial Decisions
FIN	6506	Analysis of Investment Opportunities
FIN	6627	International Financial Management
RMI	6008	Risk Management

### 2. Public Sector Economics

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

ECO	6226	Seminar in Money, Banking and Monetary Policy
ECO	6505	Public Finance and Fiscal Policy
ECP	6205	Labor Economics
ECP	6405	Industrial Organization and Performance
ECP	6426	Economics of Regulated Industries
ECP	6605	Economics of Urban and Regional Problems
ECP	6705	Managerial Economics
REE	6306	Corporate Real Estate Investment Decision-Making

Approved electives in Public Administration

Approved electives in Political Science

Approved electives in Political Theory

### 3. Quantitative Economics

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

ECO	6266	Business Cycles and Forecasting
ECO	6424	Econometrics
ECP	6705	Managerial Economics
MAN	6546	Quantitative Models for Business Decisions
MAR	6616	Marketing Research Methods

### 4. International Political Economy

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

ECO	6705	Seminar in International Economics
ECS	6015	Economic Development
FIN	6627	International Financial Management
INR	6007	Seminar in International Politics
PUP	6058	Issues in International Public Policy

### 5. Human Resource Economics

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

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

## **Doctoral Program DOCTOR OF PHILOSOPHY DEGREE — PH.D.**

Contact Associate Dean's Office: ..... BA 230, Phone (407) UCF-5094

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 non-profit organizations. Success in the program is judged by the student's understanding of the issues and methodologies essential to the advancement of knowledge. Doctoral work is based on the achievement of academic and research competencies, rather than a specific number of courses. Students in the doctoral program are expected to attain the knowledge and skills necessary to develop excellence in teaching and to conduct quality research. Students are also expected to maintain the highest ideals of academic integrity and scholarship.

The Ph.D. program in Business Administration is undergoing extensive revisions during 1995. The revised program will accept students for a projected enrollment date of May, 1996. The program outlined below presents the revised Ph.D. program development as this catalog goes to press. Students wanting to apply to the program should contact the Associate Dean's Office for further information.

### **ADMISSION**

Students applying for admission to the doctoral program in Business Administration will be required to submit scores on the Graduate Management Admission Test (GMAT). The international student must submit the Test of English as a Foreign Language (TOEFL) score if the student is not a graduate from an accredited college or university in the United States. Each international student 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 each of the two multi-disciplinary emphases. Thus, applicants must indicate to which of the two grouped emphases (Accounting, Economics, and Finance) or (Hospitality Management, Management, and Marketing) they are applying.

Major features of the revised Ph.D. in Business Administration are:

(1) Experience: Strong preference will be given to applicants with significant managerial/executive experience, "Significant experience" connotes both time in position and level of position. (2) Format: The program is designed for part-time enrollment. Thus, students will normally enroll for six hours each semester, plus the one-hour teaching forum. (3) Cost: Students will pay their own tuition and fees. There will be an additional program fee of \$2,000 for the first year and \$1,000 for each subsequent year of enrollment to defray program costs. (4) Admissions: Only students with master's degrees in business administration, or the equivalent foundation as outlined below in the Foundation Body of Knowledge, will be admitted. Other applicants will be directed toward specific prerequisite courses to help them prepare for the program. Students may enter the program only during Summer Semester.

To be considered for admission, candidates must have all required application documents including application, official transcripts, and GMAT test scores in the College of Business Administration Office of Student Support by March 1.

### **DEGREE REQUIREMENTS**

Upon admission to the doctoral program, the student shall be assigned an advisory committee composed of faculty from the disciplines that comprise the areas of emphases in which the student has been accepted. The student, with the approval of the student's advisory committee, shall formulate a program of study, which, at a minimum, shall consist of the following:

#### **FOUNDATION BODY OF KNOWLEDGE**

#### **33 Semester Hours**

(a) the Common Body of Knowledge of the Master's in Business Administration Degree, or (b) master's degree from an accredited program in an appropriate business administration area that includes all the foundation courses deemed essential by the student's advisory committee, or (c) a CPA that includes all the foundation courses deemed essential by the student's advisory committee.

## PH.D. PROGRAM STRUCTURE

In addition to any prerequisite requirements for applicants without appropriate business administration master's degrees, the program has seven components:

### 1. PH.D. FOUNDATION

3 hours

The Ph.D. Foundation is a 3-hour, interdisciplinary introduction and transition to Ph.D. work that provides: (a) an overview/introduction to the relevant research issues in each of the CBA disciplines, (b) a review of basic topics in quantitative methods (e.g., descriptive statistics), and (c) an awareness of the level of rigor that will be expected in subsequent Ph.D. coursework. This course is required of all entering Ph.D. students and will consist of twelve, four-hour class meetings on Saturdays during Summer Semester. A faculty coordinator will oversee the course. Faculty from each of the academic units in the College will teach a section of the course.

### 2. DISCIPLINE OPTIONS

21 hours

Students must choose between two interdisciplinary emphases. These emphases allow students to focus on one of two general academic areas in the College. The courses listed in each emphasis are in approximate chronological order.

#### Emphasis 1: Accounting Economics, and Finance

This emphasis allows students to concentrate in one or a combination of three disciplines: accounting, economics, and finance. (1) Interdisciplinary Seminar in Accounting, Economics, and Finance (6 hours) is required of all students who intend to concentrate in this area of emphasis. (2) Seminar I, II, III, and IV in Accounting, Economics, and/or Finance (12 hours): Ph.D. seminars in one of three specific concentrations — accounting, economics, or finance. Students will ordinarily enroll in a minimum of two seminars in a single discipline. Each discipline (Accounting, Economics, and Finance) will offer two seminars. (3) Directed Research (3 hours).

#### Emphasis 2: Management, Marketing and Hospitality Management

This emphasis allows students to concentrate in one or a combination of three disciplines: management, marketing and hospitality management. (1) Interdisciplinary Seminar in Management, Marketing and Hospitality Management, (6 hours) is required of all students who intend to concentrate in this area of emphasis. (2) Strategy, Innovation, and Change (3 hours): (3) Strategic Management and Marketing of Hospitality and Services Organizations (3 hours). (4) Seminars I and II in either Hospitality Management, Management, or Marketing (6 hours) are Ph.D. seminars in one of three specific concentrations — management, marketing and hospitality management. Students may substitute the 6-hour, interdisciplinary seminar in accounting, economics, and finance for these two seminars. (5) Directed Research (3 hours).

### 3. RESEARCH TOOLS

12 hours

- Research Methods (3 hours): First course in research tools. Topics include the bridge between theory and research, measurement, reliability, validity, sampling, experimental design, survey research, qualitative research, and case research.
- Quantitative Methods I (3 hours): Includes hypothesis testing, simple regression, t-tests, ANOVA, and multiple regression.
- Quantitative Methods II (3 hours): Includes MANOVA, discriminant analysis, factor analysis, cluster analysis, path analysis, canonical correlation, and structural equation modeling.
- Research or Quantitative Methods (3 hours): Course chosen by the student in consultation with his/her committee. Examples include nonparametric statistics, stochastic processes, psychometric methods, and qualitative research. The first three research tool courses are taught inside the College of Business Administration by Business faculty. The fourth course may be taken inside or outside the College.

### 4. TEACHING TOOLS

6 hours

- Seminar in Teaching Methods (3 hours): This course focuses on college teaching methods and practice. It includes readings, outside speakers, classroom visitations, and other activities designed to enhance students' teaching skills.

- b. Teaching Forum (3 hours): The teaching forum is required each spring and fall semester after students complete the Seminar in Teaching Methods. The forum is conducted biweekly by CBA faculty. For forum credit, students are also required to attend scheduled teaching workshops and to teach one introductory course, while in the program, under the guidance of a CBA faculty member.

## **5. RESEARCH PAPER**

**3 hours minimum**

This is the final requirement for students after completing coursework and before submitting a dissertation proposal. Research papers, on topics approved by the faculty, should clearly demonstrate a student's ability to: (1) integrate literature, (2) interpret and synthesize the research of others, (3) develop and present ideas clearly and coherently, and (4) contribute meaningfully to knowledge in the discipline. The paper should be of journal quality and prepared independently with no faculty assistance.

The student will have one semester after completing coursework to submit the research paper for review by a faculty committee. The faculty committee will provide a written critique of the paper. If the paper is not approved, the student will be allowed one additional semester to revise the paper. If the revision is not approved, the student will not be permitted to continue in the program. The student must be enrolled in a minimum of three credit hours during each semester of research paper work. After the research paper is approved, the student will present the paper to CBA faculty in an open seminar.

## **6. DISSERTATION**

**6 hours minimum**

## **7. TEACHING AND RESEARCH ACTIVITIES**

In addition to the teaching forum, students will be required to attend non-credit Saturday afternoon activities involving teaching and research skills development. Teaching activities include practice lecture sessions, preparing audio-visual aids, and writing exams. Research activities include working with faculty on research projects, forums on special research tools, and research team meetings.

## **TOTAL DOCTORAL PROGRAM HOURS REQUIRED**

**84 semester hours minimum**

Excluding foundation prerequisites and dissertation, the program will require a minimum of 45 semester hours of coursework. A minimum of 84 hours is required beyond the bachelors degree.

## **CANDIDACY EXAMINATION**

The student must successfully complete a comprehensive Candidacy Examination. The research paper and presentation serves in lieu of traditional program comprehensive exams. This examination has written and oral parts, and covers the candidate's program of study through the research paper. 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.

## **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.

## Course Offerings

- ACG 5005** **BA 3(3,0)**  
**Financial and Managerial Accounting Concepts:** PR: Acceptance into the graduate program. The conceptual background for understanding financial statements and managerial accounting reports. (Not open to accounting majors.)
- ACG 5206** **BA 3(3,0)**  
**Seminar in Financial Reporting:** PR: Acceptance for graduate study and all accounting foundation courses. An indepth study of advanced financial reporting topics.
- ACG 5346** **BA 3(3,0)**  
**Cost Accounting II:** PR: Acceptance for graduate study, ACG 3361, ACG 3111, FIN 3403, ECO 3411. Continuation of ACG 3361. Overhead and joint cost allocation, capital budgeting and analysis, EOQ analysis, decentralization, and quantitative decision analysis.
- ACG 5506** **BA 3(3,0)**  
**Accounting for Governmental and Nonbusiness Organizations:** PR: Acceptance for graduate study and ACG 3501, ACG 3142. Study of problems and methods of applying managerial accounting concepts in a nonprofit environment.
- ACG 5625** **BA 3(3,0)**  
**Auditing and EDP:** PR: Acceptance for graduate study, ACG 3142, ACG 4401, and ACG 4651. An examination of auditing procedures followed when a company uses a computer to process financial records.
- ACG 5636** **BA 3(3,0)**  
**Advanced Auditing Topics:** PR: Acceptance for graduate study, ACG 4401, ACG 4651, and ECO 3401. Special topics relative to the standards, practices and procedures followed in the audit function. Includes statistical sampling, advanced computer systems, advanced applications and reporting problems.
- ACG 5675** **BA 3(3,0)**  
**Operational Auditing:** PR: Acceptance for graduate study, ACG 3142 and ACG 4651. The standards, principles, practices and procedures followed in the internal audit function.
- ACG 6255** **BA 3(3,0)**  
**International and Multinational Accounting:** PR: Graduate standing and ACG 3111. An examination of the environmental factors affecting international accounting concepts and standards. Cross-country differences in accounting treatments are compared.
- ACG 6356** **BA 3(3,0)**  
**Seminar in Cost Accounting:** PR: ACG 5346, graduate standing and all foundation courses for the accounting program or equivalents. A study of current selected topics in cost and management accounting.
- ACG 6405** **BA 3(3,0)**  
**Accounting Information Systems II:** PR: Graduate standing and all foundation courses for the accounting program or equivalents. Design and analysis of information systems and special auditing topics.
- ACG 6425** **BA 3(3,0)**  
**Managerial Accounting Analysis:** PR: Graduate standing and ACG 5005, or one year of accounting, and ECO 5415. (Not open to accounting majors.) Accounting as an information measurement system for internal planning and control.
- ACG 6519** **BA 3(3,0)**  
**Seminar in Governmental and Nonbusiness Accounting and Auditing:** PR: Graduate standing and all foundation courses for the accounting program or equivalents. Examination of current issues and topics with emphasis on current and future developments.
- ACG 6696** **BA 3(3,0)**  
**Seminar in Auditing:** PR: ACG 5636, graduate standing and all foundation courses for the accounting program or equivalents. A study of current auditing topics.
- ACG 6805** **BA 3(3,0)**  
**Seminar in Accounting Theory:** PR: Graduate standing and all foundation courses for the accounting program or equivalents. An examination of the evolution of contemporary accounting theory with emphasis on current and future developments.

- ACG 6806** **BA 3(3,0)**  
**Seminar in Professional Accounting Issues:** PR: Graduate standing and all foundation courses for the accounting program or equivalents. An examination of current issues confronting the accounting profession.
- ACG 7157** **BA 3(3,0)**  
**Seminar in Financial Accounting Research:** PR: Admission to doctoral program, equivalent of Master's degree in Accounting or Taxation, QMB 7565, and GEB 7910; and C.I. Extensive coverage of empirical literature dealing with bankruptcy prediction, earnings forecasting, income smoothing, information content, analytical review and related financial accounting research.
- ACG 7399** **BA 3(3,0)**  
**Seminar in Behavioral Accounting Research:** 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.
- ACG 7698** **BA 3(3,0)**  
**Directed Research Project in Auditing:** PR: Admission to doctoral program and ACG 7699, or C.I. Highly individualized research project on a specific auditing research issue. Includes proposals development, methodology, data gathering, analysis, and reporting results.
- ACG 7699** **BA 3(3,0)**  
**Seminar in Auditing Research:** PR: Admission to doctoral program, ACG 7157, and C.I. A thorough review and critical analysis of auditing research literature, with emphasis on emerging research issues and methods.
- ACG 7887** **AS 1(1,0)**  
**Accounting Research Forum:** PR: Admission to doctoral program. Research and pedagogical issues in accounting, including research presentations by faculty, doctoral students, and invited scholars. May be taken for 4 hours credit.
- ACG 7915** **BA 3(3,0)**  
**Directed Research in Accounting:** PR: GEB 7910 and C.I. Advanced study in specialized areas of accounting research. Study designed to lead towards publishable research or student's dissertation. By definition, topical areas will vary.
- ACG 7917** **BA 3(3,0)**  
**Seminar in Research Methods in Accounting:** PR: Admission to doctoral program, or C.I. Extensive coverage and critical analysis of accounting theory literature and research methods in accounting.
- BUL 5125** **BA 3(3,0)**  
**Legal and Social Environment of Business:** PR: Admission to graduate program. Analysis of the legal and ethical environment of business, the effects of legislation and regulation on business activity, and the role of law and ethics in the decision making process.
- ECO 5005** **BA 3(3,0)**  
**Economic Concepts:** PR: Acceptance into the graduate program. Introduction to micro- and macro-economic analysis.
- ECO 5415** **BA 3(3,0)**  
**Statistics for Business and Economics:** PR: Acceptance into the graduate program and MAC 3233 or equivalent. Statistical theory and problems relating to business and economics including time series and correlation theory, index number theory and statistical inference.
- ECO 6115** **BA 3(3,0)**  
**Economic Analysis of the Firm:** PR: Graduate standing and ECO 5005 or equivalent. Commodity price and output determination; factor price determination and functional income distribution; analysis of different types of markets.
- ECO 6206** **BA 3(3,0)**  
**Aggregate Economic Conditions and Analysis:** PR: Graduate standing and ECO 5005 or equivalent. An analysis of aggregate economic conditions including the determination of output, employment and income levels.
- ECO 6226** **BA 3(3,0)**  
**Seminar in Money, Banking and Monetary Policy:** PR: Graduate standing and ECO 5005 or equivalent. Study of the structural foundation and policy making activities of the monetary authorities.

- ECO 6266** **BA 3(3,0)**  
**Business Cycles and Forecasting:** PR: ECO 5005 and ECO 6416 or equivalents, graduate standing. Use of economic tools for measuring changes in aggregate economic activity, changes in production and prices, and the use of statistical techniques.
- ECO 6305** **BA 3(3,0)**  
**History of Economic Thought:** PR: Graduate standing and ECO 5005 or equivalent. A study of the leading ideas of the major contributors to the development of economic thought.
- ECO 6416** **BA 3(3,0)**  
**Statistical Methods for Business Decisions:** PR: Graduate standing and ECO 5415 or equivalent. Multivariate methods and related tools applied to analyze business and economic data as an aid in decision making.
- ECO 6424** **BA 3(3,0)**  
**Econometrics:** PR: ECO 6416 and graduate standing. The mathematical formulation of economic theories and the use of statistical procedures to measure the theoretical relationships and to verify or reject the theories.
- ECO 6505** **BA 3(3,0)**  
**Public Finance and Fiscal Policy:** PR: Graduate standing and ECO 6115 or equivalent. Analysis of the role of government and the effects of spending, taxing, and borrowing on the economy.
- ECO 6705** **BA 3(3,0)**  
**Seminar in International Economics:** PR: Graduate standing and ECO 6115 or equivalent. An inquiry into the theory of international trade and finance, commercial policy and economic integration.
- ECP 6205** **BA 3(3,0)**  
**Labor Economics:** PR: Graduate standing and ECO 6115 or equivalent. An investigation into the nature and function of the labor markets, with specific concern for both institutional and noninstitutional imbalance.
- ECP 6405** **BA 3(3,0)**  
**Industrial Organization and Performance:** PR: Graduate standing and ECO 6115. A study of the performance of various types of market structure and practice relative to price and efficiency.
- ECP 6605** **BA 3(3,0)**  
**Economics of Urban and Regional Problems:** PR: Graduate standing and ECO 6115. Economic analysis of the problems arising from and associated with the growth and development of cities and regions.
- ECP 6705** **BA 3(3,0)**  
**Managerial Economics:** PR: Graduate standing and ECO 6115 or equivalent. The use of economic tools and methods of reasoning applied to a wide range of business and economic problems.
- ECS 6006** **BA 3(3,0)**  
**Seminar in Comparative Economic Systems:** PR: Graduate standing and ECO 5005 or equivalent. An examination of factors that influence economic systems, patterns of resource allocation and income distribution in differing economic environments.
- ECS 6015** **BA 3(3,0)**  
**Economic Development:** PR: Graduate standing and ECO 5005 or equivalent. Analysis of theories and problems of growth and development with special attention to resource scarcity, population growth, and interaction of foreign trade and internal development.
- FIN 5405** **BA 3(3,0)**  
**Financial Concepts:** PR: Acceptance into the graduate program, ACG 5005 and ECO 5005 and ECO 5415 or equivalents. Effects of financial decisions upon the firm, interrelationships of these effects and alternatives available to financial managers in making these financial decisions.
- FIN 6314** **BA 3(3,0)**  
**Management of Financial Institutions:** PR: Graduate standing and FIN 6406. Analysis of management policies of financial institutions including asset, liability and capital management. Study of the legal, economic and regulatory environment faced by banks.
- FIN 6406** **BA 3(3,0)**  
**Financial Analysis and Management:** PR: Graduate standing and FIN 5405 or equivalent. Conceptual and practical problems associated with financial management of the nonfinancial corporation.



- FIN 6425** **BA 3(3,0)**  
**Asset Management and Financial Decisions:** PR: Graduate standing and FIN 6406. Considers the interrelated decision making process of asset allocations, corporate fund raising, dividend policies and market maximization.
- FIN 6475** **BA 3(3,0)**  
**Business Valuation:** PR: Graduate standing and FIN 6406. Theory and practice of estimating the value of small, closely held businesses.
- FIN 6506** **BA 3(3,0)**  
**Analysis of Investment Opportunities:** PR: Graduate standing and FIN 6406. Deals with the theory and tools of analysis required in the management of financial assets.
- FIN 6507** **BA 3(3,0)**  
**Seminar in Investments:** PR: Graduate standing, FIN 6406 and FIN 6506. Analysis of options, futures, and other derivative securities and their use in hedging strategies. Other topics include institutional equity and bond portfolio management techniques.
- FIN 6627** **BA 3(3,0)**  
**International Financial Management:** PR: ECO 6416, FIN 6406. The theory of finance as applied to the operations of multinational firms and international capital markets.
- FIN 7807** **BA 3(3,0)**  
**Corporate Finance Theory:** PR: Admission to the Business doctoral program and FIN 6406 or equivalent; ECO 6416 or equivalent; or consent of instructor. Elaborate coverage of significant theoretical/classical literature and review of empirical literature to provide a sound framework of conceptual knowledge for doctoral students.
- FIN 7813** **BA 3(3,0)**  
**Seminar in Financial Markets and Institutions:** PR: Admission to business doctoral program and FIN 6406 or equivalent, ECO 6416 or equivalent, and consent of instructor. Extensive study of the theoretical and empirical literature dealing with current theory of the operation of financial markets and financial intermediaries.
- FIN 7816** **BA 3(3,0)**  
**Investment Theory:** PR: Admission to business doctoral program, FIN 7811, QMB 7565, and consent of instructor. Extensive coverage of theoretical and empirical literature dealing with modern investment thought, portfolio theory, capital market equilibrium, and related topics.
- FIN 7915** **BA 3(3,0)**  
**Directed Research in Finance:** PR: FIN 7813, FIN 7816, and C.I. Advanced study of theory and evidence in specialized areas of Finance. Study designed to lead towards student's dissertation. By definition, topical areas will vary.
- FIN 7930** **BA 3(3,0)**  
**Seminar in Finance:** PR: FIN 7813, FIN 7816, and C.I. Study of private sector financial theory, policy, empires, and decision-making.
- FSS 6365** **BA 3(3,0)**  
**Management of Food Service Operations:** PR: Graduate standing. The examination of techniques and mechanisms employed in the management of food service operations. Comparisons, case studies and selected topics focus on private and public operations.
- GEB 6115** **BA 3(3,0)**  
**Entrepreneurship:** PR: Graduate standing. Seminar on topics concerning the entrepreneurial process in small and large organizations, including need assessment, sources and methods of innovation, financing, and barriers to entrepreneurship.
- GEB 6365** **BA 3(3,0)**  
**International Business Environment:** PR: Graduate standing, MAN 5050, MAR 5055, ACG 5005, FIN 5405, and ECO 5005. Extensive Coverage of International Business environment with emphasis on the functional operation of multinational firms.
- GEB 7910** **BA 3(3,0)**  
**Research Methods in Business:** PR: Admission to Business doctoral program and ECO 6416 or equivalent; or consent of instructor. A foundation research course in business, exposing students to a full range of research experiences.

- HFT 6240** **BA 3(3,0)**  
**Managing Hospitality and Guest Services Organizations:** PR: graduate standing. Analysis of the unique problems of managing organizations in hospitality and guest services industry.
- HFT 6251** **BA 3(3,0)**  
**The Management of Lodging Operations:** PR: Acceptance into the Graduate Program. Presentation and analysis of the unique management techniques applicable in the diverse segments of the lodging industry.
- HFT 6710** **BA 3(3,0)**  
**International Tourism Management:** PR: Graduate Standing. A review and critical analysis of the issues and techniques of international tourism management with specific attention to the economic, socio-cultural and environmental impacts.
- ISM 5021** **BA 3(3,0)**  
**Introduction to Management Information Systems:** PR: Acceptance into the graduate program. Designed to provide the student with the fundamentals of business data processing and management information systems used by organizations in a modern society.
- ISM 6121** **BA 3(3,0)**  
**Systems Analysis and Development:** PR: MAN 5050 and graduate standing. Study and application of systems concepts for the improvement of organizational work and information systems.
- ISM 6305** **BA 3(3,0)**  
**Information Resources Management:** PR: ISM 5021, MAN 5050, MAN 5501 and graduate standing. An advanced study of information system management including system planning, project selection and management, and organizational information management policies.
- ISM 6395** **BA 3(3,0)**  
**Seminar — Management Information System:** PR: ISM 6305, ISM 6121 and graduate standing. This seminar covers theoretical foundations and current research directions in Management Information Systems. Topics include organizational and managerial processing; systems design, development and implementation.
- MAN 5050** **AS 2(2,0)**  
**Management Concepts:** PR: Acceptance into the graduate program. Theory and practice of managing organizations to include planning, organizational theory, human behavior and control.
- MAN 5501** **AS 2(2,0)**  
**Introduction to Production/Operations Management:** PR: Acceptance into the graduate program and ECO 5415 or equivalent. Introduction to the fundamental concepts, processes and institutions involved in the production of goods and services required by modern society.
- MAN 6055** **BA 3(3,0)**  
**Planning and Control Analysis:** PR: Graduate standing and MAN 5050 or equivalent. Emphasizes elements of the planning and control processes including objectives, action programs and control procedures. Discusses integration of the two processes.
- MAN 6075** **BA 3(3,0)**  
**History of Management Thought:** PR: Graduate standing and MAN 5050. The historical development of management in modern society with emphasis on the interrelationship between the management processes and the economic, social, and political environments.
- MAN 6121** **BA 3(3,0)**  
**Group Decisions and Analysis:** PR: Graduate standing and MAN 5050 or equivalent. Experience in company-wide management decision making by groups using the management game techniques. Analysis of the group decisionmaking process using video tapes.
- MAN 6156** **BA 3(3,0)**  
**Personnel Resources Administration:** PR: Graduate standing. A seminar in integrating the personnel, manpower planning, and labor relations fields through the study of concepts and problems in these areas.
- MAN 6158** **BA 3(3,0)**  
**Human Resources Management Issues:** PR: MAN 6156 or C.I. A course providing advanced study in selected topics of current interest in Human Resource Management.

- MAN 6245** **BA 3(3,0)**  
**Organizational Behavior and Development:** PR: Graduate standing and MAN 5050 or equivalent. The analysis of human behavior in organizations in terms of the individual, small group, intergroup relationships, and the total organization.
- MAN 6299** **BA 3(3,0)**  
**Creative and Innovative Management:** This course examines the emerging theories and practices related to creative and innovative management. It combines the creativity of new concepts, new ideas, new directions, and the like with their innovative implementation in a management context.
- MAN 6305** **BA 3(3,0)**  
**Personnel Resources Administration:** PR: Graduate standing. A seminar in integrating the personnel, manpower planning, and labor relations fields through the study of concepts and problems in these areas.
- MAN 6515** **BA 3(3,0)**  
**Research and Development Management:** PR: Graduate standing and MAN 5050. An examination of the function of research and development and the impact of technological innovation on our economic and social systems.
- MAN 6546** **BA 3(3,0)**  
**Quantitative Models for Business Decisions:** PR: Graduate standing and ECO 5415 or equivalent. Quantitative techniques useful for the solution of business problems. Mathematical model building to aid the decision making process is stressed.
- MAN 6547** **BA 3(3,0)**  
**Expert Systems for Business Application:** PR: Graduate standing and C.I. if non-Business student. An introduction and application of the fundamentals of artificial intelligence (AI) knowledge-based expert systems technology to problem solution needs of business and other disciplines.
- MAN 6565** **BA 3(3,0)**  
**Production/Operations Analysis:** PR: MAN 5050, MAN 5501 or equivalents and MAN 6546. Study of the production/operations environment and the development of the organization's operations strategy and plan.
- MAN 6721** **BA 3(3,0)**  
**Business Policy and Responsibility:** PR: Graduate standing and completion of all MBA professional core courses or their equivalent. MBA program capstone course providing the student experience in formulating policy and strategy for the direction of a business firm from the integrated viewpoint of a CEO.
- MAR 5055** **BA 3(3,0)**  
**Marketing Concepts:** PR: Acceptance into the graduate program. Study of functions, institutions and basic marketing of goods in the U.S. economy.
- MAR 5941** **BA 3(3,0)**  
**Small Business Consulting:** PR: Graduate status, all foundation classes, FIN 6406, MAR 6816. Provides students opportunity to apply knowledge learned in the classroom to real business situations. Open to undergraduate majors in the College of Business Administration with approval of the department chair.
- MAR 6077** **BA 3(3,0)**  
**Contemporary Marketing Problems:** PR: Graduate standing, MAR 6816, or C.I. Analysis of contemporary marketing problems resulting from social, economic, and political developments.
- MAR 6406** **BA 3(3,0)**  
**Sales Management and Control:** PR: Graduate standing and MAR 5055 or equivalent. Designed to provide an analysis of the sales and management process. Topics covered include selection and training, compensation, behavioral issues and sales planning, evaluation, and control.
- MAR 6456** **BA 3(3,0)**  
**Advanced Industrial Marketing Management:** PR: MAR 5055 or equivalent or C.I. This course provides a comprehensive introduction to the distinctive characteristics of industrial markets. The course reviews what is known about organizational buying behavior which provides the foundation necessary to formulate marketing strategies.

- MAR 6616** **BA 3(3,0)**  
**Marketing Research Methods:** PR: Graduate standing, ECO 6416. Investigation of primary research methods used to generate information for marketing decision makers. Problem definition, research design, data collection, data processing, statistical interpretation, and communication of research results.
- MAR 6666** **BA 3(3,0)**  
**Marketing Models:** PR: MAR 6816 & ECO 6416. This course provides a working knowledge and managerial perspective on a range of marketing models and their associated analytical techniques.
- MAR 6816** **BA 3(3,0)**  
**Marketing Policy:** PR: Graduate standing and MAR 5055 or equivalent. (Not open to undergraduate marketing majors.) Marketing policy formulation and decision making with respect to planning, pricing, promotion, and distribution.
- MAR 6845** **BA 3(3,0)**  
**Services Marketing:** 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.
- QMB 7565** **BA 3(3,0)**  
**Applied Statistical Business Decision Models:** PR: Admission to Business doctoral program; ECO 6416 or equivalent; or C.I. Logic and procedures used in research and data evaluation in the business sciences applying advanced statistical models to decision-making problems.
- REE 6306** **BA 3(3,0)**  
**Corporate Real Estate Investment Decision-Making:** PR: Acceptance into the graduate program and FIN 5405 or equivalent. Study of the theory and practice of location, acquisition, management, and disposition of corporate real estate assets.
- REE 6308** **BA 3(3,0)**  
**Corporate Real Estate Development:** PR: Graduate Standing and REE 6306. Real estate decision making in the private sector utilizing tools of financial economic analysts.
- TAX 5015** **BA 3(3,0)**  
**Federal Income Tax II:** PR: ACG 3111, TAX 4001 and meet School admission requirements. Concepts and methods of determining taxable income for partnerships and corporations and selected topics.
- TAX 6065** **BA 3(3,0)**  
**Seminar in Tax Research:** PR: Graduate standing and all foundation courses for the accounting program or equivalents. Advanced study of and research in tax law. Procedures governing tax controversies and tax compliance.
- TAX 6135** **BA 3(3,0)**  
**Seminar in the Taxation of Corporations and Shareholders:** PR: TAX 5015 and graduate standing and all foundation courses for the accounting program. Federal taxation relating to corporate organization, distributions, liquidations, accumulations, and reorganizations.
- TAX 6205** **BA 3(3,0)**  
**Seminar in the Taxation of Partnership Income:** PR: TAX 5015 and graduate standing and all foundation courses for the accounting program. Federal taxation relating to partnership income including formation, distributions and retirements.
- TAX 6405** **BA 3(3,0)**  
**Seminar in the Taxation of Estates, Gifts, and Trusts:** PR: TAX 5015 and graduate standing and all foundation courses for the accounting program. Federal and Florida estate and inheritance taxes; taxation of gifts and trusts.
- TAX 6845** **BA 3(3,0)**  
**Seminar in Tax Planning:** PR: TAX 5015 and graduate standing and all foundation courses for the accounting program. Substantive provisions of federal tax law; tax planning from a business viewpoint; case studies of the effect of tax law on business decisions.
- TAX 7066** **BA 3(3,0)**  
**Seminar in Doctoral Tax Research:** PR: Admission to doctoral program, ACG 7157, and C.I. A review and critical analysis of tax research literature, with emphasis on emerging issues, methodology, and data gathering.

# COLLEGE OF EDUCATION

Advanced courses through the College of Education are for students with 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. Educational Specialist and Doctor of Education degrees are available in Educational Leadership and Curriculum/Instruction. Programs in the College of Education are accredited by NCATE (The National Council for the Accreditation of Teacher Education).

## COLLEGE ADMINISTRATION

<i>Mary Palmer</i> . . . . .	Dean
<i>John A. Middleton</i> . . . . .	Associate Dean
<i>David Hernandez</i> . . . . .	Interim Associate Dean
<i>Margaret Miller</i> . . . . .	Assistant Dean & Associate Professor

## Faculty

<i>D. J. Baumbach, Ed.D.</i> . . . . .	Professor
<i>T. Blair, Ph.D.</i> . . . . .	Professor
<i>W. C. Bozeman, Ph.D.</i> . . . . .	Professor
<i>D. K. Brumbaugh, Ed.D.</i> . . . . .	Professor
<i>R. G. Cowgill, Ph.D.</i> . . . . .	Professor
<i>C. D. Dziuban, Ph.D.</i> . . . . .	Professor
<i>H. O. Hall, Ed.D.</i> . . . . .	Professor
<i>D. E. Hernandez, Ed.D.</i> . . . . .	Professor
<i>M. C. Hynes, Ph.D.</i> . . . . .	Professor
<i>A. R. Joels, Ph.D.</i> . . . . .	Professor
<i>W. H. Johnson, Ph.D.</i> . . . . .	Professor
<i>M. L. Kysilka, Ph.D.</i> . . . . .	Professor
<i>R. Lange, Ph.D.</i> . . . . .	Professor
<i>M. A. Lynn, Ed.D.</i> . . . . .	Professor
<i>R. D. Martin, Ed.D.</i> . . . . .	Professor
<i>D. J. Mealar, Ph.D.</i> . . . . .	Professor
<i>J. Midgett, Ed.D.</i> . . . . .	Professor
<i>J. L. Olson, Ph.D.</i> . . . . .	Professor
<i>G. W. Orwig, Ed.D.</i> . . . . .	Professor
<i>M. J. Palmer, Ed.D.</i> . . . . .	Dean and Professor
<i>F. D. Rohter, Ph.D.</i> . . . . .	Professor
<i>R. A. Rothberg, Ed.D.</i> . . . . .	Professor
<i>R. A. Thompson, Ed.D.</i> . . . . .	Professor
<i>J. H. Armstrong, Ed.D.</i> . . . . .	Chair, Department of Instructional Programs and Associate Professor
<i>R. A. Bailey, Ph.D.</i> . . . . .	Associate Professor
<i>C. R. Balado, Ed.D.</i> . . . . .	Associate Professor
<i>J. S. Beadle, Ph.D.</i> . . . . .	Associate Professor
<i>K. L. Biraimah, Ph.D.</i> . . . . .	Associate Professor
<i>R. M. Bollet, Ed.D.</i> . . . . .	Chair, Department of Educational Services and Associate Professor
<i>D. J. Camp, Ph.D.</i> . . . . .	Associate Professor
<i>R. A. Cornell, Ed.D.</i> . . . . .	Associate Professor
<i>J. W. Cornett, Ph.D.</i> . . . . .	Associate Professor
<i>A. Cross, Ph.D.</i> . . . . .	Associate Professor
<i>L. Cross, Ph.D.</i> . . . . .	Associate Professor
<i>R. M. Everett, Ph.D.</i> . . . . .	Associate Professor
<i>G. R. Gergley</i> . . . . .	Associate Professor
<i>D. W. Gurney, Ph.D.</i> . . . . .	Associate Professor
<i>T. L. Harrow, Ph.D.</i> . . . . .	Associate Professor
<i>S. L. Hiatt, Ph.D.</i> . . . . .	Associate Professor

<i>P. E. Higginbotham, Ed.D.</i>	Associate Professor
<i>L. C. Holt, Ed.D.</i>	Interim Chair, Educational Foundations and Associate Professor
<i>M. H. Hopkins, Ph.D.</i>	Associate Professor
<i>L. R. Hudson, Ph.D.</i>	Associate Professor
<i>J. A. Middleton, Ed.D.</i>	Associate Dean and Associate Professor
<i>A. J. Miller, Ed.D.</i>	Associate Professor
<i>M. Miller, Ed.D.</i>	Associate Professor
<i>S. E. Ortiz, Ed.D.</i>	Associate Professor
<i>R. F. Paugh, Ed.D.</i>	Associate Professor
<i>J. M. Platt, Ed.D.</i>	Associate Professor
<i>J. W. Powell, Ed.D.</i>	Chair, Exceptional and Physical Education and Associate Professor
<i>P. T. Sciortino, Ph.D.</i>	Associate Professor
<i>B. W. Siebert, Ph.D.</i>	Associate Professor
<i>S. E. Sorg, Ph.D.</i>	Associate Professor
<i>T. J. Sullivan, Ed.D.</i>	Associate Professor
<i>K. Williams, Ph.D.</i>	Associate Professor
<i>A. T. Wood, Ph.D.</i>	Associate Professor
<i>K. W. Allen, Ph.D.</i>	Assistant Professor
<i>A. Creamer, Ed.D.</i>	Assistant Professor
<i>E. A. Clark</i>	Assistant Professor
<i>J. Lee</i>	Assistant Professor
<i>H. P. Martin, Ed.D.</i>	Assistant Professor
<i>K. E. McGhee, Ph.D.</i>	Assistant Professor
<i>B. Murray, Ph.D.</i>	Assistant Professor
<i>K. Murray, J.D., Ph.D.</i>	Assistant Professor
<i>G. Pawlas, Ph.D.</i>	Assistant Professor
<i>K. H. Renner</i>	Assistant Professor
<i>D. Shepard-Tew, Ph.D.</i>	Assistant Professor

## PROGRAMS IN EDUCATION

### MASTER'S DEGREES

Art Education

Counselor Education

Educational Leadership

Educational Media

Elementary Education

English Education

Exceptional Child

Instructional Systems

Mathematics Education

Music Education

Physical Education

Reading Education

Science Education

Social Science Education

Vocational Education

### EDUCATIONAL SPECIALIST DEGREES

School Psychology

Educational Leadership

Curriculum and Instruction

### DOCTOR OF EDUCATION DEGREES

Educational Leadership

Curriculum and Instruction

## MASTER'S DEGREES

### 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 semester hours of undergraduate study and a minimum score of at least 840 on the verbal-quantitative sections of the GRE or 2) a GPA of less than 3.0 combined with a GRE of 1000 or above. In addition, a student seeking a Master of Education degree must show evidence that all course work has been completed for the basic bachelor's level State of Florida teaching certificate. Master of Arts programs, available in some specialties, may be planned without the student's having previously completed certification courses.

Applicants, who are not certified to teach in Florida but who plan to enter a graduate program in education, must supply official scores from either an ACT or SAT examination.

Education programs at the branch campuses are limited access programs. Acceptance to the University and/or the College of Education does not constitute admission to the UCF Brevard or Daytona or UCF/Brevard's education program. A separate application must be made directly to the Daytona or Brevard Campus.

### **Provisional Admission**

Students who fail to meet University admissions standards have the opportunity to apply for admission via the provisional category. To be considered for provisional admission, students must file an application for provisional status in the Education Records and Advisement Center. Department committees make recommendations to the College Graduate Standards and Curriculum Committee. The following criteria are applied in evaluating applications:

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

Provisional students who do not maintain a 3.0 GPA during their first nine hours of enrollment will be reverted to post-baccalaureate status.

### **Program of Study**

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

Academic advisors are not assigned to individuals admitted as post-baccalaureate students. Post-baccalaureate students may seek information and general advisement in the Education Student Services Office.

### **Performance Standards**

Minimum University-wide standards and regulations are applicable in addition to the specific College of Education requirements and regulations described in this section. In addition to the minimum University standard of maintaining a "B" (3.0 GPA) on all graduate work and earning no more than 6 hours of "C" work or unresolved "I" (incomplete) grades, College of Education students must maintain at least a "C" (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.

### **Comprehensive Examination**

Prior to graduation, all students are required to successfully complete a written comprehensive examination which is planned and evaluated by each student's major department. Failure on a comprehensive examination requires re-enrollment and re-examination during a subsequent semester.

### **Thesis/Research Report/Non-thesis Option**

Master's degree students in Education, in consultation with advisors, may select one of three options: typically, thesis and research report options require a minimum of 33 semester hours while the non-thesis option requires a minimum of 36 hours.

## MASTER'S DEGREE PROGRAMS IN EDUCATION

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

### MASTER OF ARTS (EXTENDED CONTENT)

This program is 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. 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. For additional information, contact the College of Education content specialist in your area of interest.

<b>Area A: Core</b> (some programs may vary slightly)			<b>15 Semester Hours</b>
EDF	6481	Fundamentals of Graduate Research Education	3 hours
EDF	6155	Lifespan Human Development	3 hours
EDF	6432	Measurement and Evaluation in Education	3 hours
OR			
EDF	6401	Statistics for Educational Data	3 hours
EDF	6517	History & Philosophy of American Education	3 hours
ESE	6909	Research Report	2 hours
ESE	6909	Research Report	1 hours

<b>Area B: Specialization</b> (Electives Approved by Advisor)			<b>27 Semester Hours</b>
		Education Elective	3 hours
		Education Elective	3 hours
		Content Elective	3 hours
		Content Elective	3 hours
		Content Elective	3 hours
		Content Elective	3 hours
		Content Elective	3 hours
		Content Elective	3 hours
		Content Elective	3 hours
		Content Elective	3 hours
		Content Elective	3 hours

## ART EDUCATION

**Master of Education:** Minimum hours required for M.Ed. **39/45 Semester Hours**

This program is designed to meet the expanded and deepening needs of the art teacher in the studio content areas, to examine contemporary problems in art education, review recent curriculum developments, study innovative developments, explore interdisciplinary concepts and become involved in research problems specific to the art teacher. This degree requires previous certification in art.

<b>Area A: Core</b>			<b>15 or 21 Semester Hours</b>
EDF	6481	Fundamentals of Graduate Research in Education	3 hours
EDF	6155	Lifespan Human Development	3 hours
EDF	6886	Multicultural Education	3 hours

Select One Option:

<b>Option A: Thesis</b>			<b>6 Semester Hours</b>
EDF	6401	Statistics for Educational Data	3 hours
ARE	6971	Thesis	2,1 hours



**Option B: Non-Thesis****12 Semester Hours**

EDF	6259	Strategies of Classroom Management	3 hours
ESE	6234	Curriculum Design	3 hours
ARH	5451	Artistic Worldviews	3 hours
ARH	5478	Contemporary Women Artists	3 hours

**Area B: Specialization****18 Semester Hours**

ARE	5251	Art for Exceptionalities	3 hours
ARE	6195	Teaching Art Appreciation	3 hours
ARE	6666	Art Education Advocacy	3 hours
ARE	5648	Contemporary Visual Arts Education	3 hours
ARE	6455	K-12 Art Instructional Materials 1	3 hours

Select One:

Thesis Option

ART	5109C	Multicultural Crafts Design OR	
ARH	5451	Artistic Worldviews	3 hours

Non-Thesis Option

ART	5109C	Multicultural Crafts Design	3 hours
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**Area C: Studio****6 Semester Hours**

ART	4/5	One Studio Course	3 hours
ART	4/5	One Studio Course	3 hours

**ART EDUCATION****Master of Arts:** Minimum hours required for M.A.**53/56 Semester Hours**

The Master of Arts program in Art is planned to provide the art-oriented person with a degree which includes certification. The program meets state certification requirements in foundations, special methods in art education, general method in teaching and the student teaching component.

**Area A: Core****19 or 22 Semester Hours**

EDF	6481	Fundamentals of Graduate Research in Education	3 hours
EDF	6432	Measurement and Evaluation in Education	3 hours
EDF	6155	Lifespan Human Development	3 hours
EDG	4321	Teaching Strategies	4 hours

Select One:

EDF	6608	Social Factors in American Education OR	
EDF	6517	History and Philosophy of American Education	3 hours

Select One:

Option A: Research Report

ARE	6909	Research Report	3 Semester Hours 2,1 hours
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Option B: Non-Thesis (Electives Approved by Advisor)

**6 Semester Hours**

ARH	5451	Artistic Worldviews	3 hours
ARH	5478	Contemporary Women Artists	3 hours

**Area B: Specialization****18 Semester Hours**

ARE	5251	Art for Exceptionalities	3 hours
ARE	6195	Teaching Art Appreciation	3 hours
ARE	6666	Art Education Advocacy	3 hours
ARE	5648	Contemporary Visual Arts Education	3 hours
ARE	6455	K-12 Art Instructional Materials 1	3 hours
ART	5109C	Multicultural Crafts Design	3 hours

**Area C: Studio****6 Semester Hours**

ART	4/5	One Studio Course	3 hours
ART	4/5	One Studio Course	3 hours

<b>Area D: Internship</b>			<b>10 Semester Hours</b>
ARE	6946	Graduate Internship	3 hours
ARE	6946	Graduate Internship	7 hours
Corequisites:			
ARE	4351	Methodology of Teaching K-12 Art Education I	3 hours
ARE	4352	Methodology of Teaching K-12 Art Education II	3 hours

Minimum undergraduate specialization requirements must be completed as pre- or co-requisites.

## COUNSELOR EDUCATION

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

The second option is a Master of Arts degree program for the student who has a baccalaureate degree in a discipline other than education. This degree is for: (a) the student desiring certification in school counseling; (b) the student who is interested in licensure as a mental health counselor; and (c) the student who is interested in working in college or university student personnel services.

EGC 6909 Research Report may be substituted by two three-semester hour courses. All program tracks require clinical experiences in the UCF practicum clinic and on-site in the community. The Mental Health track requires an internship of 1,000 clock hours. The other tracks require an internship of 600 clock hours.

Admissions criteria: To be considered for admission to any of the counselor education program tracks, an applicant must secure, complete and submit by the deadline (September 1 for Spring Term Admission, February 1 for Fall Term Admission), a special packet of materials for review by a faculty admissions committee. This material is separate from the University Graduate Admissions Application and may be obtained from the Educational Services Department office (ED 318). A formal interview is required and will be considered for final admission after the College of Education admission requirements are met. This program can accommodate a limited number of students; therefore, there is a possibility of being denied admission even when all criteria are met.

### Exit requirements include:

1. Achieve at least a GPA of 3.0 in counseling specialization courses.
2. Achieve a B or better in MHS 6800 and MHS 6830
3. Approval by Counselor Education faculty.
4. Satisfactory passing comprehensive written examinations.

The College 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.

## COUNSELOR EDUCATION:

<b>SCHOOL COUNSELING (M.Ed.)</b>			<b>48/51 Semester Hours</b>
<b>Area A: Core</b>			<b>9/12 Semester Hours</b>
EDF	6155	Lifespan Human Development and Learning	3 hours
EDF	6481	Fundamentals of Graduate Research in Education	3 hours
EGC	6909	Research Report or 2 electives	2,1 or 6 hours
<b>Area B: Specialization</b>			<b>30 Semester Hours</b>
MHS	5005	Introduction to the Counseling Profession	3 hours
MHS	6220	Individual Psycho-Educational Testing I	3 hours
SDS	6330	Career Development	3 hours
MHS	6400	Theories of Counseling and Personality	3 hours
MHS	6401	Techniques of Counseling	3 hours
SDS	6411	Counseling with Children and Adolescents	3 hours
SDS	6620	Organization and Administration of School Counseling Programs	3 hours

MHS	6500	Group Procedures and Theories in Counseling	3 hours
MHS	6780	Consultation, Staffing, and Case Management/Ethical Legal Issues	3 hours
MHS	6420	Counseling Special Populations	3 hours

**Area C: Professional Clinical Experience** **9 Semester Hours**

MHS	6800	Counseling Practicum	3 hours
MHS	6830	Counseling Internship I	3 hours
MHS	6830	Counseling Internship II	3 hours
Total Minimum Semester Hours Required:			48/51 hours

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

**COUNSELOR EDUCATION:**

**SCHOOL COUNSELING (M.A.)** **57/60 Semester Hour**

**Area A: Core** **9/12 Semester Hours**

EDF	6155	Lifespan Human Development and Learning	3 hours
EDF	6481	Fundamentals of Graduate Research in Education	3 hours
EGC	6909	Research Report or 2 electives	2,1 or 6 hours

**Area B: Specialization** **30 Semester Hours**

MHS	5005	Introduction to the Counseling Profession	3 hours
MHS	6220	Individual Psycho-Educational Testing I	3 hours
SDS	6330	Career Development	3 hours
MHS	6400	Theories of Individual Counseling and Personality	3 hours
MHS	6401	Techniques of Counseling	3 hours
SDS	6411	Counseling with Children and Adolescents	3 hours
SDS	6620	Organization and Administration of School Counseling Programs	3 hours
MHS	6500	Group Procedures and Theories in Counseling	3 hours
MHS	6780	Consultation, Staffing and Case Management/ Ethical and Legal Issues	3 hours
MHS	6420	Counseling Special Populations	3 hours

**Area C: Professional Clinical Experience** **9 Semester Hours**

MHS	6800	Counseling Practicum	3 hours
MHS	6830	Counseling Internship I	3 hours
MHS	6830	Counseling Internship II	3 hours

**Area D: Required Doe Certification** **9 Semester Hours**

Foundations: Select one of the following:

EDF	6517	History and Philosophy of American Education	3 hours
EDF	6608	Social Factors in American Education	3 hours

General Methods: Select one of the following:

EDG	4324	Teaching in the Schools	3 hours
EDG	4321	Teaching Strategies	4 hours
EME	5051	Technologies of Instruction and Information Management	3 hours
EDA	6061	Organization and Administration of Schools	3 hours
EDS	6123	Educational Supervisory Practices I	3 hours
EDS	6130	Educational Supervisory Practices II	3 hours
ESE	6235	Curriculum Design	3 hours
ESE	6325	Curriculum Theory	3 hours
EDE	6205	Elementary School Curriculum	3 hours
Total Minimum Semester Hours Required			57/60 hours

**MENTAL HEALTH COUNSELING (M.A.)****60/63 Semester Hours**

Program for state of Florida Licensure in Mental Health Counseling

**Area A: Core****9/12 Semester Hours**

EDF	6481	Fundamentals of Graduate Research in Education	3 hours
EDF	6155	Lifespan Human Development	3 hours
EGC	6909	Research Report or 2 electives	2,1 or 6 hours

**Area B: Specialization****36 Semester Hours**

MHS	5005	Introduction to Counseling Profession	3 hours
MHS	6020	Mental Health Care Systems	3 hours
SDS	6330	Career Development	3 hours
MHS	6070	Diagnosis and Treatment in Counseling	
MHS	6400	Theories of Counseling and Personality	3 hours
MHS	6401	Techniques of Counseling	3 hours
MHS	6500	Group Procedures and Theories in Counseling	3 hours
MHS	6220	Individual Psycho-Educational Testing I	3 hours
MHS	6221	Individual Psycho-Educational Testing II	3 hours
MHS	6480	Human Sexuality & Relationships	3 hours
MHS	6780	Consultation, Staffing and Case Management/ Ethical and Legal Issues	3 hours
MHS	6420	Counseling Special Populations	3 hours

**Area C: Cognate Electives****0/3 Semester Hours**

MHS	6510	Advanced Group Counseling	3 hours
MHS	6080	Counseling Older Persons and Their Families	3 hours
MHS	6430	Family Counseling I	3 hours
MHS	6431	Family Counseling II	3 hours
MHS	6450	Counseling Substance Use & Abuse	3 hours
MHS	6930	Current Trends in Counseling	3 hours
SDS	6411	Counseling with Children and Adolescents	3 hours

**Area D: Professional Clinical Experiences****12 Semester Hours**

MHS	6800	Counseling Practicum I	3 hours
MHS	6800	Counseling Practicum II	3 hours
MHS	6830	Counseling Internship I	3 hours
MHS	6830	Counseling Internship II	3 hours
Total Minimum Semester Hours Required:			60/63 hours

This program prepares students for Florida licensure in Mental Health Counseling.

*NOTE: Courses should be taken in the following sequence: MHS 5005, 6400, 6401, 6500, 6800 and 6830.***HIGHER EDUCATION/STUDENT PERSONNEL (M.A.)****48/51 Semester Hours****Area A: Core****9 or 12 Semester Hours**

EDF	6481	Fundamentals of Graduate Research in Education	3 hours
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Select One Option:

Option A — Research Report **6 Semester Hours**

EDF	6401	Statistics for Educational Data OR	
EDH	6065	History and Philosophy of Higher Education	3 hours
EGC	6909	Research Report	2,1 hours

Option B — Non-Thesis

**9 Semester Hours**

includes 3 semester hours of elective approved by advisor			
EDF	6401	Statistics for Educational Data	3 hours
EDH	6065	History and Philosophy of Higher Education	3 hours

**Area B: Specialization****24 Semester Hours**

SDS	6080	Student Personnel Services in Higher Education	3 hours
SDS	6624	College Community Student	3 hours
EDA	6540	Organization and Administration of Higher Education	3 hours

EDH	6505	Finance in Higher Education	3 hours
MHS	6780	Ethical and Legal Issues	3 hours
SDS	6330	Career Development	3 hours
MHS	6400	Theories of Individual Counseling	3 hours
MHS	6401	Techniques of Counseling	3 hours

#### Area C: Electives

6 or 9 Semester Hours

MHS	5005	Introduction to the Counseling Profession	3 hours
MHS	6500	Group Procedures and Theories in Counseling	3 hours
MHS	6450	Counseling Substance Use Abuse	3 hours
MHS	6480	Human Sexuality & Relationships	3 hours
EDF	6155	Lifespan Human Development and Learning	3 hours
EDA	7195	Politics, Governance and Financing Educational Organizations	4 hours
MHS	6930	Current Trends in Counseling	3 hours

#### Area D: Professional Field Experience

9 Semester Hours

##### Option A:

MHS	6800	Counseling Practicum	3 hours
MHS	6800	Student Affairs Practicum	3 hours
MHS	6830	Student Affairs Internship	3 hours

##### Option B: Student Affairs Emphasis

MHS	6800	Counseling Practicum	3 hours
MHS	6800	Student Affairs Practicum	3 hours
MHS	6830	Student Affairs Internship	3 hours

Courses must be taken in the following sequence:

SDS 6040, MHS 6400, 6401, 6800, 6500, 6800, 6830.

## EDUCATIONAL LEADERSHIP

Two master's degree programs are offered in Educational Leadership: the Master of Education Degree (M.Ed.) and the Master of Arts Degree (M.A.). The M.A. option does not fulfill state certification requirements and requires 42 hours for completion. The purpose of the Master of Education Degree (M.Ed.) in Educational Leadership is to prepare individuals for leadership positions and administrative careers in education.

Educational Leadership is a 39-semester hour program of study applicable toward Florida Educational Leadership Certification which is designed to provide the theoretical and conceptual knowledge base required for the 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.

## EDUCATIONAL LEADERSHIP

Master of Education: Minimum hours required for M.Ed.

39 Semester Hours

#### Area A: Core

12 Semester Hours

EDF	6481	Fundamentals of Graduate Research in Education	3 hours
EDF	6432	Measurement and Evaluation in Education	3 hours

#### Select One:

EDF	6155	Lifespan Human Development	3 hours
EDF	6517	History and Philosophy of American Education	3 hours
EDF	6608	Social Factors in American Education	3 hours
EDF	6886	Multicultural Education	3 hours

#### Non-Thesis Option:

EDA	6946	Graduate Internship**	2,1 hours
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**Area B: Specialization****21 Semester Hours**

It is recommended that these courses be taken in the following sequence.

EDA	6061	Organization and Administration of Schools	3 hours
EDA	6260	Educational Systems Planning and Management	3 hours
EDS	6123	Educational Supervisory Practices I	3 hours
EDS	6130	Educational Supervisory Practices II	3 hours
EDA	6232	Legal Aspects of School Operation	3 hours
EDA	6240	Educational Financial Affairs	3 hours
EDA	6931	Contemporary Issues in Ed. Leadership	3 hours

**Area C: Program Emphasis****6 Semester Hours**

EDG	6223	Curriculum Theory and Organization*	3 hours
EDG	6253	Curriculum Inquiry*	3 hours

\* Both Curriculum courses must be taken at one level. (e.g., elementary, middle, high school, or exceptional education) The level must be indicated on the program.

\*\*Students who wish to substitute a thesis must take EDF 6401 and obtain the approval of their academic advisor.

**EDUCATIONAL LEADERSHIP****Master of Arts:** Minimum hours required for M.A.**42 Semester Hours****Area A: Core****15 Semester Hours**

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

**Area B: Specialization (Electives Approved by Advisor)****9 Semester Hours****Area C: Administration****18 Semester Hours***It is recommended that these courses be taken in the following sequence:*

EDA	6061	Organization and Administration of Schools (required)	3 hours
EBA	6260	Educational Systems Planning and Management	3 hours
EDA	6123	Educational Supervisory Practices I OR	3 hours
EDA	6130	Educational Supervisory Practices II	3 hours
EDA	6232	Legal Aspects of School Operation	3 hours
EDA	6240	Educational Financial Affairs	3 hours
EDA	6931	Contemporary Issues in Ed. Ldrship. (required)	3 hours
EDA		Elective	3 hours

**ELEMENTARY EDUCATION****Master of Education:** Minimum hours required for M.Ed.**33 Semester Hours**

This program is designed to meet the needs of the classroom teacher whose career goal is to remain in the classroom. It provides experiences in the foundations of education, an update of the student's skills and understanding related to current research finding and instructional trends in basic subject matter areas, and elective choices in specific areas.

**Area A: Core****15 Semester Hours**

EDF	6481	Fundamentals of Graduate Research in Education	3 hours
EDF	6236	Principles of Instruction and Learning	3 hours
EDF	6155	Lifespan Human Development and Learning	3 hours

Select One Option:

Option A

EDF	6401	Statistics for Educational Data	3 hours
EDE	6971	Thesis	2,1 hours

Option B

EDF	6517	History and Philosophy of American Education	3 hours
EDE	6909	Research Report	2,1 hours

**Area B: Specialization**

**18 Semester Hours**

EDE	6938	Elementary Education Seminar	2,1 hours
SCE	6616	Trends in Elementary School Science Education	3 hours
SSE	6617	Trends in Elementary School Social Studies Education	3 hours

Select One:

RED	6116	Trends in Reading Education	3 hours
LAE	6616	Trends in Language Arts Education	3 hours

Select One:

LAE	5415	Children's Literature Elementary Education (If no previous Children's Literature)	3 hours
LAE	6714	Investigation in Children's Literature	3 hours
MUE	5611	Trends in Elementary School Music Education	3 hours
MUE	5611	Trends in Arts Education	3 hours

Select One:

MAE	6641	Problem Solving and Critical Thinking Skills	3 hours
MAE	6517	Diagnosis/Remediation of Difficulties in Mathematics for the Classroom Teacher	3 hours

**ELEMENTARY EDUCATION: EARLY CHILDHOOD**

**Master of Education:** Minimum hours required for M.Ed.

**38/39 Semester Hours**

The purpose of this program is to prepare students to become master teachers of, or consultants for, programs in Kindergarten through grade three. The program includes a "professional core" of research, human development, and measurement and evaluation courses; field experiences and courses focusing on programs, creative activities, organization of instruction, individualizing, perception and an overview of the exceptional student. This specialization fulfills Florida Primary (Kindergarten-grade 3) certification requirements.

**Area A: Core**

**12 or 15 Semester Hours**

EDF	6481	Fundamentals of Graduate Research in Education	3 hours
EDF	6155	Lifespan Human Development and Learning	3 hours

Select One Option:

Option A — Research Project OR Thesis **6 Semester Hours**

EDF	6401	Statistics for Educational Data	3 hours
EDE	6971	Thesis OR	2,1 hours
EDE	6909	Research Report	2,1 hours

Option B — Non-Thesis (6 SH Electives Approved by Advisor) **6 Semester Hours**

EDF	6886	Multicultural Education	3 hours
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**Area B: Specialization**

**24 Semester Hours**

EEC	6406	Guiding & Facilitating Social Competence	3 hours
EEC	5205	Programs in Early Childhood Education	3 hours
EEC	5206	Organization of Instruction in Early Childhood Education	3 hours
EEX	6017	Typical/Atypical Applied Child Development	3 hours
EEC	6268	Play Development Intervention & Assessment	3 hours
EEX	5750	Communication with Parents and Agencies	3 hours
EEX	6224	Observation Assessment	3 hours
EEC	5208	Creative Activities in Early Childhood	3 hours

## ELEMENTARY EDUCATION: MATHEMATICS EDUCATION

**Master of Education:** Minimum hours required for M.Ed. **33/36 Semester Hours**

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

This program includes the development of competencies in diagnosing learning difficulties and error patterns in mathematics, organizing and managing laboratory experiences, using a wide variety of specific teaching techniques for all content strands in a K-8 (pre-algebra) mathematics classroom individualized instruction programs. The program may qualify one for certification in Middle School Mathematics if he has sufficient mathematics (8 semester hours) content courses and certain experience-methods requirements.

<b>Area A: Core</b>		<b>15 Semester Hours</b>
EDF 6481	Fundamentals of Graduate Research in Education	3 hours
EDF 6401	Statistics for Educational Data OR	3 hours
EDF 6432	Measurement and Evaluation in Education	3 hours
Select One Option:		
EDF 6155	Lifespan Human Development	3 hours
EDF 6517	History and Philosophy of American Education	3 hours
EDF 6608	Social Factors in American Education	3 hours
Select One Option:		
Option A — Research Report		3 Semester Hours
MAE 6909	Research Report	2,1 hours
Option B — Non-Thesis (Electives Approved by Advisor)		6 Semester Hours

<b>Area B: Specialization</b>		<b>12 Semester Hours</b>
MAE 4634	Programs in Teaching Mathematics	3 hours
MAE 6517	Diagnosis/Remediation of Difficulties in Mathematics for the Classroom Teacher	3 hours
MAE 6899	Seminar in Teaching Mathematics	3 hours
MAE 6946	Practicum	3 hours

<b>Area C: Electives Approved by Advisor</b>		<b>9 Semester Hours</b>
MAE 5318	Current Methods in Elementary School Mathematics	3 hours
MAE 6145	Mathematics Curriculum, K-12	3 hours
MAE 6641	Problem Solving and Critical Thinking Skills in Mathematics, K-12	3 hours

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

## ELEMENTARY EDUCATION: PROGRAM FOR NON-EDUCATION MAJORS (M.A.)

**Master of Arts:** Minimum hours required **36-62 Semester Hours**

A minimum requirement for this degree would be 36 hours. However, depending upon the student's background, the program could be extended to 62 hours. This program provides for professional and specialization preparation and certification in Elementary Education as shown below:

<b>Area A : Core</b>		<b>12 Semester Hours</b>
EDF 6481	Fundamentals of Graduate Research in Education	3 hours
EDF 6432	Measurement and Evaluation in Education	3 hours
EDF 6155	Lifespan Human Development	3 hours
Select One Option:		
EDF 6608	Social Factors in American Education OR	3 hours
EDF 6517	History and Philosophy of American Education	3 hours



<b>Area B: Specialization</b>		<b>15 Semester Hours</b>	
(all courses include a field experience component)			
LAE	5319	Methods of Elementary School Language Arts	3 hours
MAE	5318	Methods of Elementary School Math	3 hours
SCE	5716	Methods of Elementary School Science	3 hours
RED	5147	Developmental Reading	3 hours
RED	5514	Classroom Diagnosis and Development of Reading	3 hours
Proficiencies (PR: RED 5147)			3 hours

<b>Area C: Non-Thesis Option</b>		<b>6 Semester Hours</b>	
LAE	5415	Children's Literature in Elementary Education	3 hours
SSE	5113	Methods of Elementary School Social Science	3 hours

<b>Area D: Seminar/Internship</b>		<b>10 Semester Hours</b>	
EDE	6938	Elementary Education Seminar	2,1 hours
EDE	6946	Graduate Internship	7 hours
Corequisites:			
ARE	4313	Art in Elementary Schools	3 hours
HLP	4722	Teaching Elementary School Health & Physical Ed	3 hours
MUE	3210	Music in Elementary Schools	3 hours
EDG	4321	Teaching Strategies	4 hours

## ENGLISH LANGUAGE ARTS EDUCATION

**Master of Education:** Minimum hours required **33/36 Semester Hours**  
 This program is designed to meet the advanced knowledge and skill needs of the English classroom teacher.

<b>Area A: Core</b>		<b>12 or 15 Semester Hours</b>	
EDF	6481	Fundamentals of Graduate Research in Education	3 hours
EDF	6401	Statistics for Educational Data OR	3 hours
EDF	6432	Measurement and Evaluation in Education	3 hours
Select One:			
EDF	6155	Lifespan Human Development and Learning	3 hours
EDF	6517	History and Philosophy of American Education	3 hours
EDF	6608	Social Factors in American Education	3 hours

Select One Option:  
 Option A — Research Report 3 Semester Hours  
     ESE 6909      Research Report 2,1 hours  
 Option B — Non-Thesis — 6 SH (Electives Approved by Advisor) 6 hours

<b>Area B: Specialization</b>		<b>21 Semester Hours</b>	
LAE	5295	Writing Workshop I	3 hours
LAE	6467	Studies in Adolescent Literature	3 hours
LAE	6637	Research in Teaching	3 hours
Electives (Approved by Advisor)			15 hours

## ENGLISH LANGUAGE ARTS EDUCATION

**Master of Arts:** Minimum hours required for M.A. **41/44 Semester Hours**  
 A secondary (6-12) program for non-education majors, or previously certified teachers in another field.

<b>Area A: Core</b>		<b>15 or 18 Semester Hours</b>	
EDF	6481	Fundamentals of Graduate Research in Education	3 hours
EDF	6155	Lifespan Human Development and Learning	3 hours
EDG	6253	Curriculum Inquiry	3 hours
EDF	6517	History and Philosophy of American Education	3 hours
Select One Option:			
Option A — Research Report			3 Semester Hours
ESE	6909	Research Report	2,1 hours

Option B — Non-Thesis Option (Electives Approved by Advisor)	6 Semester Hours
Elective 3 hours	
Elective 3 hours	

<b>Area B: Specialization</b> (Electives Approved by Advisor)	<b>16 Semester Hours</b>
LAE 6467 Studies in Adolescent Literature	3 hours
LAE 5295 Writing Workshop I	3 hours
LAE 6637 Research in Teaching	3 hours
LAE 6908 Seminar: Special topics in English Language Arts Educ.	1 hour

<b>Area C: Internship</b>	<b>10 Semester Hours</b>
LAE 6946 Graduate Internship	3 hours
LAE 6946 Graduate Internship	7 hours

Corequisites:		
LAE 4360 English Instructional Analysis		4 hours
EDG 4321 Teaching Strategies		3 hours

Students must have required English coursework to meet the 30 semester hour rule.

## EXCEPTIONAL STUDENT EDUCATION

Two master's degree programs are offered in Exceptional Student Education — the Master of Education (M.Ed.) and the Master of Arts Degree (M.A.).

**The Master of Education:** Minimum hours required for M.Ed. **33/36 Semester Hours**

The Master of Education degree prepares exceptional education teachers to work in programs serving K-12 students with varying exceptionalities. It is designed for teachers already certified in an area of exceptional education.

<b>Area A: Core</b>	<b>9 — 12 Semester Hours</b>
EDF 6481 Fundamentals of Graduate Research in Education	3 hours
EDF 6432 Measurement and Evaluation in Education	3 hours

Select One Option:

Option A — Treatise	3 Semester Hours
EEX 6971 Treatise	2,1 hours

\*Option B — Non-Thesis (Electives Approved by Advisor) 6 Semester Hours

<b>Area B: Specialization</b>	<b>24 Semester Hours</b>
EEX 6107 Teaching Spoken and Written Language	3 hours
EEX 6612 Methods of Behavioral Management	3 hours
EEX 6226 Assessment and Curriculum Prescriptions for the Exceptional Population	3 hours
EEX 6342 Seminar: Critical Issues in Special Education	3 hours
EEX 6061 Instructional Strategies PreK-6	3 hours
EEX 6065 Instructional Strategies 6-12	3 hours
EEX 6524 Organization and Collaboration in Special Education	3 hours
EEX 6863 Supervised Teaching Practicum or Elective (Approved by Advisor)	3 hours

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

## EXCEPTIONAL STUDENT EDUCATION

**Master of Arts:** Minimum hours required for M.A. **36/39 Semester Hours**

In addition to these hours, students must complete corequisite and prerequisite courses. The varying exceptionalities option leads to certification (VE, SLD, MH, EH) and prepares graduates to teach in these areas of exceptionality. Graduates must be certifiable by the completion of the degree program. This program is for non-education majors or previously certified teachers in another field.

<b>Area A: Core</b>		<b>9-12 Semester Hours</b>	
EDF	6481	Fundamentals of Graduate Research in Education	3 hours
EDF	6432	Measurement and Evaluation in Education	3 hours
Select One Option:			
Option A — Research Report		3 Semester Hours	
EEX	6909	Research Report	2,1 hours
Option B — Non-Research Report (Electives Approved by Advisor)		6 hours	

<b>Area B: Specialization</b>		<b>27 Semester Hours</b>	
EEX	6107	Teaching Spoken and Written Language	3 hours
EEX	6612	Methods of Behavioral Management	3 hours
EEX	6266	Assessment and Curriculum Prescriptions for the Exceptional Population	3 hours
EEX	6342	Seminar: Critical Issues in Special Education	3 hours
EEX	6061	Instructional Strategies PreK-6	3 hours
EEX	6065	Instructional Strategies 6-12	3 hours
EEX	6524	Organization and Collaboration in Special Education	3 hours
EEX	6946	Internship	6 hours

**Corequisites:** prescribed by College of Education to State Certification requirements or as support for degree program. Waiver/substitutions for corequisites must meet departmental standards and be approved by the Chair of the Department.

RED	5147	Developmental reading	3 hours
MAE	5318	Current Methods of Elementary Math	3 hours
EDF	3603	Analysis of Educational foundations	3 hours
EDF	4214	Classroom Learning Principles	3 hours
EDG	4321	Teaching Strategies	4 hours

<b>Prerequisite:</b>			
EEX	5051	Exceptional Children in School	3 hours

## INSTRUCTIONAL TECHNOLOGY

NOTE: The tracks listed below are accredited by both NCATE (The National Council for the Accreditation of Teacher Education) and AECT (The Association for Educational Communications and Technology).

## EDUCATIONAL MEDIA

**Master of Education:** Minimum hours required for M.Ed. **39/45 Semester Hours**

This program leads to a Master of Education degree and certification as a school media specialist. It is designed to offer skills in administration, production, instructional design, organization, selection, evaluation and research which relate to school media programs. It stresses knowledge and applications of both present and future innovations and technologies for education.

The Master of Education degree is for the student who has completed coursework for basic teaching certification in Florida; at least one year of successful classroom experience is preferred.

### Admission to Educational Media Program:

To be considered for admission to the Educational Media Program, you must secure, complete and submit by a designated deadline, a special packet of materials for review by the Educational Media Review Committee. Included in this packet will be: (1) an application for admission into the Educational Media Program and (2) forms for three letters of recommendation. This material is separate from the University Graduate Admissions Application and may be obtained from the Educational Services Department Office (ED318). A formal interview with the Educational Media Review Committee is required. All required materials, an interview and a favorable recommendation from the Educational Media Review Committee, acceptance by the UCF Graduate Admissions and the College of Education are required for acceptance into the Educational Media program.

<b>Area A: Core</b>		<b>12 or 15 Semester Hours</b>	
EDF	6481	Fundamentals of Graduate Research in Education	3 hours
EDF	6155	Lifespan Human Development and Learning	3 hours
EDF	6401	Statistics for Educational Data OR	3 hours
EDF	6432	Measurement and Evaluation in Education	3 hours
Option A — Research Report			3 Semester Hours
EME	6909	Research Report	2,1 hours
Option B — Non-Thesis Option			6 Semester Hours
EME	6062	Research in Instructional Technology	3 hours
EME		Elective	3 hours

<b>Area B: Specialization</b>		<b>24 Semester Hours</b>	
EME	5208	Production Techniques for Instructional Settings	3 hours
EME	5051	Techniques of Instruction & Information Management	3 hours
EME	5225	Media for Children and Young Adults	3 hours
EME	6605	Role of the Media Specialist in Curriculum and Instruction	3 hours
EME	6805	Organization of Media and Information	3 hours
EME	6105	Collection Development Policies and Procedures	3 hours
EME	6807	Information Sources and Services	3 hours
EME	6706	Administrative Principles in Media Centers	3 hours

<b>Area C: Elective</b>		<b>3 Semester Hours</b>	
EME	6209	Multimedia Systems	3 hours
EME	6058	Current Trends in Educational Media	3 hours
EME	5408	Computer Applications in Instructional Technology	3 hours
LAE	4464	Literature for Adolescents	3 hours
LAE	5415	Children's Literature in Elementary Education	3 hours
EME		Elective	

<b>Area D: Internship</b>		<b>3 Semester Hours</b>	
EME	6946	Graduate Internship (Required if no media center experience)	3 hours

## EDUCATIONAL TECHNOLOGY

### **Master of Arts: Minimum hours required for M.A.** **36/45 Semester Hours**

This program leads to a Master of Arts degree and is designed for classroom teachers who want to apply technological tools to the learning process as well as develop leadership skills necessary to become site-based technology coordinators in K-12 schools.

For those not currently certified in education by the Florida Department of Education, an additional course in the foundations of education area is required. The program does not lead to any current certification in Florida, nor is any add-on certification or endorsement currently available in this area.

### **Admissions Policy:**

To be considered for admission to the Educational Technology Program, you must secure, complete and submit by a designated deadline, a special packet of materials for review by the Educational Technology Review Committee. Included in this packet will be: 1) an application for admission in the Educational Technology Program and 2) forms for three letters of recommendation. This material is separate from the University Graduate Admissions Application and may be obtained from the Educational Services Department Office (ED 318). A formal interview with the Educational Technology Review Committee is required. Acceptance by the UCF Graduate Admissions and the College of Education, in addition to the above mentioned materials, are required for acceptance into the Educational Technology Program.

<b>Area A: Core</b>		<b>9-12 Semester Hours</b>	
EDF	6481	Fundamentals of Graduate Research in Education	3 hours
EDF	6432	Measurement and Evaluation in Education	3 hours
Option A — Research Report			3 Semester hours
EME	6909	Research Report	2,1 hours
Option B — Non-thesis Option			6 Semester Hours
EME	6062	Research in Instructional Technology Elective	3 hours 3 hours

<b>Area B: Specialization</b>		<b>18 Semester Hours</b>	
EME	5051	Techniques of Instruction & Information Management	3 hours
EME	6602	Integrating Technology into the Curriculum	3 hours
EME	6507	Multimedia in the Classroom	3 hours
EME	6405	Application Software for Educational Settings	3 hours
EME	6052	Electronic Resources for Education	3 hours
EME	6707	The Technology Coordinator in the School	3 hours

<b>Area C: Extension</b>		<b>6 Semester Hours</b>	
Elective in current certification area or other as approved by advisor			3 hours
Elective			3 hours

<b>Area D: Practicum</b>		<b>3 Semester Hours</b>	
EME	6xxx	Theory into Practice in Educational Technology	3 hours
If not currently certified in education (co-requisite)			3 Semester Hours
EDF	6517	History & Philosophy of American Education	
	OR		
EDF	6608	Social Factors in American Education	3 hours

## INSTRUCTIONAL SYSTEMS

**Master of Arts: Minimum hours required for M.A.** **39/42 Semester Hours**

This program leads to a Master of Arts degree and is designed for those who wish to work in business, industry, government, or other settings where training takes place. Instructional technologists analyze training problems and requirements; design, develop, evaluate, and manage instructional programs.

<b>Area A: Core</b>		<b>6 or 9 Semester Hours</b>	
EDF	6481	Fundamentals of Graduate Research in Education	3 hours
Select One Option:			
Option A — Research Report			3 hours
EME	6909	Research Report	2,1 hours
Option B — Thesis			
EME	6971	Thesis	3 hours
Option C — Research in Instructional Technology			6 hours
EME	6062	Research in Instructional Technology	3 hours
Elective approved by advisor			3 hours

<b>Area B: Specialization</b>		<b>24 Semester Hours</b>	
EME	5056	Communication for Instructional Systems — Process	3 hours
EME	5057	Communication for Instructional Systems — Finish	3 hours
EME	5054	Instructional Systems Survey of Applications	3 hours
EME	5408	Computer Applications in Instructional Technology	3 hours
EME	6613	Instructional Systems Design	3 hours
EME	6313	Media Systems Design	3 hours
EME	6705	Administration of Instructional Systems	3 hours
EME	6946	Graduate Internship in Instructional Systems OR	3 hours
COE	6949	Cooperative Education	

<b>Area C: Elective</b>			<b>9 Semester Hours</b>
(COURSES NOT LISTED BELOW REQUIRE ADVISOR APPROVAL)			
EME	xxxx	Multimedia Instruction Systems I	3 hours
EME	6209	Multimedia Systems Systems II	3 hours
EME	6053	Current Trends in Instructional Technology	3 hours
EME	xxxx		3 hours
EME	xxxx		3 hours
INP	6317	Organizational Psychology and Motivation	3 hours
EIN	5255	Training Simulator Engineering	3 hours

## MATHEMATICS EDUCATION

**Master of Education:** Minimum hours required for M.Ed. **33/36 Semester Hours**

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

**Area A: Core** **12 or 15 Semester Hours**

EDF	6481	Fundamentals of Graduate Research in Education	3 hours
Select One:			
EDF	6401	Statistics for Educational Data	3 hours
EDF	6432	Measurement and Evaluation in Education	3 hours
Select One:			
EDF	6155	Lifespan Human Development and Learning	3 hours
EDF	6517	History and Philosophy of American Education	3 hours
EDF	6608	Social Factors in American Education	3 hours

Select One Option:

Option A — Research Report 3 Semester Hours

MAE 6909 Research Report 2,1 hours

Option B — Non-Thesis (Electives Approved by Advisor) 6 Semester Hours

**Area B: Specialization** (Electives Approved by Advisor) **6 Semesters Hours**

**Area C: Curriculum Core** **15 Semester Hours**

MAE	4634	Laboratory Programs in Mathematics (Required)	3 hours
MAE	6517	Diagnosis/Remediation of Difficulties in Mathematics for the Classroom Teacher (Required)	3 hours
MAE	6899	Seminar in Teaching Mathematics (Required)	3 hours
Select Two Courses:			
EME	5208	Media Methods	3 hours
ESE	6235	Curriculum Design	3 hours
MAE	6145	Mathematics Curriculum K-12	3 hours
MAE	6648	Design in Instructional Comprehension	3 hours
MAE	6549	Practicum in Mathematics Instruction, K-12	3 hours
MAE	6641	Problem Solving and Critical Thinking Skills in Mathematics, K-12	3 hours

## MATHEMATICS EDUCATION

**Master of Arts:** Minimum hours required for M.A. **40/43 Semester Hours**

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

**Area A: Core** **18 or 21 Semester Hours**

EDF	6481	Fundamentals of Graduate Research in Education	3 hours
EDF	6155	Lifespan Human Development and Learning	3 hours
EDG	4321	Teaching Strategies	4 hours
EDF	6432	Measurement and Evaluation in Education	3 hours
EDF	6517	History and Philosophy of American Education	3 hours

Select One Option:

Option A — Research Report 3 Semester Hours

ESE 6909 Research Report 2,1 hours

Option B — Non-Thesis (Electives Approved by Advisor) 6 hours

<b>Area B: Specialization</b> (Electives Approved by Advisor)	<b>12 Semester Hours</b>	
Area C: Internship	10 Semester Hours	
MAE 6946	Graduate Internship	3 hours
MAE 6946	Graduate Internship	7 hours
Corequisites: Students must have required mathematics coursework to meet 30 hour rule.		
MAE 4360	Math Instructional Analysis	4 hours

## MUSIC EDUCATION

**Master of Education:** Minimum hours required for M.Ed. **36/39 Semester Hours**

This program, offered in cooperation with the Department of Music, is for students who are certified to teach music (K-12). The Master of Education program, organized to increase knowledge and improve teaching skills, includes advanced work in research and educational foundations; a practicum in music education; and courses in foundations of music education, general music, teaching performance and curriculum. Advanced courses in music history, music theory, conducting and performance are included.

**Area A: Core** **12/15 Semester Hours**

EDF 6481	Fundamentals of Graduate Research in Education	3 hours
EDF 6401	Statistics for Educational Data OR	
EDF 6432	Measurement and Evaluation in Education	3 hours
Select One:		
EDF 6155	Lifespan Human Development and Learning	3 hours
EDF 6517	History and Philosophy of American Education	3 hours
EDF 6608	Social Factors in American Education	3 hours
Select One Option:		
Option A — Research Report		3 Semester Hours
MUE 6909	Research Report	2,1 hours
Option B — Non-Thesis (Electives Approved by Advisor)		6 hours

**Area B: Specialization** **12 Semester Hours**

MUG 4102	Advanced Conducting	1 hours
MUH 4340	Seminar: "Period" course in Music History	3 hours
MUT 5325	Arranging and Composing Music	3 hours
MV* 5251	Applied Music Principal or Secondary	(1,1)

\*Full prefix will be determined by the instrument on which student performs.

**Area C: Curriculum** **12 Semester Hours\*\***

MUE 6155	Teaching Performance	3 hours
MUE 6349	Advanced General Music	3 hours
MUE 6946	Practicum in Music Education	3 hours
MUE	Directed Elective	3 hours

\*\*Graduate performance and advanced conducting courses are available only after admission to the graduate program and successful completion of 9 semester hours of the graduate program.

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

MUH 4218	Review of Music History	1 hour
MUH 4031	Review of Music Theory	1 hour
MUT 4275	Review of Sight-Singing and Ear Training	2 hours

## MUSIC EDUCATION

**Master of Arts:** Minimum hours required for M.A. **37/40 Semester Hours**

This program is offered for students who have completed a baccalaureate degree who seek certification in music (K-12). The Master of Arts program is organized to develop basic teaching skills as well as advanced work in research and educational foundations; courses in foundations of music education and methods of teaching music. Supervised internship experiences are included. In most cases, music specialization requirements for certification are met by the B.A. degree.

<b>Area A: Core</b>			<b>16 or 19 Semester Hours</b>
EDF	6481	Fundamentals of Graduate Research in Education	3 hours
EDF	6155	Lifespan Human Development and Learning	3 hours
EDG	4321	Teaching Strategies	4 hours

Select One:			
EDF	6517	History and Philosophy of American Education	3 hours
EDF	6608	Social Factors in American Education	3 hours

Select One Option:  
Option A — Research Report 3 Semester Hours

MUE	6909	Research Report	2,1 hours
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Option B — Non-Thesis (Electives Approved by Advisor) 6 hours

<b>Area B: Specialization</b>			<b>11 Semester Hours*</b>
MUE	4311	Elementary School Music Instructional Analysis	2 hours
MUE	6349	Advanced General Music	3 hours
MUE	6155	Teaching Performing Organizations	3 hours
MUE		Directed Elective	3 hours

\*Graduate performance and advanced conducting courses are available only after admission to the graduate program and successful completion of 9 semester hours of the graduate program.

<b>Area C: Internship</b>			<b>10 Semester Hours</b>
MUE	6946	Graduate Internship (or equivalent)	3 hours
MUE	6946	Graduate Internship	7 hours

Corequisites — Music specialization requirements must be met by either a BA in Music or additional coursework to be determined by Advisor.

EDG	4324	Teaching in Schools	3 hours
MUE	4360	Secondary School Music Instructional Analysis	2 hours

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

MUH	4218	Review Music History	1 hour
MUT	4031	Review Music Theory	1 hour
MUT	4275	Sight Singing and Ear Training	2 hours

OR

Music History	Exam Date _____	Action _____
Music Theory	Exam Date _____	Action _____
Sight Singing	Exam Date _____	Action _____

## PHYSICAL EDUCATION: ADAPTED PHYSICAL EDUCATION

Master of Education: Minimum hours required for M.Ed. 33/36 Semester Hours

<b>Area A: Core</b>			<b>12 or 15 Semester Hours</b>
EDF	6481	Fundamentals of Graduate Research in Education	3 hours
EDF	6401	Statistics for Educational Data	3 hours
PET	6946	Practicum	3 hours

Select One Option:  
Option A — Thesis 3 Semester Hours

PET	6971	Thesis	3 hours
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Option B — Non-Thesis 6 Semester Hours

PET	6238C	Perceptual Motor Development	3 hours
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Option C — Research Report 3 Semester Hours

PET	6909	Research Report	2 hours
PET	6909	Research Report	1 hour

<b>Area B: Specialization</b>			<b>21 Semester Hours</b>
PET	6647	Program Development Adapted Physical Education	3 hours
PET	6615	Psychomotor Assessment of Exceptional Children	2 hours
PET	6645	Adv Studies Adapted Physical Education	2 hours
PET	6646	Methods & Curriculum in Adapted Physical Education	4 hours



PET	6655	Developmental Aspects of Motor Disabilities	3 hours
EEX	5051	Exceptional Children in Schools	3 hours
EEX	6612	Methods of Behavioral Management	3 hours

## PHYSICAL EDUCATION: MASTER TEACHER

Master of Education: Minimum hours required for M.Ed.

34/37 Semester Hours

### Area A: Core

12 or 15 Semester Hours

EDF	6481	Fundamentals of Graduate Research in Education	3 hours
EDF	6401	Statistics for Educational Data	3 hours
EDF	6432	Measurement and Evaluation in Education	3 hours

Select One Option:

Option A — Thesis

3 Semester Hours

PET	6971	Thesis	2,1 hours
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Option B — Non-Thesis

6 Semester Hours

PET	6386C	Environmental Exercise Physiology	3 hours
PET	6238C	Perceptual Motor Development	3 hours

Option C — Research Report

3 Semester Hours

PET	6909	Research Report	2 hours
PET	6909	Research Report	1 hour

### Area B: Specialization

21 Semester Hours

EEX	5051	Exceptional Children in Schools	3 hours
PET	6615	Psychomotor Assessment of Exceptional Children	2 hours
PET	6646	Methods and Curriculum in Adapted Physical Education	4 hours
PET	6655	Developmental Aspects of Motor Disabilities	3 hours
PET	6910	Problem Analysis — Review of Literature	3 hours
PET	6425	Curriculum Design in Physical Education	3 hours
PET	6146	Current Trends and Philosophical Foundations of Physical Education	3 hours

## PHYSICAL EDUCATION: PERCEPTUAL MOTOR DEVELOPMENT

Master of Education: Minimum hours required for M.Ed.

33/36 Semester Hours

### Area A: Core

12 or 15 Semester Hours

EDF	6481	Fundamentals of Graduate Research in Education	3 hours
EDF	6401	Statistics for Educational Data	3 hours
EDF	6155	Lifespan Human Development and Learning	3 hours

Select One Option:

Option A — Thesis

3 Semester Hours

PET	6971	Thesis	2,1 hours
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Option B — Non-Thesis

6 Semester Hours

PET	6088	Wellness Development for Children	3 hours
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Option C — Research Report

3 hours

PET	6909	Research Report	2,1 hours
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Area B: Specialization

21 Semester Hours

PET	6946	Practicum	3 hours
EEX	5051	Exceptional Children in Schools	3 hours
PET	6615	Psychomotor Assessment of Exceptional Children	2 hours
PET	6646	Methods and Curriculum in Adapted Physical Education	4 hours
PET	6655	Developmental Aspects of Motor Disabilities	3 hours
PET	6238C	Perceptual Motor Development	3 hours
PET	6910	Problem Analysis — Review of Literature	3 hours

## PHYSICAL EDUCATION: EXERCISE PHYSIOLOGY/ WELLNESS TRACK

Master of Arts: Minimum hours required for M.A.

36/39 Semester Hours

### Area A: Core

9 or 12 Semester Hours

EDF	6481	Fundamentals of Graduate Research in Education	3 hours
PET	6910	Problem Analysis Review of Literature (can be taken after 2/3 specialization is completed)	3 hours
PET	6946	Internship Practicum	3/3 hours

### Area B: Specialization (Select with Advisor)

27 Semester Hours

PET	6386C	Environmental Exercise Physiology	3 hours
PET	6381	Physiology on Neuromuscular Mechanisms	3 hours
PET	6367	Physical Performance & Energy Supplies	3 hours
PET	6416	Administration of Corporative Wellness	3 hours
PET	6086	Exercise Intervention & Risk Hazards	3 hours
PET	6085	Exercise Lifestyles-Adherence & Compliance	3 hours
PET	6088	Wellness Development of Children	3 hours
PET	6089	Personal and Organizational Wellness	3 hours
EDF	6401	Statistics for Educational Data	3 hours
PET	6946	Internship Practicum	3 hours
PET	6388	Exercise Physiology and Cardiovascular Disease Prevention	3 hours
PET	5355	Exercise Physiology and Health	3 hours

Research Report Option

3 Semester Hours

PET	6909	Research Report	3 hours
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(In consultation with the advisor, the student who writes a research report may choose to take 21 hours in the specialization area.)

## READING EDUCATION

Master of Education: Minimum hours required for M.Ed.

36 Semester Hours

This program prepares teachers for certification as reading specialists (e.g., reading resource teacher, reading laboratory teacher, reading/language arts supervisor, primary education specialist) in grades K-12 in public schools and private reading laboratories or clinics. Diagnosis of reading disabilities, techniques of corrective reading, psychological measurement, reading in the content fields, management of reading programs, reading trends and research and dimensions of the language arts other than reading are included with considerable emphasis on practicums with disabled readers from the early childhood to adult levels. People certified in areas of education other than elementary are eligible to pursue a degree in the program.

### Area A: Core

15 Semester Hours

EDF	6481	Fundamentals of Graduate Research in Education	3 hours
EDF	6432	Measurement and Evaluation in Education	3 hours
EDF	6236	Principles of Instructional and Learning	3 hours

Select One Option:

Option A: Thesis

EDF	6401	Statistics for Educational Data	3 hours
RED	6971	Thesis	2,1 hours

Option B: Research Report

EDF	6155	Lifespan Human Development and Learning	3 hours
RED	6909	Research Report	2,1 hours

Option C: Extended Specialization

6 Semester Hours

(Electives approved by Advisor)

### Area B: Specialization

21 Semester Hours

RED	6845	Advanced Evaluation and Instruction in Reading	3 hours
RED	6846	Reading Practicum	6 hours

RED	6116	Trends in Reading Education	3 hours
RED	6746	Management of Reading Programs	3 hours
RED	6336	Reading in the Content Areas	3 hours
RED	6337	Reading in the Secondary Schools PR:6336	3 hours

Prerequisites: Prescribed by College of Education to meet State Certification requirements, or as support for degree program.

RED	5147	Developmental Reading OR	3 hours
RED	3012	Basic Foundations of Reading Proficiencies OR	3 hours
RED	5514	Classroom Diagnosis and Development of Reading Proficiencies OR	3 hours
RED	4519	Diagnostic and Corrective Reading Strategies	3 hours
LAE	3414	Literature for Children OR	3 hours
LAE	5415	Children's Literature Elementary Education OR	3 hours
LAE	4464	Literature for Adolescents OR	3 hours
LAE	4314	Language Arts in Elementary School OR	3 hours
LAE	4342	Teaching Language and Composition	3 hours

## SCIENCE EDUCATION

**Master of Education:** Minimum hours required for M.Ed. **33/36 Semester Hours**

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

**Area A: Core** **12 or 15 Semester Hours**

EDF	6481	Fundamentals of Graduate Research in Education	3 hours
EDF	6401	Statistics for Educational Data OR	3 hours
EDF	6432	Measurement and Evaluation in Education	3 hours

Select One:

EDF	6155	Lifespan Human Development and Learning	3 hours
EDF	6517	History and Philosophy of American Education	3 hours
EDF	6608	Social Factors in American Education	3 hours

Select One Option:

Option A — Research Report			3 Semester Hours
ESE	6909	Research Report	2,1 hours
Option B — Non-Thesis (Electives Approved by Advisor)			6 hours

**Area B: Specialization** (Electives Approved by Advisor) **9 Semester Hours**

**Area C: Curriculum** (Elective Approved by Advisor) **6 Semester Hours**

SCE	6237	Science Programs Secondary School	3 hours
SCE	6238	Inquiry in the Sciences	3 hours
Electives			6 hours

## SCIENCE EDUCATION: BIOLOGY

**Master of Arts:** Minimum hours required for M.A. **41/44 Semester Hours**

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

**Area A: Core** **19 or 22 Semester Hours**

EDF	6481	Fundamentals of Graduate Research in Education	3 hours
EDF	6155	Lifespan Human Development and Learning	3 hours
EDG	6253	Curriculum Inquiry	3 hours
EDG	4321	Teaching Strategies	4 hours
EDF	6517	History and Philosophy of American Education	3 hours

Select One Option:

Option A — Research Report			3 Semester Hours
ESE	6909	Research Report	2,1 hours
Option B — Non-Thesis			6 Semester Hours
PCB	5675C	Evolutionary Biology	4 hours
PCB	5045	Conservation Biology	4 hours

<b>Area B: Specialization</b> (Electives Approved by Advisor)			<b>12 Semester Hours</b>
BOT	6146C	Terrestrial Vegetation	4 hours
PCB	5046C	Advanced Ecology	5 hours
SCE	6237	Science Programs in Secondary School OR	3 hours
SCE	6238	Inquiry in the Sciences	3 hours

<b>Area C: Internship</b>			<b>10 Semester Hours</b>
SCE	6946	Graduate Internship	3 hours
SCE	6946	Graduate Internship	7 hours

Corequisites: Students must meet the 30 hour rule with courses in Genetics, General Biology, Ecology, Technology or History of Science.

SCE	4360	Science Instructional Analysis	4 hours
EDG	4321	Teaching Strategies I	4 hours

## SCIENCE EDUCATION: CHEMISTRY

**Master of Arts:** Minimum hours required for M.A. **41/44 Semester Hours**  
Program for non-educational majors, or previously certified teachers in another field.

<b>Area A: Core</b>			<b>19 or 22 Semester Hours</b>
EDF	6481	Fundamentals of Graduate Research in Education	3 hours
EDF	6155	Lifespan Human Development and Learning	3 hours
EDG	6253	Curriculum Inquiry	3 hours
EDG	4321	Teaching Strategies	4 hours
EDF	6517	History and Philosophy of American Education	3 hours

Select One Option:

Option A — Research Report			3 Semester Hours
ESE	6909	Research Report	2,1 hours

Option B — Non-Thesis (Chemistry — 5000 or 6000 level; May include 3 hours of 4000 level — Approved by Advisor) **6 Semester Hours**

<b>Area B: Specialization</b> (9 hours OF 5000 OR 6000 LEVEL CHEMISTRY APPROVED BY ADVISOR)			<b>12 Semester Hours</b>
SCE	6237	Science Programs in Secondary School OR	3 hours
SCE	6238	Inquiry in the Sciences	3 hours

<b>Area C: Internship</b>			<b>10 Semester Hours</b>
ESE	6946	Graduate Internship	3 hours
ESE	6946	Graduate Internship	7 hours

Corequisites: Students must have degree in field or 30 SH in chemistry including Technology or History of Science.

SCE	4360	Science Instructional Analysis	4 hours
EDG	4321	Teaching Strategies I	4 hours

## SCIENCE EDUCATION: PHYSICS

**Master of Arts:** Minimum hours required for M.A. **41/44 Semester Hours**  
Program for non-educational majors, or previously certified teachers in another field.

<b>Area A: Core</b>			<b>19 or 22 Semester Hours</b>
EDF	6481	Fundamentals of Graduate Research in Education	3 hours
EDF	6155	Lifespan Human Development and Learning	3 hours
EDG	6253	Curriculum Inquiry	3 hours
EDG	4321	Teaching Strategies	4 hours
EDF	6517	History and Philosophy of American Education	3 hours

Select One Option:

Option A — Research Report			3 Semester Hours
ESE	6909	Research Report	2,1 hours

Option B — Non-Thesis (3 SH in 5000 or 6000 level Physics Approved by Advisor) **3 hours**

PHY	5015C	Physics for Teachers II	3 hours
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<b>Area B: Specialization</b>	<b>12 Semester Hours</b>	
9 SH OF 5000 OR 6000	LEVEL PHYSICS APPROVED BY ADVISOR	9 hours
SCE 6237	Science Programs in Secondary School OR	3 hours
SCE 6238	Inquiry in the Sciences	3 hours

<b>Area C: Internship</b>	<b>10 Semester Hours</b>	
SCE 6946	Graduate Internship	3 hours
SCE 6946	Graduate Internship	7 hours

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

SCE 4360	Science Instructional Analysis	4 hours
EDG 4321	Teaching Strategies I	4 hours

## SOCIAL SCIENCE EDUCATION

**Master of Education:** Minimum hours required for M.Ed. **33/36 Semester Hours**

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

<b>Area A: Core</b>	<b>9 or 12 Semester Hours</b>	
EDF 6481	Fundamentals of Graduate Research in Education	3 hours
EDF 6401	Statistics for Educational Data	3 hours
EDF 6432	Measurement and Evaluation in Education	3 hours

Select One:

EDF 6155	Lifespan Human Development and Learning	3 hours
EDF 6517	History and Philosophy of American Education	3 hours
EDF 6608	Social Factors in American Education	3 hours

Select One Option:

Option A — Research Report	3 Semester Hours	
ESE 6909	Research Report	2,1 hours
Option B — Non-Thesis (Electives Approved by Advisor)	6 Semester Hours	

**Area B: Specialization** (Electives Approved by Advisor) **9 Semester Hours**

<b>Area C: Curriculum</b> (3 SH Elective Approved by Advisor)	<b>12 Semester Hours</b>	
ESE 6235	Curriculum Design	3 hours
ESE 6325	Curriculum Theory	3 hours
SSE 6636	Contemporary Social Science Education	3 hours

## SOCIAL SCIENCE EDUCATION

**Master of Arts:** Minimum hours required for M.A. **40/43 Semester Hours**

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

<b>Area A: Core</b>	<b>18 or 21 Semester Hours</b>	
EDF 6481	Fundamentals of Graduate Research in Education	3 hours
EDF 6155	Lifespan Human Development and Learning	3 hours
EDG 6253	Curriculum Inquiry	3 hours
EDF 6432	Measurement and Evaluation in Education	3 hours
EDF 6517	History and Philosophy of American Education	3 hours

Select One Option:

Option A — Research Report	3 Semester Hours	
ESE 6909	Research Report	2,1 hours
Option B — Non-Thesis (Electives Approved by Advisor)	6 Semester Hours	

**Area B: Specialization** (Electives Approved by Advisor) **12 Semester Hours**

<b>Area C: Internship</b>	<b>10 Semester Hours</b>	
SSE 6946	Graduate Internship	3 hours
SSE 6946	Graduate Internship	7 hours

Corequisites: Students must meet required courses for 30 hour rule in Social Science.			
SSE	4361	Social Science Instructional Analysis	4 hours
EDG	4321	Teaching Strategies I	4 hours

## VOCATIONAL EDUCATION

Two types of degrees are available in Vocational Education. The Master of Education degree is designed to meet the needs of students who have a baccalaureate degree and who have completed course work for regular vocational Florida State Teaching Certification. This degree requires a minimum of 33 semester hours.

The Master of Arts degree is designed for the student who has a baccalaureate degree in a discipline other than education. This degree requires a minimum of 39 semester hours.

## VOCATIONAL EDUCATION: ADMINISTRATOR OPTION

**Master of Education:** Minimum hours required for M.Ed. **34/37 Semester Hours**

<b>Area A: Core</b>		<b>12 Semester Hours</b>	
EDF	6481	Fundamentals of Graduate Research in Education	3 hours
EDF	6401	Statistics for Educational Data	3 hours
Select One:			
EDF	6155	Lifespan Human Development and Learning	3 hours
EDF	6517	History and Philosophy of American Education	3 hours
EDF	6608	Social Factors in American Education	3 hours
Select One Option:			
Option A — Research Project		3 Semester Hours	
EVT	6909	Research Report	2,1 hours
Option B — Non-Thesis		3 Semester Hours	
EVT	6946	Graduate Internship	3 hours
<b>Area B: Specialization</b>		<b>21 Semester Hours</b>	
EVT	6265	Supervision in Vocational Education	3 hours
EVT	6664	School/Community Relations for Vocational Ed	3 hours
EVT	6264	Administration in Vocational Education	3 hours
EDA	6232	Legal Aspects of School Operation	3 hours
EDG	6253	Curriculum Inquiry	3 hours
		Electives	6 hours

## VOCATIONAL EDUCATION: BUSINESS

**Master of Education:** Minimum hours required for M.Ed. **33 Semester Hours**

<b>Area A: Core</b>		<b>12 or 15 Semester Hours</b>	
EDF	6481	Fundamentals of Graduate Research in Education	3 hours
EDF	6401	Statistics for Educational Data OR	3 hours
EDF	6432	Measurement and Evaluation in Education	3 hours
Select One:			
EDF	6155	Lifespan Human Development and Learning	3 hours
EDF	6517	History and Philosophy of American Education	3 hours
EDF	6608	Social Factors in American Education	3 hours
ESE	6909	Research Report	2,1 hours
<b>Area B: Specialization</b>		<b>12 Semester Hours</b>	
BTE	6371	Advanced Business Instructional Technology	3 hours
BTE	6773	Office Simulation Technology	3 hours
BTE	6935	Seminar in Business Education	3 hours
BTE	6946	Practicum in Business Education	3 hours
<b>Area C: Vocational Core</b>		<b>9 Semester Hours</b>	
BTE	6172	Business Education Curriculum	3 hours
EVT	6264	Administration in Vocational Education	3 hours
EVT	6265	Supervision in Vocational Education	3 hours

## VOCATIONAL EDUCATION

**Master of Education:** Minimum hours required for M.Ed.

**39/42 Semester Hours**

### Area A: Core

**12 or 15 Semester Hours**

EDF	6481	Fundamentals of Graduate Research in Education	3 hours
Select One:			
EDF	6155	Lifespan Human Development and Learning	3 hours
EDG	6517	History and Philosophy of Higher Education	3 hours
EDF	6608	Social Factors in American Education	3 hours
Select One Option:			
Option A — Research Report			3 Semester Hours
EVT	6909	Research Report	2,1 hours
Option B — Non-Thesis (Internship or Electives Approved by Advisor)			6 Semester Hours
EVT	6946	Graduate Internship or Electives	6 hours

### Area B: Specialization

**30 Semester Hours**

EVT	4065	Principles and Practices of Vocational Education	4 hours
EVT	4368	Advanced Teaching Techniques for Vocational Education	3 hours
EVT	5561	Student Guidance in the Vocational Program	3 hours
EVT	5564	Student Vocational Organizations	3 hours
ECT	6664	School/Community Relations for Vocational Education	3 hours
Electives Approved by Advisor			14 hours

## VOCATIONAL EDUCATION: HEALTH RELATED

**Master of Arts:** Minimum hours required for M.A.

**39/42 Semester Hours**

### Area A: Core

**9 or 12 Semester Hours**

EDF	6481	Fundamentals of Graduate Research in Education	3 hours
Select One:			
EDF	6155	Lifespan Human Development and Learning	3 hours
EDF	6517	History and Philosophy of American Education	3 hours
EDF	6608	Social Factors in American Education	3 hours
Select One Option:			
Option A — Research Report			3 Semester Hours
EVT	6909	Research Report	2,1 hours
Option B — Non-Thesis (Internship or Electives Approved by Advisor)			6 Semester Hours
EVT	6946	Graduate Internship or Electives	6 hours

### Area B: Specialization

**30 Semester Hours**

EVT	4065	Principles and Practices of Vocational Education	4 hours
EVT	4368	Advanced Teaching Techniques for Vocational Education	3 hours
EVT	5315	Applied Clinical Teaching Techniques in Vocational Education	3 hours
EVT	5316	Clinical Coordination for the Health Occupations Teacher	3 hours
EVT	6265	Supervision in Vocational Education	3 hours
EVT	6664	School/Community Relations for Vocational Education	3 hours
Electives Approved by Advisor			11 hours

## VOCATIONAL EDUCATION

**Master of Arts:** Minimum hours required for M.A.

**43/46 Semester Hours**

### Area A: Core

**9-12 Semester Hours**

EDF	6481	Fundamentals of Graduate Research in Education	3 hours
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Select One:

EDF	6155	Lifespan Human Development and Learning	3 hours
EDF	6517	History and Philosophy of Higher Education	3 hours
EDF	6608	Social Factors in American Education	3 hours

Select One Option:

EVT	6946	Graduate Internship	6 hours
EVT	6971	Research Report	2,1 hours

**Area B: Specialization**

**30 Semester Hours**

EVT	4065	Principles and Practices of Vocational Education	4 hours
EVT	4368	Advanced Teaching Techniques for Vocational Education	3 hours
EVT	5561	Student Guidance in the Vocational Program	3 hours
EVT	5564	Student Vocational Organizations	3 hours
EVT	6664	School/Community Relations for Vocational Education	3 hours
		Electives Approved by Advisor	14 hours

**Area C: Corequisites:**

EVT	3371	Course Construction in Industrial Education OR	4 hours
BTE	4410	Course Construction in Business Education	4 hours

## EDUCATIONAL SPECIALIST DEGREE PROGRAMS

Educational Specialist (Ed.S.) degree programs are offered in three areas: Curriculum/Instruction, designed for persons in teaching and other instruction/training leadership positions; Educational Leadership, for students who are interested in decision-making positions in educational organizations; and School Psychology, a special degree program that does not require a master's degree for admission but does have other special admission criteria.

## CURRICULUM/INSTRUCTION AND EDUCATIONAL LEADERSHIP

### Admissions Policy

Admissions will occur two times a year, Fall and Spring. Completed files must be on campus by September 15 for Spring admission screening and February 15 for Fall admission screening. Admitted students may begin course work during the first new semester after admission.

Completed files include: 1) completed UCF Graduate School application form, 2) transcripts from all post-secondary schools previously attended, 3) GRE scores, 4) three letters of recommendation, 5) professional resume, 6) statement of professional goals, 7) other information that may be requested after the file is started.

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

### Specialist Admission Requirements

1. A master's degree from an accredited institution;  
AND
2. A combined score of 1000 or above on the General Graduate Record Examination (verbal/quantitative scores combined);  
AND
3. Recommended for admission by the appropriate major program committee.

NOTE: Those applicants who do not meet admission criteria may appeal to the College of Education Graduate Standards and Curriculum Committee for consideration. A second GRE score of 900 or above is required for review by this committee.

### Degree Requirements

1. Complete a minimum of 36 semester hours beyond the Master's Degree including the selected program requirements.
2. Have an overall 3.0 GPA on all graduate work attempted.



3. 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.
4. Pass all required examinations.

### **Transfer Credit**

Total transfer credit may not exceed 9 semester hours and must be earned after the Master's Degree (maximum of 9 semester hours from other institutions within the State University System (SUS) or 6 semester hours earned at institutions not in the SUS but which are fully accredited).

Post-master's degree work taken at UCF prior to admission to the program is considered to be transfer credit.

Required Examinations: Educational Leadership majors must successfully complete one 5-hour examination in general educational leadership.

Curriculum and Instruction majors must successfully complete one 3-hour examination in Curriculum and Instruction and one 3-hour examination in their area of specialization.

### **Time Limits**

Course credit hours counted toward a degree may be no more than seven years old by the time the degree requirements are completed.

### **Continuous Attendance**

Students may not be guaranteed continuing graduate status if they do not enroll in the University for a period of three consecutive semesters INCLUDING Summer.

Graduation policy allows students to fulfill degree requirements as listed in the UCF Catalog in force during the student's most recent period of 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 three or more consecutive terms, including Summer. Under these circumstances, students will lose the option of fulfilling degree requirements under earlier catalogs.

## **SCHOOL PSYCHOLOGY**

The Educational Specialist degree program in School Psychology is a unique specialization in psychology and education. This program is based on the assumptions that school psychologists can apply relevant knowledge and skills from a variety of disciplines to the learning and adjustment problems of preschool and school-age children; and that relevant knowledge and skills can be transmitted through a variety of services including (a) consultation with teachers and parents, (b) direct services to children and young adults, and (c) indirect services to school and community organizations. School psychologists may practice in public or private schools, colleges and universities, rehabilitation centers, hospitals, mental health clinics, government agencies, child guidance centers, penal institutions, and may develop private practices. Applicants with backgrounds in education, psychology or other undergraduate majors may qualify. The program involves formal preparation and practical experiences focusing on psychological foundations (human development, learning and motivation), psycho-educational assessment, exceptional students, remediation or intervention techniques, counseling skills, as well as full-time supervised internship of two semesters in the public school setting. Graduates are certifiable at the state level and the program is approved and accredited by NASP/NCATE.

### **Admission**

Requirements for admission to the program include the following:

1. Admission to graduate school
2. Initial interview with the Program Coordinator
3. Baccalaureate degree from an accredited institution (usually in Education or Psychology)
4. Undergraduate GPA of 3.0 (on a 4.0 scale) for the last 60 semester hours
5. GRE score of 1,000 (verbal and quantitative scores combined)
6. Three letters of recommendation
7. Favorable recommendation for admission by the School Psychology Review Committee

\*Applicants graduating in spring and who might be experiencing difficulty in having complete transcripts sent to UCF by March 15, must request a letter from the Registrar of the institution granting the degree (to be submitted before the deadline) stating: (1) type of degree, (2) date of graduation; (3) major; and (4) final GPA.

This program can accommodate only a limited number of students; therefore, there is a possibility of being denied admission even when all criteria are met. Admissions to this program will occur only in the Fall term. Information concerning specific admissions policy and procedures can be obtained from Dr. Carl Balado (407) 823-2054 or Dr. David Mealor (407) 823-2465.

<b>Area A: Core</b>		<b>21 Semester Hours</b>	
EEX	5051	Exceptional Children in the Schools	3 hours
RED	6336	Reading in the Content Area	3 hours
DEP	5057	Developmental Psychology	3 hours
EXP	5445	Psychology of Learning and Motivation	3 hours
SPS	6XXX	Behavior and Observational Analysis	3 hours
EDF	6401	Statistics for Educational Data	3 hours
EDF	6481	Fundamentals of Graduate Research in Education	3 hours

<b>Area B: Specialization</b>		<b>47 Semester Hours</b>	
SPS	6601	Introduction to Psychological Services in Schools	3 hours
SPS	6608	Seminar in School Psychology	3 hours
MHS	6400	Theories of Individual Counseling	3 hours
MHS	6401	Techniques of Counseling	3 hours
MHS	6500	Group Procedures and Theories in Counseling	3 hours
SPS	6191	Psycho-Educational Diagnosis I	4 hours
SPS	6192	Psycho-Educational Diagnosis II	4 hours
SPS	6606	School Consultation Techniques	3 hours
SPS	6175	Cultural Diversity and Unbiased Assessment	3 hours
SPS	6125	Infant Developmental Assessment	3 hours
SPS	6206	Psychoeducational Interventions	3 hours
SPS	6946	Practicum in School Psychology I	3 hours
SPS	6946	Practicum in School Psychology II	3 hours
SPS	6909	Research Report I & II	6 hours
SPS	6949	School Psychology Internship	12 hours
Pre- or Corequisites: (D.O.E. Certification)			
EDA	6061	Organization and Administration of Schools	3 hours
EDF	6517	History & Philosophy of American Education OR	3 hours
EDF	6608	Social Factors in American Education	3 hours
			<b>Total Minimum Semester Hours</b>
			<b>80 Semester Hours</b>
<b>Required:</b>			

## DOCTOR OF EDUCATION DEGREE PROGRAMS

Doctor of Education (Ed.D.) degree programs are offered in two areas. One is Educational Leadership for students who are interested in management and leadership positions in educational organizations. The second is Curriculum and Instruction, designed for those interested in teaching in a college of education, teaching a content field at the community college level, becoming a school district leader in curriculum and instruction, or performing instructional design tasks in military or business settings.

### Admission Policy

Admissions will occur two times a year, Fall and Spring. Completed files must be on campus by September 15 for Spring admission screening and February 15 for Fall admission screening. Admitted students may begin course work during the first new semester after admission.

Completed files include: 1) completed UCF Graduate School application form, 2) transcripts from all post-secondary schools previously attended, 3) GRE scores, 4) three letters

of recommendation, 5) professional resume, 6) statement of professional goals, 7) other information that may be requested after the file is started.

Students interested in financial support through fellowship programs must have completed application files by December 15. 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 15 for the following academic year.

### Admission Requirements

1. Undergraduate GPA on the last 60 semesters hours of 3.0 (on a 4.0 scale);  
AND
2. A master's degree from an accredited institution;  
AND
3. Minimum score of 1000 on the General Graduate Record Examination (verbal/ quantitative scores combined);  
AND
4. Recommended for admission by the appropriate major program area committee;  
AND
5. Completion of at least three years of full-time teaching or comparable experience.

NOTE: 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 provisional admission.

### Degree Requirements for Curriculum/Instruction

1. Prerequisites  
(EDG 6223, EDF 6481, EDF 6401, or Equiv.) 9 hours
2. Curriculum/Instruction Core  
(EDF 7232, EDG 7221, EDG 7356, EDG 7692) 12 hours

All core courses and the core examination must be completed in the first six semesters of enrollment in the doctoral program.

3. Specialization Area Minimum 45 semester hours  
(includes selected courses in Curriculum, Instruction, Foundations, and Educational Leadership)
4. Research and Data Analysis (EDF 7403, EDF 7463) 6 hours
5. Dissertation Minimum 21 hours
6. Pass all required examinations and successfully defend dissertation.
7. Have an overall 3.0 GPA on all graduate work included in the planned program.

### Degree Requirements for Educational Leadership

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

### 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 will include graduate hours awarded by an accredited institution toward a master's degree and post-master's degree work. The transfer credit allowed will be determined on a case by case basis by the graduate advisor and program coordinator.

Post-Master's degree credit taken at UCF prior to admission to the program is considered to be transfer credit.

## Candidacy Examinations

1. Examinations are normally taken no sooner than the last semester of the student's course work and must be completed prior to admission to candidacy. (The exception is for C & I students who take a qualifying examination after completing the C & I core courses.)
2. Examinations will be scheduled near the tenth week of the Fall and Spring Semesters. Examinations in the Summer Term must be arranged by the student with the coordinator of the respective program.
3. All doctoral candidates will be required to write in three areas; these are:
  - a. Curriculum and Instruction
    - Specialization/Teaching Field 5-hour examination
    - Curriculum/Instruction Core 3-hour examination
    - Research/Data Analysis 3-hour examination
  - b. Educational Leadership
    - General Educational Leadership 5-hour examination
    - Area of Specialization 3-hour examination
    - Research/Data Analysis 3-hour examination
4. Students must be enrolled in the University during the semester an examination is taken.

## Continuous Attendance

Graduation policy allows students to fulfill degree requirements as listed in the UCF 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 three or more consecutive terms, including Summer. Under these circumstances, students will lose the option of fulfilling degree requirements under earlier catalogs. To avoid problems associated with maintaining graduate status, doctoral students are encouraged to enroll each semester, including summers.

## Residency Requirement

Each student shall complete two contiguous resident semesters in full-time graduate student status. "Full-time" 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 a Candidate

1. Enrollment  
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.
2. 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 may need to be repeated.
3. Dissertation Committee Composition  
A committee, which will consist of a minimum of four faculty members (three from the College of Education and one from outside the college), must be approved by the Dean of the College of Education and the Provost.
4. Dissertation  
Dissertations are required in all doctoral programs. College of Education candidates will follow the APA (American Psychological Association) guidelines.

## COURSE OFFERINGS

- ARE 5251** **ED 3(2,1)**  
**Art for Exceptionalities:** Concepts, principles, and methods of integrating art processes into the education of the physically, emotionally, and mentally handicapped.
- ARE 5358** **ED 3(3,0)**  
**Found Arts:** PR: ARE 4440 and ARE 4443 or C.I. Materials available for instruction in the public schools will be explored in depth in relation to their appropriateness and productive qualities.
- ARE 5648** **ED 3(3,0)**  
**Contemporary Visual Arts Education:** PR: ARE 4443 or C.I. Continued study of current programs and innovations in public school Visual Arts Programs.
- ARE 6195** **ED 3(2,1)**  
**Teaching Art Appreciation With Interdisciplinary Strategies:** PR: Grad. Status and public school teaching experience. This course will focus on the examination of art appreciation examples & concepts toward planning curriculum (interdisciplinary for the study of art history, criticism and aesthetics).
- ARE 6666** **ED 3(2,1)**  
**Arts Advocacy:** The content of this course will deal with the study and development of plans to produce arts advocacy programs for the public school system.
- ARE 6971**  
**Treatise**
- ARH 5451** **AS 3(3,0)**  
**Artistic Worldviews:** PR: Post-bac status, nine hours of art courses of C.I. Art from individual and cultural perspectives of varying ethnic, religious, occupational, regional, and generational groups.
- ARH 5454** **AS 3(3,0)**  
**Found Arts:** PR: C.I. Materials available for instruction in the public schools will be explored in depth in relation to their appropriateness and productive qualities.
- ARH 5478** **AS 3(3,0)**  
**Contemporary Women Artists:** PR: Six credits of art courses of C.I. An indepth study on contemporary women artists from a feminist perspective.
- ARH 5893** **AS 3(3,0)**  
**Critical Perspectives on Women Artists:** The cultural forces influencing women artists, and how those artists have been constrained or misrepresented by the language of art or by art history.
- ARH 5933** **AS 3(3,0)**  
**Seminar in African & African-American Arts:** 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.
- ART 5109C** **ED 3(2,1)**  
**Crafts Design:** Crafts design and production, including the use of rigid, flexible, and linear materials.
- BTE 6171** **ED 3(3,0)**  
**Business Education Curriculum:** PR: Basic Teacher Certificate or C.I. Curriculum planning and development; objectives, innovations, problems and issues in contemporary business programs.
- BTE 6425** **ED 3(3,0)**  
**Advanced Business Instruction Techniques:** PR: Graduate standing or C.I. Research, methods and materials related to current practices in Business Education.
- BTE 6426** **ED 3(3,4)**  
**Office Simulation Techniques:** PR: Basic Teacher Certificate or C.I. Methods of office simulation for teachers at the developmental and performance levels.
- BTE 6935** **ED 3(3,0)**  
**Seminar in Business Education:** PR: Graduate Standing or C.I. Current problems, issues and trends in Business Education.

- BTE 6946** **ED 3(3,0)**  
**Practicum Business Education:** PR: Graduate Standing. Techniques, materials and instructional media; evaluation and new trends of instruction in all areas of Business Education.
- CAP 6613** **ED 3(0)**  
**Utilizing Microcomputers in Education:** Instruction in microcomputers emphasizing applications of software in the classroom and for school record keeping.
- CGS 5310** **ED 3(3,0)**  
**Computer Based Educational Systems:** PR: COP 4020 or equivalent. The design and implementation of computer based educational systems. Selected projects using high-level programming languages.
- EDA 6061** **ED 3(3,0)**  
**Organization and Administration of Schools:** PR: Basic Teacher Certificate or C.I. Introduction to and overview of educational administration including governance, finance communications and information management, personnel evaluation.
- EDA 6106** **ED 3(3,0)**  
**Trends in Educational Administration:** PR: Master's degree and/or Rank II certification including a course in school organization. Exemplary organization patterns in school administration will be examined. Study of patterns of functions in selected outstanding school organizations.
- EDA 6232** **ED 3(3,0)**  
**Legal Aspects of School Operation:** PR: Basic Teacher Certificate or C.I. Study of state and federal laws affecting the operation of public schools emphasizing individual rights and responsibilities of students, faculty, and administrators.
- EDA 6240** **ED 3(3,0)**  
**Educational Financial Affairs:** PR: Basic Teacher Certificate or C.I. Theoretical and practical approaches to managing school business affairs at central office and individual school levels.
- EDA 6260** **ED 3(3,0)**  
**Educational Systems Planning and Management:** PR: Basic Teacher Certificate or C.I. Application of current educational management and behavioral theory for systems approaches in schools and educational facilities.
- EDA 6300** **ED 3(3,0)**  
**Community School Administration:** PR: C.I. The relationships between the school and the community with special emphasis on community needs and the development of a total community school program.
- EDA 6502** **ED 3(3,0)**  
**Organization and Administration of Instructional Programs:** PR: Basic Teacher Certificate or C.I. Study of school organization, administration and management with emphasis toward organizational theory, leadership, evaluation and change and improvement strategies.
- EDA 6540** **ED 3(3,0)**  
**Organization and Administration of Higher Education:** PR: C.I. Purposes, organizations and administration of two-year and four-year institutions of higher education in the U.S. Public and private colleges are studied.
- EDA 6931** **ED 3(3,0)**  
**Contemporary Issues in Educational Leadership:** A capstone course intended to stimulate inspection, analysis, and dialogue regarding contemporary issues and tensions facing educational leaders and educational systems.
- EDA 6946** **ED 1-6**  
**Internship:** PR: C.I. Normally, the Educational Leadership internship is completed during the latter part of the degree program. Application must be made in semester prior to internship through the student's advisor.
- EDA 6971** **ED 1-2**  
**Treatise**
- EDA 7101** **ED 3(3,0)**  
**Organizational Theory in Education:** PR: Advanced graduate status or C.I. Overview of sociological and behavioral theories that are applicable to administration of various educational organizations.

- EDA 7192** **ED 4(4,0)**  
**Educational Leadership:** PR: Advanced graduate status of C.I. An analysis of the interactive process and functioning of groups; development of skills essential for effective educational leadership; and the change process.
- EDA 7195** **ED 4(4,0)**  
**Politics, Governance and Financing of Educational Organizations:** PR: Advanced graduate status or C.I. The study of policy development as a political process; governance issues; and financial issues in education.
- EDA 7205** **ED 4(4,0)**  
**Planning, Research and Evaluation Systems in Educational Administration:** PR: Advanced graduate status or C.I. The study of research and evaluation methodologies, system theory, and planning and design strategies in educational administration.
- EDA 7225** **ED 4(4,0)**  
**Educational Personnel, Contracts and Negotiations:** PR: Advanced graduate status or C.I. Program and completion of a course in school law. Readings, discussions and research pertaining to administration of educational personnel and contracts with emphasis on collective bargaining, negotiations and grievance resolution.
- EDA 7235** **ED 3(3,0)**  
**Seminar in School Law:** PR: C.I. Seminar to explore various legal aspects related to the administration and organization of American education and to enable the individual to research in depth selected legal topics.
- EDA 7236** **ED 3(3,0)**  
**Legal Issues In Higher Education:** PR: Advanced graduate status or C.I. Addresses legal framework of public and private institutions of higher education with emphasis on case law related to organization, governance, faculty, students, curriculum and environment.
- EDA 7260** **ED 3(3,0)**  
**Educational Facilities:** PR: C.I. Administration of educational facilities such as surveys, finance plans and specifications, equipment, contracts, construction procedures, maintenance and custodial services.
- EDA 7274** **ED 3(4,0)**  
**Seminar: Applications of Technology to Educational Leadership:** PR: EDA 6260 or C.I. Study of administrative and leadership technology applications at the school building or district level.
- EDA 7905** **ED 3**  
**Directed Independent Study**
- EDA 7919** **ED 1-6**  
**Dissertation Research:** PR: C.I.
- EDA 7930** **ED 3(3,0)**  
**Seminar in School Administration:** PR: C.I. Discussion of problems in school administration, patterns of curriculum organization and research projects.
- EDA 7943** **ED 3(3,0)**  
**Field Project:** PR: C.I. Field experience and projects for advanced graduate students. Participation in school plant surveys, accreditation visitation, curriculum studies, administrative analysis, field research. May be repeated for credit.
- EDA 7980** **ED 1-20**  
**Dissertation:** PR: Admission of candidacy.
- EDE 5541** **ED 3(3,0)**  
**Individualizing Instruction in the Elementary School:** PR: Basic Teacher Certificate or C.I. Study of basic philosophy, organizational patterns, techniques, materials and activities related to individualizing instruction in the elementary school classroom.
- EDE 6205** **ED 3(3,0)**  
**Elementary School Curriculum:** PR: Basic Teacher Certificate or C.I. Analysis of the forces which shape and contribute to the vertical and horizontal curriculum designs of elementary schools.

- EDE 6971** **ED 1-2**
- EDF 5245** **ED 3(3,0)**  
**Preparation and Management of Classroom Instruction:** PR: C.I. Study of strategies for instructional planning and classroom management that result in optimum learning.
- EDF 5259** **ED 3(3,0)**  
**Classroom Management and Teaching:** PR: C.I. Study of teaching behaviors and strategies for classroom management that result in a minimum of behavior problems and sound instructional planning.
- EDF 6155** **ED 3(3,0)**  
**Lifespan Human Development and Learning:** Research in childhood, adolescent and adult development relevant to contemporary American education. Emphasis on application of theory to educational practice.
- EDF 6233** **ED 3(3,0)**  
**Analysis of Classroom Teaching:** PR: EDF 6481 or C.I. Analyses of effective teaching practices and their effect upon classroom instruction and learning.
- EDF 6236** **ED 3(3,0)**  
**Principles of Instruction and Learning:** The analysis and application of selected concepts and theories of learning in relation to curriculum design, classroom strategies, and instructional techniques.
- EDF 6259** **ED 3(3,0)**  
**Strategies of Classroom Management:** Study of strategies of classroom management that result in optimum learning and a minimum of behavior problems.
- EDF 6401** **ED 3(3,0)**  
**Statistics for Educational Data:** PR: EDF 6481 or C.I. Design of educational evaluation; analysis of data, descriptive and inferential statistics, interpretation of results.
- EDF 6432** **ED 3(3,0)**  
**Measurement and Evaluation in Education:** PR: Graduate standing. Concepts of measurement and evaluation, classroom test construction, creation and use of derived scores, selection and use of published measurement instruments, current issues.
- EDF 6447** **ED 3(3,0)**  
**Development and Validation of Educational Tests and Measures:** PR: EDF 6401, EDF 6432. Criterion and norm-referenced test development for educational agencies: specifications, item development and trial, scaling, passing scores, and test norms.
- EDF 6481** **ED 3(3,0)**  
**Fundamentals of Graduate Research in Education:** PR: Graduate standing. Review and critique of research literature, use of library resources for educational research, and introduction to the concepts of research design and data analysis.
- EDF 6486** **ED 3(3,0)**  
**Research Design in Education:** PR: EDF 7403 or C.I. An examination of methodological techniques for specific educational problems. Intended for students in the process of designing independent research studies.
- EDF 6517** **ED 3(3,0)**  
**History and Philosophy of American Education:** PR: C.I. A critical analysis of the conceptual and operative educational systems developed in the United States of America.
- EDF 6608** **ED 3(3,0)**  
**Social Factors in American Education:** Analysis of general and specific aspects of American education as they relate to social and behavioral sciences.
- EDF 6886** **ED 3(3,0)**  
**Multicultural Education:** A survey of multicultural education; analysis of the relationship between cultural transmission, cultural pluralism, and the learning process within American schools.
- EDF 6971** **ED 1-2**  
**Thesis**



- EDF 7232** **ED 3(3,0)**  
**Analysis of Learning Theories in Instruction:** PR: Advanced graduate standing or C.I. Analysis of theories and research relevant to understanding learning in educational settings.
- EDF 7403** **ED 3(3,0)**  
**Quantitative Foundations of Educational Research:** PR: EDF 6401 or C.I. Examination of appropriate methods in applied educational contexts. Consideration of analysis strategies for educational data, emphasis on identification and interpretation of findings.
- EDF 7463** **ED 3(3,0)**  
**Analysis of Survey, Record and Other Qualitative Data:** PR: EDF 6401. Applications of summative evaluation for education: interpretation of impact data, measurement scales, survey and record data.
- EDF 7475** **ED 3(3,0)**  
**Qualitative Research in Education:** PR: EDF 7463. Introduction to the philosophical and conceptual basis of qualitative research methods, strategies for gathering, analyzing and interpreting qualitative data, emerging issues.
- EDG 5325** **ED 3(3,0)**  
**Techniques for the Developing Professional in Education:** PR: C.I. Analysis, study, development and use of techniques for enhanced instruction in the educational setting.
- EDG 5337** **ED 3(3,0)**  
**Teaching Individuals, Small and Large Groups:** Study of teaching skills for effectively instructing individuals in various educational groups, with consideration of developmental and behavioral characteristics of students.
- EDG 5745** **ED 3(3,0)**  
**Teaching the Non-English Student:** PR: FLE 3063 or bilingual and non-linguistic instruction in curriculum areas and in English as a second language.
- EDG 5941** **ED 2-8(0,11)**  
**Clinical Practice:** PR: Admission to STEP II, III or IV. Clinical internship in an appropriate educational setting under the direction of a university supervisor or peer teacher.
- EDG 6046** **ED 3(3,0)**  
**Contemporary Issues in Education:** An analysis of current trends in education and their impact on educational programs.
- EDG 6223** **ED 3(3,0)**  
**Curriculum Theory and Organization:** An exploration and examination of the foundations, design, development and organization of curriculum in K-Plus settings and professionals' roles in curriculum decision making.
- EDG 6253** **ED 3(3,0)**  
**Curriculum Inquiry:** Provides participants with the knowledge and skills necessary to understand, plan, and implement effective curriculum practices and change in K-Plus and other instructional settings.
- EDG 6285** **ED 3(3,0)**  
**Evaluation of School Programs:** PR: Graduate standing. History of program evaluation, systems approaches to program evaluation, concepts of stakeholder and qualitative approaches to program evaluation, the role of evaluator and administrator.
- EDG 6327** **ED 3(3,0)**  
**Techniques of Game Use in Education:** Analysis, development, and use of educational games as an approach to classroom teaching.
- EDG 6415** **ED 3(3,0)**  
**P.R.I.D.E. (Professional Refinements in Developing Effectiveness):** PR: C.I. Questioning techniques, student non-verbal communication; build a symmetry of classroom rewards and penalties; analyze critical incidents that institute practices for the lowest risk and greatest gain.
- EDG 6416** **ED 3(3,0)**  
**Project: T.E.A.C.H.:** PR: C.I. Topics in questioning and paraphrasing skills, positive support problem, solving skills, counseling techniques, non-confrontation strategies, group dynamics and discipline decision making.

- EDG 6417** **ED 3(3,0)**  
**Teaching Through Learning Channels:** PR: C.I. Teaching effectiveness on identifying and use of student learning channels, analysis of curricula based on learning channels; develop alternative strategies to meet needs of heterogeneous classroom.
- EDG 6940** **ED 1-8(0,1-8)**  
**Graduate Internship:** PR: Approval of Student Internship Office. Internship in an appropriate educational setting under the direction of a qualified field supervisor and/or a university supervisor. (May be repeated for credit.)
- EDG 6946** **ED 1-2**  
**Practicum, Clinical Practice**
- EDG 6971** **ED 1-2**  
**Thesis**
- EDG 7221** **ED 3(3,0)**  
**Advanced Curriculum Theory:** PR: EDG 6223; ESE 6325 or C.I. An analysis of the research base which supports the various dimensions of the curriculum field.
- EDG 7356** **ED 3(3,0)**  
**Models of Teaching and Instructional Theory:** PR: EDG 6223 or C.I. Examination of models of teaching. Focus on the roles of the teacher, applicable contexts and learning goals; historical, philosophical, learning, and research bases.
- EDG 7692** **ED 3(3,0)**  
**Issues in Curriculum:** PR: EDG 7221; EDG 7356 or C.I. Examination of the relationships between the research bases of instructional and curriculum theories with emphasis on current issues and concerns.
- EDG 7919** **ED 1-6**  
**Dissertation Research:** PR: C.I.
- EDG 7939** **ED 1-6**  
**Special Topics/Seminars:** PR: Doctoral level.
- EDG 7980** **ED 1-20**  
**Dissertation:** PR: Admission to Candidacy.
- EDH 6065** **ED 3(3,0)**  
**History and Philosophy of Higher Education:** PR: C.I. Early European and American universities, both state and private. Also considers small and private junior and senior colleges.
- EDH 6215** **ED 3(3,0)**  
**Community College Curriculum:** PR: C.I. Examination of the background, development, function, and goals of the curriculum of the community college.
- EDH 6305** **ED 3(3,0)**  
**Improvement of Instruction in Colleges:** PR: C.I. Purposes, trends, outcomes and special programs in the curriculum. Considers techniques for identifying, improving and rewarding good college teaching. Test construction, measurement and learning theories.
- EDH 6505** **ED 3(3,0)**  
**Finance in Higher Education:** PR: Completion of Phase II of Education Professional Preparation or C.I. Fundamental considerations in the finance of institutions of higher education.
- EDM 5235** **ED 3(3,0)**  
**Teaching in the Middle School:** Methods of middle school teaching; team planning and teaching; developmental and learning patterns of the emerging adolescent; use of alternative teaching strategies.
- EDS 5356** **ED 3(2,1)**  
**Supervision of Professional Laboratory Experiences:** PR: C.I. Study of the undergraduate professional laboratory experiences program with emphasis on the role and responsibilities of the teacher education associate or supervising teacher.
- EDS 5357** **ED 3(3,0)**  
**Supervision of Clinical Experiences:** PR: C.I. Study of the beginning teacher and STEP programs with emphasis on the role and responsibilities of the peer teacher or building level administrator.

- EDS 6050** **ED 3(3,0)**  
**Supervision of Instruction:** Effective supervisory principles and practices which can be used for instructional improvement.
- EDS 6053** **ED 3(3,0)**  
**Trends in Educational Supervision:** PR: Basic supervision course or C.I. Examination and analysis of the trends, issues, and problems in educational supervision.
- EDS 6100** **ED 3(3,0)**  
**Leadership:** PR: C.I. Analysis of the interactive process within and between groups, emphasizing the formation and functioning of groups; development of skills essential for effective leadership.
- EDS 6123** **ED 3(3,0)**  
**Educational Supervisory Practices I:** PR: Basic Teacher Certificate or C.I. Analysis of effective supervisory behavior as it relates to human relations/communication skills; leadership; motivation; curriculum development; community relations; and service to teaching.
- EDS 6130** **ED 3(3,0)**  
**Educational Supervisory Practices II:** PR: Basic Teacher Certificate or C.I. Analysis of effective supervisory behavior as it relates to planning and change; observation and conferencing skills; staff and group development, problem solving; and decision making.
- EDS 6971** **ED 1-2**  
**Thesis**
- EDS 7111** **ED 3(2,1)**  
**Administration and Supervision of Staff Development:** PR: Basic Teacher Certificate or C.I. Role and procedures for the supervisor or administrator in staff development. Assessment of staff development needs and delivery systems are stressed.
- EEC 5205** **ED 3(3,0)**  
**Programs and Trends in Early Childhood Education:** PR: Basic Teacher Certificate or C.I. Philosophy, content, facilities, instructional materials and activities appropriate for children 3 to 8 years of age; current research; issues and trends. Concurrent laboratory experiences.
- EEC 5206** **ED 3(3,0)**  
**Organization of Instruction in Early Childhood Education:** PR: Basic Teacher Certificate or C.I. Organization and techniques in instruction relating to language arts, social sciences, science, mathematics, health and physical education; problems relating to reading readiness perception and cognition (K-3). Concurrent laboratory experience.
- EEC 5208** **ED 3(3,0)**  
**Creative Activities in Early Childhood:** PR: Basic Teacher Certificate or C.I. Organization of instruction and methods for creative activities involving music, art, literature and educational toys. Integration of activities and basic skills curriculum (K-3). Concurrent laboratory experience.
- EEC 6268** **ED 3(3,0)**  
**Play Development, Intervention and Assessment:** Explores play development, facilitation, intervention and assessment.
- EEC 6406** **ED 3(3,0)**  
**Guiding and Facilitating Social Competence:** Provides students with techniques to facilitate and guide the behavior and emotional growth of young children.
- EED 6071** **ED 3(3,0)**  
**Behavior Disorders in Schools:** PR: Basic Teacher Certificate or C.I. Assessment analysis of behavior disorders, cause and effects, identification and theories.
- EED 6226** **ED 3(3,0)**  
**Theory and Application for EH:** PR: C.I. Study of various approaches to use in teaching emotionally handicapped children interpersonal and cognitive skills with special emphasis on the severe and moderate populations.
- EEX 5051** **ED 3(3,0)**  
**Exceptional Children in the Schools:** PR: Senior Standing or C.I. Characteristics, definitions, educational problems and appropriate educational programs for the exceptional children in schools.

- EEX 5702** **ED 3(3,0)**  
**Planning Curriculum for Prekindergarten Children with Disabilities:** Focus on curriculum planning; developmentally appropriate practices and implementation of individualized instruction for prekindergarten children with disabilities.
- EEX 5750** **ED 3(3,0)**  
**Communication with Parents and Agencies:** Presentation of methods of interacting with community agencies, supporting and collaborating with families, developing a case management system and facilitating program transition.
- EEX 6017** **ED 3(3,0)**  
**Typical and Atypical Applied Child Development:** Focus on the stages and dequence of development and the impact of disabilities and biomedical risk factors on learning and development.
- EEX 6061** **ED 3(3,0)**  
**Instructional Strategies PREK-6:** A varying exceptionalities strategies (SLD,EH.MH) course using a cross- categorical model. The course is concerned with the pre-k handicapped child through grade 6. A required field experience must be completed with the class depending on prior experience.
- EEX 6065** **ED 3(3,0)**  
**Instructional Strategies 6-12:** A varying exceptionalities strategies (SLD,MH.ED) course using a cross-categorical model. The course is concerned with grades 6-12 and low incidence populations. A required field experience must be completed with the class depending on prior experience.
- EEX 6107** **ED 3(3,0)**  
**Teaching Spoken and Written Language:** Diagnosis and remediation of spoken and written language problems found in the exceptional populations. Overview of alternative methods of communication.
- EEX 6224** **ED 3(3,0)**  
**Observation and Assessment of Young Children:** Study of formal and informal observation and assessment.
- EEX 6257** **ED 3(3,0)**  
**Exceptional Adolescents:** An examination of the problems, diagnosis, teaching strategies and materials peculiar to the exceptional adolescent.
- EEX 6266** **ED 3(3,0)**  
**Assessment and Curriculum Prescriptions for the Exceptional Population:** The class addresses contemporary assessments and models for assessing exceptional children. Curriculum and prescription are also addressed.
- EEX 6342** **ED 3(3,0)**  
**Seminar — Critical Issues in Special Education:** PR: EEX 5051. An examination of research and current literature dealing with some of the critical issues in all areas of special education.
- EEX 6524** **ED 3(3,0)**  
**Organization and Collaboration in Special Ed.:** PR: C.I. The course is designed to address evaluation, assessment, personnel resource, grant writing and other administrative issues. Collaborative models of intervention and service delivery are presented.
- EEX 6612** **ED 3(3,0)**  
**Methods of Behavioral Management:** Analysis of the principles of behavior management and precision teaching and application of these principles to the solving of classroom management problems.
- EEX 6863** **ED 2-7(12-40)**  
**Supervised Teaching Practicum with Exceptional Children:** PR: Bachelor's degree, approved program and C.I. Supervised observation and teaching of an exceptional student.
- EEX 6946** **ED 6**  
**Graduate Internship:** Student teaching in an elementary or secondary school for 14 full weeks along with assigned seminar. Required for MA candidates.
- EEX 6971** **ED 1-2**  
**Treatise**
- EFI 6XXX** **ED 3(3,0)**  
**Theory and Development of Creativity:** PR: None. This course focuses on the concept of creativity and explores various means of integrating creative strategies and instructional content areas. S.E.

- EGC 5036** **ED 3(3,0)**  
**Guiding Human Relationships:** PR: Senior standing or Basic Teacher Certificate. Human relationship skills which will enhance intra- and inter-personal relating skills in classrooms.
- EGC 6437** **ED 3(3,0)**  
**Advanced Counseling Techniques:** PR: MHS 6400, MHS 6401 or C.I. A presentation of advanced techniques, approaches and strategies to counseling and psychotherapy. An experiential component will be included.
- EGI 6051** **ED 3(3,0)**  
**Understanding the Gifted/Talented Student:** A study of characteristics of the gifted/talented students; theories and research; identification procedures; special problems; educational forces.
- EGI 6245** **ED 4(4,0)**  
**Program Planning and Methodology for Gifted/Talented Students:** A study of organization, curriculum, strategies and activities for the gifted/talented student; diagnostic teaching; learning-teaching styles; instructional materials; individualized instruction.
- EGI 6246** **ED 3(3,0)**  
**Education of Special Populations of Gifted Students:** PR: None. Focus on needs of gifted subgroups, including females, minorities, handicapped and students with learning and emotional problems. S. E.
- EGI 6305** **ED 3(3,0)**  
**Theory and Development of Creativity:** This course focuses on the concept of creativity and explores various means of integrating creative strategies and instructional content areas.
- ELD 6248** **ED 3(3,0)**  
**Instructional Strategies for Students with Learning Disabilities:** Instructional strategies for students with specific learning disabilities to include development, implementation and evaluation of individualized educational plans and adaptation of curriculum and materials.
- EME 5051** **ED 3(3,0)**  
**Technologies of Instruction & Information Management:** Theories and practices utilizing instructional media and information technologies. Emphasis on new and emerging technologies and their effects on the school and media program.
- EME 5052** **ED 3(3,0)**  
**Electronic Resources for Education:** PR: EME 6938 — Current Trends in Educational Media, and/or EME 5051 — Technology Instruction and Information Management or C.I. Study and application of electronic resources available for education including techniques for locating, evaluating and integrating them into the classroom.
- EME 5054** **ED 3(3,0)**  
**Instructional Systems: A Survey of Applications:** Applications of instructional technology in settings other than public schools. Survey of facilities, programs, and services in business, industry, religion, government, higher education and medical settings.
- EME 5056** **ED 3(3,0)**  
**Communication for Instructional Systems — Process:** Principles of written and oral communications for instructional technologists; development of assertiveness and interpersonal skills; conducting training programs for employees; creating hard copy materials.
- EME 5057** **ED 3(3,0)**  
**Communication for Instructional Systems — Application:** PR: EME 5056. Applications of technology, communications theory, platform skills, and instructional design to the effective presentation of training programs and instruction.
- EME 5208** **ED 3(3,0)**  
**Production Techniques for Instructional Settings:** PR: EME 5051. Skills in producing instructional materials. Emphasis on graphic, audio, video and photographic skills and the application of instructional and communication theories.
- EME 5225** **ED 3(3,0)**  
**Media for Children and Young Adults:** Survey of materials for children's and young adults' informational and recreational needs; analysis, evaluation, and utilization of print and non-print materials.

- EME 5408** **ED 3(3,0)**  
**Computer Applications in Instructional Technology:** Techniques and skills for the use of computers for productivity and instruction by the instructional technologist.
- EME 5810** **ED 1(1,0)**  
**Teaching and Learning with Technology:** Overview of technologies for teaching and for learning. Practical strategies for using technology in the classroom. (May be retaken 3 times for credit.)
- EME 6053** **ED 3(3,0)**  
**Current Trends in Instructional Technology:** PR: EME 6613. Survey of current trends and issues of importance to the field of instructional technology.
- EME 6058** **ED 3(3,0)**  
**Current Trends in Educational Media:** PR: C.I. Survey of current trends and issues of importance to the field of Educational Media.
- EME 6062** **ED 3(3,0)**  
**Research in Instructional Technology:** PR or COR: EDF 6481, EME 6613 or EME 6605. Critical review and evaluation of landmark research in the areas of educational media, instructional design and instructional systems.
- EME 6105** **ED 3(3,0)**  
**Collection Development Policies and Procedures:** PR: EME 5051. 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.
- EME 6209** **ED 3(3,0)**  
**Multimedia Systems:** PR: EME 5208 or EME 5057 or C.I. 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.
- EME 6313** **ED 3(3,0)**  
**Media Systems Design:** PR: EME 5054, EME 6613. Principles of communication, learning theory, and research in instructional technology applied to the design of mediated instructional messages.
- EME 6403** **ED 3(3,0)**  
**Computer Assisted Instruction:** PR: EME 5408. Utilization of commercial authoring systems and authoring languages to produce CAI ranging from drill and practice through simulations. Emphasis upon design and development phases.
- EME 6405** **ED 3(3,0)**  
**Application Software for Educational Setting:** PM: EME 6938 — Current Trends in Educational Media; Basic computer skills; Basic skills in using application programs for general productivity. Use of software applications in instructional settings by students and teachers. Includes integrated packages (word processing, database, spreadsheet, telecommunications) graphics software, presentation software and desktop publishing software as they related to the K-12 curriculum, students and teacher productivity.
- EME 6455** **ED 3(3,0)**  
**Instructional Applications of Interactive Video:** PR: EME 5408. Examines videotape and videodisc based interactive video systems as they apply to instructional settings. Requires basic knowledge of computer literacy and instructional design theory.
- EME 6457** **ED 3(3,0)**  
**Distance Education: Technology Process Product:** PR: EME 5408 or C.I. Instruction and how it is delivered at a distance. Examines technologies, processes and products of distance education with emphasis on the relationship between high tech and high touch interactivity.
- EME 6507** **ED 3(3,0)**  
**Multimedia in the Classroom:** PR: EME 6938 — Current Trends in Educational Media; basic computer skills; basic skills in using application programs for general productivity. Emphasis on the elements and applications of multimedia programs for use by K-12 students and teachers. Includes authoring, design, delivery systems, hardware, software.
- EME 6602** **ED 3(3,0)**  
**Integrating Technology into the Curriculum:** PR: EME 5051 — Technology for Instruction and Information Management; Basic computer skills. Resources, materials and strategies for systemic achievement of curriculum goals; investigation of innovative and effective technological advances and practices for use in teaching and learning.

- EME 6605** **ED 3(3,0)**  
**Role of the Media Specialist in Curriculum & Instruction:** PR or COR: EME 5051. Development of skills in instruction and instructional design. Emphasis on teaching, consultation and media skills and curricular involvement of the media specialist.
- EME 6607** **ED 3(3,0)**  
**Planned Change in Instructional Technology:** PR: EME 6705 or EME 6706. In-depth study of the processes of planned change and adoption/rejection of innovations in educational settings.
- EME 6613** **ED 3(3,0)**  
**Instructional System Design:** PR: EME 5054. Systematic design of instruction including task analysis, learner analysis, needs assessment, content analysis, specification of objectives, media selection, evaluation and revision; analysis of ID models.
- EME 6705** **ED 3(3,0)**  
**Administration of Instructional Systems:** PR: EME 5408, EME 6613. Provides opportunities for students to examine parameters, problems, and areas of importance in the management of instructional systems.
- EME 6706** **ED 3(3,0)**  
**Administrative Principles in Media Centers:** PR: EME 6605, EME 5051, EME 6105. Principles of planning, evaluating, budgeting, staffing, and marketing the school media program. Development of policies and procedures for the school media center, legislation technology, professionalism.
- EME 6707** **ED 3(3,0)**  
**Technology Coordinator in the Schools:** PR: EME 5051-Technology for Instruction and Information Management; EME 6602 — Integrating Technology into the Curriculum; EME 6XXX — Application Software. A graduate course in educational technology designed to provide a context for the role of a school-based professional with skills in educational technology. Includes planning, administration, training, leadership, budgeting, ethics, evaluation and grant writing.
- EME 6805** **ED 3(3,0)**  
**Organization of Media and Information:** Methods for organizing print and non-print media, with instruction in cataloging and classification, using standard bibliographic tools and procedures.
- EME 6807** **ED 3(3,0)**  
**Information Sources and Services:** PR: EME 6105. Development of skills in identifying appropriate information sources for school media centers, providing reference services, and teaching research skills and search strategies.
- EME 6809** **ED 3(3,0)**  
**Information Retrieval Systems:** PR: EME 5408. Examines applications of information retrieval that are appropriate for instructional technologists. Includes elements of search strategy construction, database and index structure, and online search procedures.
- EME 6940** **ED 3(3,0)**  
**Theory into Practice in Educational Technology:** PR: Completion of all core courses in educational technologies. Practicum in facilitating the utilization of instructional media and information technologies.
- EMR 6205** **ED 3(3,0)**  
**Theory and Application for EMH:** PR: C.I. Study of various approaches to use in teaching the Educable Mentally Handicapped motor, interpersonal and cognitive skills with special emphasis on the severe and moderate applications.
- EMR 6365** **ED 3(3,0)**  
**Teaching Students with Mental Disabilities:** Strategies for teaching students with mental disabilities: development, implementation, and evaluation of individualized plans; special approaches to teaching functional skills; developmental programming; data based management.
- ENC 5705** **AS 3(3,0)**  
**Theory and Practice in Composition:** PR: Senior Standing or C.I. Intensive study of composition, with practical experience in the writing laboratory and in composition classes.
- ESE 5214** **ED 3(3,0)**  
**Secondary School Curriculum Improvement:** PR: Basic Teacher Certificate or C.I. Secondary school self-studies for curriculum projects, accreditation reports or staff development.

- ESE 6235** **ED 3(3,0)**  
**Curriculum Design:** PR: Basic Teacher Certificate or C.I. Goal analysis, task analysis, needs assessment and writing performance objectives for developing courses of study.
- ESE 6325** **ED 3(3,0)**  
**Curriculum Theory:** PR: Graduate standing or C.I. The foundations, design, constituent parts, development and implementation of change in public school curricula.
- ESE 6416** **ED 3(3,0)**  
**Curriculum Evaluation:** PR: ESE 6235, or an equivalent curriculum course.
- ESE 6971** **ED 1-2**  
**Treatise**
- EVT 5260** **ED 2-4(2-4,0)**  
**Cooperative Programs in Vocational Education:** PR: Basic Teacher Certificate or C.I. Study of cooperative vocational programs and achievement of competencies needed to establish, manage and coordinate co-op program activities in all vocational areas.
- EVT 5315** **ED 2-3(2-3,0)**  
**Applied Clinical Teaching Techniques in Vocational Education:** PR: Basic Teacher Certificate or C.I. Study and practice of clinical teaching methods, development of student performance assessment instruments, planning clinical learning experiences, and recordkeeping.
- EVT 5316** **ED 2-3(2-3,0)**  
**Clinical Coordination for the Health Occupations Teacher:** PR: Basic Teacher Certificate or C.I. Development of clinical guidelines, resources, student schedules, and risk-management programs. Includes negotiating clinical contractual agreements and planning field supervision.
- EVT 5561** **ED 2-3(2-3,0)**  
**Student Guidance in the Vocational Program:** PR: Basic Teacher Certificate or C.I. Achievement of skills used by teachers as they gather student data, confer with students and help students plan for employment or further education.
- EVT 5564** **ED 2-3(2-3,0)**  
**Student Vocational Organizations:** PR: Basic Teacher Certificate or C.I. Competencies needed by vocational teachers as they establish and supervise student vocational organizations in secondary and post-secondary schools.
- EVT 5817** **ED 2-4(2-4,0)**  
**Management of Vocational Programs:** PR: Basic Teacher Certificate or C.I. Study and achievement of selected competencies needed by vocational teachers, supervisors and local administrators in the management of vocational education programs in the schools.
- EVT 6264** **ED 3(3,0)**  
**Administration in Vocational Education:** PR: Basic Teacher Certificate or C.I. Administrative responsibilities in a local program of Vocational Education which includes two or more fields of occupational education.
- EVT 6265** **ED 3(3,0)**  
**Supervision in Vocational Education:** PR: Basic Teacher Certificate or C.I. Supervisory techniques for planning and implementing improvement of staff, curriculum and personal relations in Vocational Education.
- EVT 6267** **ED 2-4(2-4,0)**  
**Vocational Program Planning, Development and Evaluation:** PR: Basic Teacher Certificate or C.I. Achievement of selected teacher competencies related to program objectives, courses of study, long range plans and techniques for evaluating vocational program effectiveness.
- EVT 6664** **ED 2-4(2-4,0)**  
**School/Community Relations for Vocational Education:** PR: Basic Teacher Certificate or C.I. Achievement of proficiency in the use of media techniques to promote the vocational program. Development and maintenance of productive relationships between school and community groups.
- EVT 6971** **ED 1-2**  
**Treatise**



- EXP 5445** **ED 3(3,0)**  
**Psychology of Learning and Motivation:** PR: DEP 5057 or C.I. Examination of theories and research concerning the acquisition and retention of behavior as well as motivational factors which influence learning and behavior.
- FLE 6296** **ED 3(3,0)**  
**Behavioral and Observational Analysis of Classroom Interactions in Schools:** PR: Graduate Admission. An intensive review of the principles and procedures of applied behavioral and observational analysis and assessment as they relate to changing behavior in schools.
- HLP 6085** **ED 3(3,0)**  
**Personal and Organizational Wellness:** Professional implications of the U.S. wellness movement and assessment of the nature and quality of corporate and other instructional programming.
- HLP 6086** **Ed 3(3,0)**  
**Wellness Development in Children:** An analysis of wellness characteristics and concepts as they effect the wellness of children.
- IDS 6939** **ED 3(3,0)**  
**Reforming Curriculum in mathematics and Science Education:** PR: Graduate standing and valid Florida Teaching Certificate or C.I. Emphasizes the reform movement including technology, history of curriculum, curriculum theory and standards documents.
- IDS 6937** **ED 3(3,0)**  
**Reflecting on Instruction of Mathematics and Science:** PR: Graduate standing and a valid Florida Teaching Certificate or C.I. The focus of the course is on the work of Dewey and Piaget as it applies to mathematics and science teaching. Integrating math and science teaching will be emphasized.
- IDS 6086** **ED 3(2,1)**  
**Using Technology in Mathematics and Science:** PR: Graduate standing and a valid Florida Teaching Certificate or C.I. This course emphasizes the learning and use of technology in the teaching of mathematics and science.
- IDS 6933** **ED 3(3,0)**  
**Seminar in Teaching Mathematics and Science:** PR: Graduate standing and a 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).
- LAE 5195** **ED 3(3,0)**  
**CFWP Teacher Consultant:** PR: C.I. This course is designed for Fellows of the CFWP Summer Institute who will plan, practice, and present writing inservice components to public schools.
- LAE 5295** **ED 1-3(1-3,0)**  
**Writing Workshop I:** PR: C.I. Students will engage in exploration and practice of effective writing strategies. May include teaching small groups of students. May be repeated for credit.
- LAE 5319** **ED 3(3,0)**  
**Methods of Elementary School Language Arts:** Principles, procedures, organization and current practices in reading, writing, listening and talking.
- LAE 5367** **AS 3(3,0)**  
**English Composition and Literature for Teachers of Advanced Placement:** PR: Graduate standing and C.I. A two-week summer institute for secondary school teachers preparing to teach Advanced Placement courses.
- LAE 5415** **ED 3(3,0)**  
**Children's Literature in Elementary Education:** Survey of children's literature: criteria for selection according to literary elements and child development needs. Methods for presenting to children; integrating literature with elementary curricula.
- LAE 5465** **ED 3(3,0)**  
**Literature for Adolescents:** PR: Senior standing or C.I. Selecting and evaluating books for adolescents with emphasis on the use of literature in the development of young people.
- LAE 5495** **ED 3(3,0)**  
**Assessing Writing:** PR: C.I. Students will explore a variety of strategies for assessing students' writing including holistic scoring, primary trait scoring, and portfolio assessment.

- LAE 6296** **ED 3(3,0)**  
**Writing Workshop II:** PR: C.I. This course is designed for Fellows in CFWP Summer Institute. Students research topics about writing and participate in writing response groups.
- LAE 6467** **ED 3(3,0)**  
**Studies in Adolescent Literature:** Analysis of major works in genre, examination of criticism, instructional strategies, and research in teaching adolescent literature.
- LAE 6616** **ED 3(3,0)**  
**Trends in Language Arts Education:** PR: Basic Teacher Certificate or C.I. Historical development and trends; English usage systems; materials; instructional strategies.
- LAE 6637** **ED 3(3,0)**  
**Research in Teaching English:** Examination and interpretation of major research in English Education. Design of models for research in language instruction in secondary schools.
- LAE 6714** **ED 3(3,0)**  
**Investigation in Children's Literature:** PR: A previous survey course in children's literature. Learning through the utilization of children's literature; literature analysis and evaluation; story telling; visual and reference materials.
- LAE 6792** **ED 3(3,0)**  
**CFWP Teacher/Researcher:** PR: C.I. Teachers who have completed a NWP Summer Institute will examine classroom research methods and trends, and design a study to conduct the following year.
- LEI 6443** **ED 3(2,1)**  
**Recreation:** A comprehensive study of Public, private and school recreation programs.
- MAE 5318** **ED 3(3,0)**  
**Current Methods in Elementary School Mathematics:** Strategies of instruction of computation and concepts of number, geometry and measurement. Instructional materials. (Meets Elementary Education certification requirements.)
- MAE 5325** **ED 3(3,0)**  
**Teaching Mathematics in the Middle/Junior High School:** PR: 12 semester hours of mathematics including at least College Algebra. Consideration of the curriculum and instructional techniques appropriate for students in Middle/Junior High School.
- MAE 5356** **ED 3(3,0)**  
**Teaching General Mathematics in the Secondary School:** PR: MAE 3330 or C.I. This course addresses specific techniques for developing general mathematics skills and concepts beginning in Grade 6. Problem solving, motivation and innovative methods are explored.
- MAE 5395** **ED 3(3,0)**  
**Teaching Measurement in Schools:** Metric system, methods of developing different measurement skills and concepts and curriculum changes needed to accommodate measurement.
- MAE 5637** **ED 3(2,1)**  
**Laboratory Programs in Mathematics:** PR: Basic Teacher Certificate or C.I. Design and development of special materials and projects for mathematics independent study. Emphasis teaching and applying the metric system.
- MAE 6145** **ED 3(3,0)**  
**Mathematics Curriculum, K-12:** PR: At least 6 semester hours of graduate credit in mathematics education or C.I. Development of historical and current issues and forces in mathematics curriculum. New mathematics programs and contemporary curricular issues will be emphasized.
- MAE 6336** **ED 3(3,0)**  
**Teaching Advanced Mathematics in the Secondary School:** PR: MAE 3330 or C.I. This course addresses topics in a pre-calculus, analysis or calculus course.
- MAE 6337** **ED 3(3,0)**  
**Teaching Algebra in the Secondary School:** PR: MAE 3330 or C.I. This course addresses specific techniques for developing algebra skills for pre-algebra through pre-calculus algebra needs. Logical deductions, problem solving, computer applications and innovative methods are explored.

- MAE 6338** **ED 3(3,0)**  
**Teaching Geometry in the Secondary School:** PR: MAE 3330 or C.I. This course addresses specific techniques for developing geometry skills beginning in the general mathematics classes of Grade 6 through the high school geometry course.
- MAE 6517** **ED 3(3,0)**  
**Diagnosis/Remediation of Difficulties in Mathematics for the Classroom Teacher:** PR: Basic Teacher Certificate or C.I. The study of techniques for diagnosis and remediation of difficulties in mathematics.
- MAE 6641** **ED 3(2,1)**  
**Problem Solving and Critical Thinking Skills:** PR: Regular Certificate or C.I. Development of procedures and practices necessary to implement critical thinking skills and problem solving techniques in the schools.
- MAE 6656** **ED 3(3,0)**  
**Using Technology in the Instruction of K-12 Mathematics:** PR: CAP 6613 or C.I. The application of computer technology to mathematics instruction including calculators, CAI, CMI, application software, simulators, and video disc technology.
- MAE 6899** **ED 3(3,0)**  
**Seminar in Teaching Mathematics:** PR: Six semester hours of graduate credit in mathematics education. Development of historical and current issues, forces, and individuals and their impact on the teaching of mathematics K-12. Consideration of advanced instructional techniques. (May be repeated for credit.)
- MAE 6971** **ED 1-2**  
**Treatise**
- MAE 7795** **ED 3(3,2)**  
**Seminar on Research in Mathematics Education:** PR: Doctoral standing.
- MHS 5005** **ED 3(3,0)**  
**Introduction to the Counseling Profession:** PR: Completion of Phase II of Education Professional Preparation or C.I. Overview of the philosophy, organization, administration and the roles of counselors in various work settings
- MHS 6020** **ED 3(3,0)**  
**Mental Health Care Systems:** PR: MHS 5005 or C.I. Foundations of mental health counseling including organizational, administration, fiscal and accountability structures.
- MHS 6070** **ED 3(3,0)**  
**Diagnosis & Treatment in Counseling:** PR: MHS 6400; MHR 6401. Examines diagnosis in the assessment and treatment of mental disorders and the use of the DSM IV. Disorders reviewed with emphasis on symptoms and implications for treatment.
- MHS 6220** **ED 3(3,0)**  
**Individual Psycho-Educational Testing I:** An overview of appraisal instruments for individual testing with emphasis on administration, scoring, and interpretation. Designed for practitioners interested in understanding individual assessment.
- MHS 6221** **ED 3(3,1)**  
**Individual Psycho-Educational Testing II:** PR: C.I. Analysis of test theory and practice in administration, scoring, and interpretation of tests assessing achievement, visual-motor and cognitive ability, adaptive behavior and self-concept.
- MHS 6400** **ED 3(3,0)**  
**Theories of Counseling and Personality:** PR: MHS 5005 or MHS 6020, 6481. Major theories and approaches to counseling, correlating them with counterpart theories of personality and learning.
- MHS 6401** **ED 3(1,2)**  
**Techniques of Counseling:** PR: MHS 6400 or C.I. The nature of the counseling and its relationships to theoretical concepts.
- MHS 6420** **ED 3(3,0)**  
**Counseling Special Populations:** PR: MHS 5005 or MHS 6020 or C.I. Application of counseling principles with various special populations including multicultural subgroups, persons of abuse, exceptional children, gay and lesbian people, etc.

- MHS 6421** **ED 3(3,0)**  
**Play Process in Counseling with Children:** PR: SDS 6411 or C.I. Theories and application of the principles of play in the counseling process with children.
- MHS 6430** **ED 3(1,2)**  
**Family Counseling I:** PR: MHS 5005 or MHS 6020, or C.I. Presentation of specific family counseling theories. An evolution and current state of the art.
- MHS 6431** **ED 3(1,2)**  
**Family Counseling II:** PR: MHS 6430, EDF 6481, or C.I. Presentation of techniques to work with entrenched, paradoxical, and "fixed" family systems which pose problems for the family and the Counselor.
- MHS 6450** **ED 3(3,0)**  
**Counseling Substance Use and Abuse:** PR: MHS 5005 or MHS 6020, or C.I. Examination within systematic, theoretical framework of the function that a substance, individual and the environment play in use and abuse of illicit and licit substances.
- MHS 6480** **ED 3(3,0)**  
**Human Sexuality and Relationships:** A basic course in understanding how human beings form intra- and interpersonal relationships and how sexuality develops.
- MHS 6500** **ED 3(3,0)**  
**Group Procedures and Theories in Counseling:** PR: MHS 6401. This course is designed to give the student an understanding of the role of theories in group counseling as well as the many process applications of groups.
- MHS 6510** **ED 3(1,2)**  
**Advanced Group Counseling:** PR: MHS 6500 or C.I. This course is designed to give students practical experience in leading groups. It is also intended to challenge the student to explore professional and advanced issues in group counseling.
- MHS 6600** **ED 3(2,0)**  
**Consultation, Staffing and Case Management:** PR: MHS 6500 or C.I. Understanding the counselor's role as consultant and staffing team member. Study of case management procedures.
- MHS 6780** **ED 3(3,0)**  
**Ethical and Legal Issues:** Studies of ethical standards and legal issues in counseling and other human service professions.
- MHS 6800** **ED 3(1,3)**  
**Practicum in Counselor Education:** PR: MHS 6500 or C.I. Supervised counseling emphasizing competence in (1) individual counseling; (2) working with groups; (3) tests in educational-career-personal counseling. May be repeated for credit.
- MHS 6830** **ED 1-6(1,1-6)**  
**Counseling Internship:** PR: C.I. Supervised placement in setting appropriate for program track. (May be repeated for credit.)
- MHS 6930** **ED 3(3,0)**  
**Current Trends in Counselor Education:** PR: MHS 5005 or 6500 or C.I. Current trends affecting the rapid changes in the counseling field.
- MHS 6971** **ED 1-2**  
**Treatise**
- MUE 5611** **ED 3(3,0)**  
**Trends in Elementary School Music Education:** PR: MUE 3401 or equivalent or C.I. Advanced study of instructional strategies and materials; integration of music education experiences with classroom activities; personal musical skill development; current research and new curricula.
- MUE 5695** **ED 3(3,0)**  
**Trends in Arts Education:** PR: Initial Certification or C.I. Investigation of current trends in arts education; development of strategies for utilizing understandings of arts education in the total curriculum of elementary students.

<b>MUE 6155</b>	<b>ED 3(3,0)</b>
<b>Teaching Performing Organizations:</b> PR: Basic Teacher Certificate or C.I. Techniques and skills for the planning, administering and directing performing music organizations. Examination of historical and philosophical foundations of music education.	
<b>MUE 6349</b>	<b>ED 3(3,0)</b>
<b>Advanced General Music:</b> 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.	
<b>MUE 6946</b>	<b>ED 3(3,0)</b>
<b>Practicum in Music Education:</b> PR: Basic Teacher Certificate. MUE 6349 and MUE 6155, MUE 6610 and MUE 6630 or C.I. Field experience in teaching music. (May be repeated for maximum 6 semester hours credit.)	
<b>MUE 6971</b>	<b>ED 1-2</b>
Treatise	
<b>MUS 5526</b>	<b>AS 3(3,0)</b>
<b>Music and Technology:</b> PR: Graduate Students. The emergence of technology in music including MIDI, CDROM, and the high-tech music classroom.	
<b>MUT 5325</b>	<b>AS 3(3,0)</b>
<b>Arranging and Composing Music:</b> 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.	
<b>MVB 5451</b>	<b>AS 2(1,0)</b>
Trumpet V*	
<b>MVB 5452</b>	<b>AS 2(1,0)</b>
French Horn V*	
<b>MVB 5453</b>	<b>AS 2(1,0)</b>
Trombone V*	
<b>MVB 5454</b>	<b>AS 2(1,0)</b>
Baritone V*	
<b>MVB 5455</b>	<b>AS 2(1,0)</b>
Tuba V*	
<b>MVK 5451</b>	<b>AS 2(1,0)</b>
Piano V*	
<b>MVK 5453</b>	<b>AS 2(1,0)</b>
Organ V*	
<b>MVO 5250</b>	<b>AS 1(1,0)</b>
<b>Advanced Secondary Instruction:</b> PR: Graduate standing and C.I. Advanced instructional techniques on a secondary instrument or in voice. May be repeated for credit.	
<b>MVP 5451</b>	<b>AS 2(1,0)</b>
Percussion V*	
<b>MVS 5451</b>	<b>AS 2(1,0)</b>
Violin V*	
<b>MVS 5452</b>	<b>AS 2(1,0)</b>
Viola V*	
<b>MVS 5453</b>	<b>AS 2(1,0)</b>
Cello V*	
<b>MVS 5454</b>	<b>AS 2(1,0)</b>
Bass V*	

MVS 5455 Harp V*	AS 2(1,0)
MVS 5456 Guitar V*	AS 2(1,0)
MVV 5451 Voice V*	AS 2(1,0)
MVW 5451 Flute V*	AS 2(1,0)
MVW 5452 Oboe V*	AS 2(1,0)
MVW 5453 Clarinet V*	AS 2(1,0)
MVW 5454 Bassoon V*	AS 2(1,0)
MVW 5455 Saxophone V*	AS 2(1,0)
PET 6040C <b>Analysis of Human Performance:</b> Analytical techniques of kinesiology and their methods of application to individual and team activities.	ED 3(2,1)
PET 6085 <b>Exercise Lifestyles - Adherence and compliance:</b> An analysis of alternative lifestyles associated with the corporate wellness movement.	ED 3(3,0)
PET 6086 <b>Exercise Intervention and Risk Hazards:</b> Prevention of select major risk hazards through exercise intervention.	ED 3(3,0)
PET 6238C <b>Perceptual Motor Development:</b> Theoretical and laboratory study of the relationship between perceptual motor development and learning. Special attention is given to identifying and remediating motor deficit.	ED 3(2,1)
PET 6367 <b>Physical Performance and Energy Supplies:</b> The relation of nutrients to aerobic performance.	ED 3(3,0)
PET 6357C <b>Environmental Exercise Physiology:</b> A study of physiological adaptation resulting from prescribed physical activity programs.	ED 3(3,2)
PET 6381 <b>Physiology of Neuromuscular Mechanisms:</b> Human body morphology and function critical in producing motion, strength, power, and endurance.	ED 3(3,0)
PET 6388 <b>Exercise Physiology and Cardiovascular Disease Prevention:</b> The physiology of exercise as it affects the onset of cardiovascular diseases.	ED 3(3,0)
PET 6416 <b>Administration of Corporate Wellness Programs:</b> Administrative implications for the development of a corporate wellness program.	ED 3(3,0)
PET 6515C <b>Measurement in Kinesiology and Physical Education:</b> Techniques of measurement and evaluation of human performance and their applications to physical education.	ED 3(3,0)
PET 6615 <b>Psychomotor Assessment of Exceptional Children:</b> PR: PET 6655 or C.I. Assessment techniques and methodology for determining psychomotor needs of exceptional children is presented. Application of competencies is required.	AS 2(2,1)

- PET 6645** **ED 3(3,1)**  
**Advanced Studies in Adapted Physical Education:** PR: EEX 5050. Survey course that addresses the development, educational, and socialization needs of exceptional children. A minimum of 15 observation hours are required.
- PET 6646** **ED 4(3,1)**  
**Methods and Curriculum in Adapted Physical Education:** PR: PET 6645, PET 6655, PET 6615. Individualized educational and developmental programming for exceptional children. Models of service delivery and instruction are presented. Practicum required.
- PET 6647** **ED 3(3,1)**  
**Program Development in Adapted Physical Education:** PR: C.I. Development of appropriate physical education programs for exceptional children. Course includes teacher-consultant, collaboration, inservice training, legislative issues, resource utilization.
- PET 6655** **ED 3(3,1)**  
**Developmental Aspects of Motor Disabilities:** PR: C.I. Course addresses developmental aspects of motor and health disabilities. A developmental focus is presented. Observation required.
- PET 6910** **ED 3(3,0)**  
**Problem Analysis — Review of Literature:** PR: EDF 6432 and C.I. Comprehensive review of literature related to a selected topic in physical education; identification, analysis and evaluation of developments, issues and research problems. (May be repeated for credit.)
- PET 6946**  
**Practicum, Clinical Practice**
- PET 6971** **ED 1-2**  
**Treatise**
- RED 5147** **ED 3(3,0)**  
**Developmental Reading:** Principles, procedures, organization and current practices in the elementary reading program. Materials and methods of instruction.
- RED 5514** **ED 3(3,1)**  
**Classroom Diagnosis and Development of Reading Proficiencies:** PR: RED 5147 or equivalent. Classroom diagnosis and corrective teaching in reading; instructional materials. Case study required.
- RED 6116** **ED 3(3,0)**  
**Trends in Reading Education:** PR: Basic Teacher Certificate or C.I. Analysis of historical development and current trends; management systems; instructional strategies and investigation of research.
- RED 6336** **ED 3(3,0)**  
**Reading in the Content Areas:** PR: Basic Teacher Certificate or C.I. Identification and evaluation of reading skills, diagnosis of reading problems and development of methods and materials to increase student reading performance.
- RED 6337** **ED 3(3,0)**  
**Reading in the Secondary School:** PR: RED 6336, Basic Teacher Certification or C.I. Nature of the adolescent reader; organizational patterns, principles, and procedures; diagnostic and remediation materials.
- RED 6746** **ED 3(3,0)**  
**Management of Reading Programs:** Overview of K-12 reading instruction goals and program management models; role of reading supervisor and in-service needs assessment and delivery.
- RED 6845** **ED 3(3,0)**  
**Advanced Evaluation and Instruction in Reading:** PR: RED 5514 or C.I. Administration and interpretation of formal and informal evaluation strategies. Factors and instructional techniques contributing to reading achievement. Case studies, parent involvement.
- RED 6846** **ED 6(0,6)**  
**Reading Practicum:** PR: RED 6845 or C.I. Evaluation and instructional practices for individualization of reading instruction in a laboratory setting. Parent interview and case report.
- RED 6946**  
**Practicum, Clinical Practice**

RED 6971  
Treatise

ED 1-2

SCE 5716

ED 3(3,0)

**Methods in Elementary School Science:** Organization of instruction in elementary school science including methods, evaluation, materials, strategies, and current practices.

SCE 5825

ED 3(3,0)

**Space Science for Educators:** PR: Senior Standing or C.I. Introduction to space science, manned space flight and space education curriculum.

SCE 6146

ED 3(2,1)

**Environmental Education for Educators:** PR: Graduate standing and a valid Florida Teaching Certificate or C.I. emphasizes the importance of environmental education in the school curriculum. Includes facilitator training in national environmental education programs.

SCE 6237

ED 3(3,0)

**Science Programs in Secondary School:** PR: Basic Teacher Certificate or C.I. Study of historical development and current trends; analysis of science curricula, materials.

SCE 6238

ED 3(3,1)

**Inquiry in the Sciences:** PR: Graduate standing or science certification. Teaching science by inquiry in the secondary school and development of inquiry lessons.

SCE 6616

ED 3(3,0)

**Trends in Elementary School Science Education:** PR: Basic Teacher Certification or C.I. Study of historical development and current trends; analysis of science curricula, materials.

SDS 6040

ED 3(3,0)

**Student Personnel Services in Higher Education:** PR: Completion of Phase II of Education Professional Preparation or C.I. A basic introduction to student personnel services which covers philosophy, history, functions, theory and issues.

SDS 6200

ED 3(2,1)

**Procedures for Group Testing:** PR: EGC 5005 or EGC 6426, EDF 6481 or EDF 6482. Survey of various educational and psychological objective instruments used in schools to measure achievement, aptitude, interests, ability. Emphasis on administration and score interpretation.

SDS 6330

ED 3(3,0)

**Career Development:** PR: EGC 5005, 6426 or 6055; EDG 6481, or C.I. A study of career development theories, occupational and educational information, approaches to career decision-making, life-style and leisure in the development of the whole person.

SDS 6411

ED 3(3,0)

**Counseling with Children and Adolescents:** PR: EGC 6436 and EDF 6155 or C.I. Study of counseling theory, process and techniques as applied to children and adolescents. Course will contain an experiential component.

SDS 6426

ED 3(3,0)

**Guidance and Counseling of Gifted/Talented Individuals:** Guidance and counseling procedures and strategies for gifted/talented students; self-assessment; group dynamics; communication with parents; career goals; alternate educational opportunities.

SDS 6620

ED 3(3,0)

**Organization and Administration of School Counseling and Guidance Programs:** PR: EGC 5005. In-depth analysis of counseling and guidance programs in schools, including the development and management of comprehensive programs.

SDS 6624

ED 3(3,0)

**The College Community and the Student:** PR: Completion of Phase II of Education Professional Preparation or C.I. and EGC 5005. A study of the composition of student populations in American colleges and universities and the factors within the learning environment which support student development.

SPS 6125

ED 3(3,0)

**Infant/Preschool Developmental assessment and Intervention:** Analysis of test theory, practice, administration and interpretation of appropriate instruments and techniques to develop interventions for the child, parents and teachers.



- SPS 6175** **ED 3(3,0)**  
**Cultural Diversity and Nonbiased Assessment:** An investigation of some of the major multicultural issues with emphasis on administration, scoring and interpretation of instruments related to this population.
- SPS 6191** **ED 4(4,0)**  
**Psycho-Educational Diagnosis I:** PR: Graduate admission and C.I. COR: SPS 6206. Measurement of intellectual and cognitive functioning of children and adults. Administration, scoring and interpretation of Wechsler scales and selected psychometric instruments.
- SPS 6192** **ED 4(4,0)**  
**Psycho-Educational Diagnosis II:** PR: Graduate admission and C.I. 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.
- SPS 6206** **ED 3(3,0)**  
**Psychoeducational Interventions:** PR: SPS 6191. This course will enable school psychology students to link psychoeducational assessment results to appropriate prescriptive interventions.
- SPS 6601** **ED 3(3,1)**  
**Introduction to Psychological Services in Schools:** PR: Graduate admission and C.I. A course presenting an overview of the philosophy, organization, programs and operation of school psychological services.
- SPS 6606** **ED 3(3,0)**  
**School Consultation Techniques:** PR: C.I. Theories and models of school consultation and clinical practice in the consultative role.
- SPS 6608** **ED 3(3,0)**  
**Seminar in School Psychology:** PR: C.I. Diagnostic, instructional and prescriptive intervention techniques.
- SPS 6931** **ED 3(3,0)**  
**Ethical and Legal Issues in School Psychological Services:** PR: Graduate Admission. Introduction to ethical codes, professional standards, ethical-legal decision-making models and case studies impacting the delivery of school psychological services.
- SPS 6946** **ED 3(0,3)**  
**Practicum in School Psychology:** PR: SPS 6661, SPS 6192. Provides each student with an orientation to public schools and experiences which broadly sample the spectrum of psychoeducational assessment and interventions for practicing school psychologists.
- SPS 6949** **ED 6(0,6)**  
**School Psychology Internship:** PR: Graduate admission and C.I. Supervised placement in school setting.
- SSE 5115** **ED 3(3,0)**  
**Methods in Elementary School Social Science:** Study of instructional programs in social sciences; objectives; materials; techniques; current research; and their application in elementary school setting.
- SSE 6617** **ED 3(3,0)**  
**Trends in Elementary School Social Studies Education:** PR: Basic Teacher Certificate or C.I. Historical development and current trends, strategies for inquiry instruction, intellectual, social and personal dimensions of social studies.
- SSE 6636** **ED 3(3,0)**  
**Contemporary Social Science Education:** PR: Basic Teacher Certificate of C.I. A survey of recent developments and contemporary programs in all areas of the social sciences.
- TSL 5141** **ED 3(3,0)**  
**ESOL Strategies:** This course will survey cross-cultural communication and understanding, testing and evaluation, curriculum and methods of teaching ESOL to meet the needs of limited English proficient students.
- TSL 5345** **ED 3(3,0)**  
**Methods of ESOL Teaching:** This course is designed to develop understanding, knowledge and skills of the current methods used in the teaching of ESOL.

**ESOL Cultural Diversity:** This course is designed to identify major cultural groups represented by the LEP population in Florida schools and to understand their special needs.

ED 3111	Psychological Foundations of ESOL: This course provides a foundation for understanding the cultural and linguistic needs of ESOL students. Topics include: cultural differences, language acquisition, and the role of the teacher in a multicultural classroom.
ED 3112	ESOL Assessment: This course focuses on the assessment of ESOL students. Topics include: language proficiency testing, cultural bias in testing, and the use of alternative assessment methods.
ED 3113	ESOL Instruction: This course explores effective instructional strategies for ESOL students. Topics include: differentiated instruction, scaffolding, and the use of technology.
ED 3114	ESOL Family and Community Involvement: This course examines the role of families and the community in the education of ESOL students. Topics include: cultural differences in family roles and expectations, and strategies for effective communication.
ED 3115	ESOL Professional Development: This course focuses on the professional development needs of ESOL teachers. Topics include: ongoing learning, collaboration, and the use of resources.
ED 3116	ESOL Research and Evaluation: This course examines research and evaluation in the field of ESOL. Topics include: research design, data collection, and the use of research to inform practice.
ED 3117	ESOL Ethics and Professional Standards: This course explores the ethical and professional standards that apply to ESOL educators. Topics include: cultural sensitivity, confidentiality, and the role of the teacher as a professional.
ED 3118	ESOL Career and Employment: This course examines career and employment opportunities for ESOL professionals. Topics include: job search strategies, resume writing, and interview techniques.
ED 3119	ESOL Leadership: This course focuses on the leadership skills needed by ESOL professionals. Topics include: vision, communication, and the role of the leader in a multicultural setting.
ED 3120	ESOL Advocacy: This course explores the role of ESOL professionals as advocates for their students. Topics include: identifying needs, building coalitions, and influencing policy.
ED 3121	ESOL Program Evaluation: This course examines the evaluation of ESOL programs. Topics include: program goals, data collection, and the use of evaluation to improve practice.
ED 3122	ESOL Program Development: This course focuses on the development of ESOL programs. Topics include: needs assessment, program design, and implementation.
ED 3123	ESOL Program Management: This course explores the management of ESOL programs. Topics include: budgeting, personnel management, and program monitoring.
ED 3124	ESOL Program Improvement: This course focuses on the continuous improvement of ESOL programs. Topics include: data analysis, problem-solving, and the use of best practices.
ED 3125	ESOL Program Innovation: This course explores innovative practices in ESOL education. Topics include: emerging technologies, new instructional strategies, and the role of the teacher as an innovator.

# COLLEGE OF ENGINEERING

## ADMINISTRATION

<i>M. P. Wanielista, Ph.D., P.E.</i> .....	Dean
<i>S. L. Rice, Ph.D., P.E.</i> .....	Associate Dean
<i>R. N. Miller, Ph.D., P.E.</i> .....	Associate Dean
<i>TBA</i> .....	Director of Graduate Affairs
<i>J. K. Beck, P.E.</i> .....	Director of Undergraduate Affairs

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

### Department of Civil and Environmental Engineering (CEE)

- ◆ Civil Engineering
- ◆ Environmental Engineering
- ◆ Environmental Sciences
- ◆ Structures and Foundations
- ◆ Transportation Systems
- ◆ Water Resources

### Department of Electrical and Computer Engineering (ECE)

- ◆ Communications
- ◆ Controls
- ◆ Digital Signal Processing
- ◆ Digital Systems/Architecture
- ◆ Electronics
- ◆ Electro-Optics
- ◆ Electromagnetics
- ◆ Microelectronics
- ◆ Optical Sciences & Engineering
- ◆ Software Engineering/Knowledge-Based Systems

### Department of Industrial Engineering & Management Systems (IEMS)

- ◆ Computer Integrated Manufacturing
- ◆ Engineering Management
- ◆ Industrial Engineering
- ◆ Manufacturing Engineering
- ◆ Operations Research
- ◆ Product Assurance Engineering
- ◆ Simulation Systems

### Department of Mechanical and Aerospace Engineering (MAE)

- ◆ Aerospace Systems
- ◆ Materials Science & Engineering
- ◆ Mechanical Systems
- ◆ Thermo-Fluids

## COLLEGE ADMISSION REQUIREMENTS

In addition to meeting the minimum university criteria, each applicant is required to satisfy college and department admission requirements. Specific department requirements are listed in each departmental section. Meeting the admissions requirements does not automatically guarantee admission, particularly to the doctoral programs, since enrollments may be restricted by limited college or department resources.

### Masters Programs Admission Requirements:

1. A minimum GPA of 3.0 or better during the last two years (60 hours) of undergraduate degree work or a score of at least 1000 on the combined verbal and quantitative sections of the GRE.

2. Applicants for Masters programs must present baccalaureate degree credentials appropriate to the specialized area of study including mathematics through differential equations.
3. All applicants whose native language is not English must score at least 550 on the TOEFL test.

#### **Doctoral Programs Admission Requirements:**

1. Each applicant is expected to have a masters degree in engineering (or related discipline) awarded by a recognized institution and meet the departmental admission requirements. The applicant must successfully complete a Ph.D. Qualifying Examination conducted by the department. A student is normally given only one opportunity to pass the examination, but a second attempt may be approved by the department. The examination is normally taken within the first year of study beyond the masters degree.

### **COLLEGE DEGREE REQUIREMENTS**

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

#### **Thesis Option, Masters Degree Requirements**

1. A minimum of thirty semester hours of approved course work including six hours of thesis credits is required.
2. No more than six hours of thesis credits will be applied toward degree requirements.
3. At least 15 credit hours must be from 6000-level courses.
4. A maximum of nine semester hours of graduate credit may be transferred into the program from UCF post-baccalaureate or SUS work. Transfer credits taken at other institutions, not in the SUS, are limited to six semester hours. Only grades of "B" or better can be transferred.
5. A maximum of six credits of 4000-level courses may be applied toward a masters degree, 3000-level courses are not acceptable.
6. A minimum "B" average must be maintained in the program of study and no more than two "C" grades are allowed.
7. A written thesis and final oral defense are required.
8. A maximum of six semester hours of Independent Study may be used toward the degree. Directed research credits may not be applied toward the degree.

#### **Non-Thesis Option, Masters Degree Requirements**

Most departments within the College of Engineering offer a 36 semester hour, non-thesis option intended primarily for part-time students. The program requirements are the same as for the thesis option except that the thesis requirement is replaced by 12 credit hours of course work. An end-of-program comprehensive examination, oral or written, is required.

#### **Doctoral Degree Requirements**

1. A minimum of 84 semester hours beyond the baccalaureate degree, including 24 semester hours of dissertation credits, are required.
2. At least six semester hours of course work outside the College of Engineering and no more than a combined total of 12 hours of independent study and/or directed research may be used to satisfy degree requirements.
3. Up to 36 semester hours of credit, including a maximum of six credits of thesis, may be transferred from the masters program. There is no college limit on the number of post-masters credits that may be transferred into the Ph.D. program. The transfer credits from the masters degree or post-masters work will consist of a maximum of 6 hours of 4000-level work, no 3000-level courses, and no courses with grades less than "B".
4. A written dissertation and final oral defense are required.

#### **FEEDS (Florida Engineering Education Delivery System)**

FEEDS is a Florida statewide system whereby graduate level engineering courses are delivered via video tape to cooperating university centers and selected industrial sites. Most

graduate courses offered each semester are available through FEEDS. A student taking courses through FEEDS must meet the same requirements as a student on campus and will earn the same credit as if attending on campus. Courses delivered by the system may contribute to graduate degrees in engineering.

An off-campus student in industry need not be enrolled in a graduate degree program in order to take a FEEDS course; however, a student who intends to seek admission to a graduate program should be aware that no more than 9 credit hours of courses may be transferred from post-baccalaureate status into a degree seeking program. Certain courses may have the requirement that the student come to the main campus for exams or laboratory participation.

For information concerning FEEDS, consult the UCF-FEEDS catalog (published each semester) or contact the Director of UCF-FEEDS at (407) 823-2455.

## CIVIL AND ENVIRONMENTAL ENGINEERING

<i>D. L. Block, Ph.D., P.E.</i> .....	FSEC Director & Professor
<i>C. D. Cooper, Ph.D., P.E.</i> .....	Professor
<i>J. P. Hartman, Ph.D., P.E.</i> .....	Graduate Coordinator & Professor
<i>R. D. Kersten, Ph.D., P.E.</i> .....	Professor
<i>S. S. Kuo, Ph.D., P.E.</i> .....	Professor
<i>A. E. Radwan, Ph.D., P.E.</i> .....	Chair & Professor
<i>J. S. Taylor, Ph.D., P.E.</i> .....	Professor
<i>M. P. Wanielista, Ph.D., P.E.</i> .....	Dean & Professor
<i>Y. A. Yousef, Ph.D., P.E.</i> .....	Professor
<i>J. D. Dietz, Ph.D., P.E.</i> .....	Associate Professor
<i>C. M. Head, Ph.D., P.E.</i> .....	Associate Professor
<i>D. R. Reinhart, Ph.D., P.E.</i> .....	Associate Professor
<i>R. L. Wayson, Ph.D., P.E.</i> .....	Associate Professor
<i>H. M. Al-Deek, Ph.D.</i> .....	Assistant Professor
<i>M. B. Chopra, Ph.D.</i> .....	Assistant Professor
<i>S. K. Kunnath, Ph.D.</i> .....	Assistant Professor
<i>A. Mirmiran, Ph.D., P.E.</i> .....	Assistant Professor
<i>F. N. Nnadi, Ph.D.</i> .....	Assistant Professor
<i>U. O. Onyemelukwe, Ph.D.</i> .....	Assistant Professor
<i>A. A. Randall, Ph.D.</i> .....	Assistant Professor

### Civil Engineering

Graduate work and research in Civil Engineering reflects the very broad nature of the field, which has as its purpose the enhancement of the infrastructure of society. The educational program includes course work in structural analysis and design, geotechnical engineering and foundations, transportation planning and operations, and water resources. Faculty research interests include geotechnical studies of subsurface conditions, soil testing and design of advanced testing devices, IVHS, traffic safety, structural dynamics, non-linear structural analysis and software development, reinforced concrete, and wind engineering. Students completing the program find positions in consulting firms, construction and construction-related industries, and in city, county, state, and federal government agencies.

### Environmental Engineering

The Environmental Engineering program concerns itself with prevention and correction of pollution effects on the natural and man-made environments. Strong faculty research interests have resulted in a program of distinction for the college and the university. Applied and basic research interests include the general areas of water treatment, wastewater treatment, solid and hazardous waste management, atmospheric pollution control, air quality modeling, community noise prediction/abatement, and stormwater management. Students with strong science or engineering backgrounds have a variety of research areas and levels of interest which they can pursue. Those completing the program find job opportunities in federal, state and local governments, consulting and industry.

## Degree Programs

The Civil and Environmental Engineering Department offers the Master of Science in Civil Engineering (M.S.C.E.), Environmental Engineering (M.S.Env.E.), and the Master of Science (M.S.) degree in Structures and Foundations, Transportation Systems, Environmental Sciences and Water Resources. The Department also offers Doctor of Philosophy (Ph.D.) degrees in Civil or Environmental Engineering.

There are three options for the master degree programs: the thesis option, the research report option, and the non-thesis option. The thesis option is available in all masters degree programs and requires a thesis that is equivalent to 6 hours out of a total of 30 hours. It is the required option for students on contracts and grants as well as any student receiving department financial support.

The research report option is available in the M.S.Env.E. and M.S. (Environmental Sciences) only and requires a research report that is equivalent to 3 hours out of a total of 33 hours. This option is primarily suitable for part-time, non-resident students. The research report should meet thesis publication guidelines. The non-thesis option is available in the M.S.C.E., M.S. (Structures & Foundations), M.S. (Transportation Systems), and M.S. (Water Resources) only and requires 36 coursework hours and a comprehensive examination which may be oral or written at the discretion of the student's advisor and committee. This option is available only for part-time students on a limited access basis.

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

The Department offers a Master of Science in Civil Engineering (M.S.C.E.) degree to students who have an under-graduate degree in Civil Engineering or another closely related field of engineering. The degree requires 30 semester hours of acceptable graduate work which includes a thesis (6 semester hours), or 36 semester hours of acceptable graduate work with a comprehensive final examination. The student must develop an individual program of study with a faculty advisor.

#### Required Courses

15 Semester Hours

Take fifteen semester hours (five courses) from among:

	CES	5606	Advanced Steel Structures	
or	CES	5706	Advanced Reinforced Concrete	3 hours
	CES	5143	Matrix Structural Analysis	
or	CEG	6115	Foundation Engineering	3 hours
	CEG	5015	Geotechnical Engineering II	
or	CEG	5700	Geo-Environmental Engineering	3 hours
	TTE	5204	Traffic Engineering	
or	TTE	5805	Geometric Design of Transportation Systems	3 hours
	CWR	5205	Hydraulic Engineering	
or	CWR	5545	Water Resources Engineering	
or	CWR	6125	Groundwater Hydrology	
or	CWR	6235	Open Channel Hydraulics	3 hours

Courses which comprise the elective part of the program are selected in accordance with the general requirements of the College of Engineering, and often include courses taken from the following three sub-discipline areas:

#### Elective Sub-Discipline

9 or 21 Semester Hours

Take three courses with a thesis, or seven courses without a thesis from among:

#### STRUCTURAL/GEOTECHNICAL:

Any of the 3 structural/geotechnical courses not taken as required			3 hours each	
	CEG	6065	Soil Dynamics	3 hours
	CEG	6317	Advanced Geotechnical Engineering	3 hours
	CES	5325	Bridge Engineering	3 hours
	CES	6116	Finite Elements in Structures	3 hours
	CES	6170	Boundary Elements in Civil Engineering	3 hours
	CES	6209	Dynamics of Structures	3 hours
	CES	6220	Wind and Earthquake Engineering	3 hours
	CES	6xxx	Research in Structural Engineering	3 hours
	TTE	5835	Pavement Design	3 hours
Other courses with Advisor's Consent			3 hours each	

**TRANSPORTATION:**

Either of the 2 transportation courses not taken as required			3 hours
CGN	6655	Regional Planning, Design, & Systems	3 hours
TTE	5205	Highway Capacity	3 hours
TTE	5700	Railroad Engineering	3 hours
TTE	5835	Pavement Design	3 hours
TTE	6256	Traffic Operations	3 hours
TTE	6270	Intelligent Vehicle Highway Systems	3 hours
TTE	6625	Mass Transportation Systems	3 hours
TTE	6526	Planning & Design of Airports	3 hours

**WATER RESOURCES:**

Any of the 4 water resources courses not taken as required			3 hours each
CWR	6535	Modeling Water Resources Systems	3 hours
CWR	6126	Groundwater Modeling	3 hours

Thesis

6 Semester Hours

Total Hours Required

30 or 36 Semester Hours

**MASTER OF SCIENCE (M.S.)  
STRUCTURES AND FOUNDATIONS**

The Department offers a Master of Science (M.S.) degree in Structural and Geotechnical Engineering to students with appropriate engineering baccalaureate backgrounds. The degree requires 30 semester hours of acceptable graduate course work which includes a thesis (6 hours), or 36 semester hours of acceptable graduate course work with a comprehensive final examination. The student must develop an individual program of study with a faculty advisor, and must have background or articulation course work in:

Structural Analysis I (CES 4100)  
 Steel Structures (CES 4605)  
 Concrete Structures (CES 4702)  
 Geotechnical Engineering I (CEG 4101C)

**Required Courses**

12 Semester Hours

Take six semester hours (two courses) from among:

or	CEG	5015	Geotechnical Engineering II	
or	CEG	5700	Geo-Environmental Engineering	3 hours
	CEG	6065	Soil Dynamics	
or	CEG	6115	Foundation Engineering	3 hours

Take six semester hours (two courses) from among:

or	CES	5143	Matrix Structural Engineering	
or	CES	6116	Finite Elements in Structures	3 hours
	CES	5606	Advanced Steel Structures	
or	CES	5706	Advanced Reinforced Concrete	3 hours
	CES	6209	Dynamics of Structures	3 hours

**Electives**

12 or 24 Semester Hours

Take four courses with a thesis, or eight courses without a thesis from among:

Any course(s) listed above not taken as a required course			3 hours each
CEG	6317	Advanced Geotechnical Engineering	3 hours
CES	5325	Bridge Engineering	3 hours
CES	6xxx	Research in Structural Engineering	3 hours
CES	6170	Boundary Elements in Civil Engineering	3 hours
CES	6220	Wind and Earthquake Engineering	3 hours
TTE	5835	Pavement Design	3 hours

Other courses with Advisor's consent

3 hours each

Thesis

6 Semester Hours

Total Hours Required

30 or 36 Semester Hours

## MASTER OF SCIENCE (M.S.) DEGREE IN TRANSPORTATION SYSTEMS

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

### Prerequisites

- Probability and Statistics for Engineers (STA 3032)
- Engineering Economic Analysis (EGN 3613)
- Transportation Engineering (TTE 4004)
- Mathematics through Differential Equations (MAC 3311, 3312, 3313; MAP 3302)
- Physics I with Calculus (PHY 3048)

### Required Courses

		<b>12 Semester Hours</b>	
TTE	5204	Traffic Engineering	3 hours
TTE	5805	Geometric Design of Transportation Systems	3 hours
TTE	6256	Traffic Operations	3 hours
TTE	6270	Intelligent Vehicle Highway Systems	3 hours

### Elective Courses

		<b>12 or 24 Semester Hours</b>	
CGN	4300	Civil Engineering Systems	3 hours
CGN	6655	Regional Planning, Design and Development	3 hours
ENV	5071	Environmental Analysis of Transportation Systems	3 hours
STA	5156	Probability and Statistics for Engineers	3 hours
TTE	4601C	Urban Systems Design	3 hours
TTE	5205	Highway Capacity	3 hours
TTE	5700	Railroad Engineering	3 hours
TTE	5835	Pavement Design	3 hours
TTE	6526	Planning and Design of Airports	3 hours
TTE	6625	Mass Transportation Systems	3 hours

### Thesis

**6 Semester Hours**

### Total Hours Required

**30 or 36 Semester Hours**

## MASTER OF SCIENCE (M.S.) WATER RESOURCES

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

### Prerequisites

- Geotechnical Engineering (CEG 4101C)
- Probability and Statistics for Engineers (STA 3032)
- Hydrology (CWR 4101C)
- Hydraulics (CWR 4203C)
- Engineering Economic Analysis (EGN 3613)

### Required Courses

		<b>15 Semester Hours</b>	
CWR	5205	Hydraulic Engineering	3 hours
CWR	5545	Water Resources Engineering	3 hours
CWR	6125	Groundwater Hydrology	3 hours
CWR	6235	Open Channel Hydraulics	3 hours
CWR	6126	Groundwater Modeling	3 hours
or	CWR 6535	Modeling Water Resources Systems	3 hours

### Electives (approval of major advisor)

**15 or 21 Semester Hours**

### Thesis

**6 Semester Hours**

### Total Hours Required

**30 or 36 Semester Hours**



## MASTER OF SCIENCE IN ENVIRONMENTAL ENGINEERING (M.S.ENV.E)

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 field of engineering. The degree requires 33 semester hours of acceptable graduate work which includes a Research Report (3 semester hours) or 30 semester hours of acceptable graduate work which includes a Thesis (6 semester hours). The student develops an individual program of study with a Faculty Advisor.

<b>Required Courses</b>			<b>15 Semester Hours</b>
	CWR 5545	Water Resources Engineering	
or	CWR 6125	Groundwater Hydrology	
or	CWR 6235	Open Channel Hydraulics	3 hours
	ENV 6015	Physical/Chemical Treatment Systems	3 hours
	ENV 6016	Biological Treatment Systems	3 hours
	ENV 6558	Industrial Waste Treatment	
or	ENV 6347	Hazardous Waste Incineration	3 hours
	ENV 6106	Atmospheric Dispersion Modeling	
or	ENV 6126	Design of Air Pollution Controls	3 hours

Courses which comprise the elective part of the program are selected in accordance with the general requirements of the College of Engineering and often include courses taken from the following two sub-discipline areas:

### **Elective Sub-Discipline** **15 or 9 Semester Hours**

#### **ENVIRONMENTAL**

Any of the appropriate ENV graduate level courses (5xxx or 6xxx) with the consent of the student's advisor. 3 hours each

#### **WATER RESOURCES**

Any of the appropriate CWR graduate level courses (5xxx or 6xxx) with the consent of the student's advisor. 3 hours each

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

**Total Hours Required** **33 or 30 Semester Hours**

## MASTER OF SCIENCE (M.S.) ENVIRONMENTAL SCIENCES

This option is offered to students with appropriate science baccalaureate degrees. The student entering this program should have background (or articulation course work) in the following areas:

### **Prerequisites**

- Mathematics through Differential Equations (MAC 3311, 3312, 3313; MAP 3302)
- Physics I with Calculus (PHY 3048)
- Chemistry Fundamentals (CHM 2045, 2046, 2046L)
- Engineering Fluid Mechanics (CWR 3201)
- Engineering and the Environment (EGN 3704)
- FORTRAN Programming (CGS 3422)
- Engineering Economics (EGN 3613)
- Probability and Statistics for Engineers (STA 3032)
- Environmental Engineering - Process Design (ENV 4561)
- Chemical Process Control (EES 4202C)
- Biological Process Control (EES 4111C)
- Air Pollution (ENV 4121C)
- Hydrology (CWR 4101C)
- Hydraulics (CWR 4203C)
- Solid Waste (ENV 4341) —

This may be used in Program of Study with advisor's consent.

<b>Required Courses</b>			<b>12 Semester Hours</b>	
	CWR	5545	Water Resources Engineering	
or	CWR	6235	Open Channel Hydraulics	
or	CWR	6125	Groundwater Hydrology	3 hours
	ENV	6015	Physical/Chemical Treatments Systems	
or	ENV	6016	Biological Treatment Systems	
or	ENV	6558	Industrial Waste Treatment	3 hours
	ENV	6106	Atmosphere Pollution Control	
or	ENV	6126	Design of Air Pollution Controls	
or	ENV	6347	Hazardous Waste Incineration	3 hours
	ENV	5071	Environmental Analysis of Transportation Systems	
or	ENV	5615	Environmental Impact Assessment	
or	ENV	6615	Receiving Water Impacts	
or	ENV	6519	Aquatic Chemical Processes	3 hours

**Electives** **18 or 12 Semester Hours**  
 Any of the appropriate ENV or CWR graduate level courses  
 (5xxx or 6xxx) with the consent of the student's advisor. 3 hours each

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

**Total Hours Required** **33 or 30 Semester Hours**

## **DOCTOR OF PHILOSOPHY (PH.D.) DEGREE CIVIL ENGINEERING ENVIRONMENTAL ENGINEERING**

The Ph.D. degree is primarily intended for a student with a Master's degree in Civil or Environmental Engineering or a closely related discipline. The Ph.D. program in Civil Engineering is intended to allow a student to study in depth, with emphasis on research, structural analysis and design, geotechnical engineering and foundations, transportation planning and operations, and water resources. The Ph.D. program in Environmental Engineering is intended to allow a student to study and conduct research in the general areas of water treatment, waste water treatment, solid and hazardous waste management, atmospheric pollution control, community noise abatement, and stormwater management.

### **Doctoral Program Admission**

In addition to satisfying regular University admissions criteria, the student must have a master's degree in Civil or Environmental Engineering or a closely related discipline from a recognized institution. Prospective applicants should forward a detailed resume and a letter with research interests for department review. In addition, the student must pass a Ph.D. Qualifying Examination in one of the departmental disciplines. This examination is normally taken within the first year of study beyond the master's degree.

### **Doctoral Degree Requirements**

The Ph.D. degree requires a minimum of 84 semester hours beyond the bachelor's degree, 24 of which will be dissertation credits, and 6 of which will be course taken outside the College of Engineering. A maximum of 36 semester hours, including 6 thesis hours, may be transferred from a master's degree toward these requirements. An additional 9 semester hours of post-masters work may be transferred. A program of study must be developed with an advisory committee and meet with departmental approval at the beginning of the Ph.D. program, at which time transfer credit will be evaluated on a course by course basis.

### **Examinations**

In addition to the Qualifying Examination, the student must pass a Candidacy Examination and a Dissertation Defense Examination. The Candidacy Examination is normally taken near the end of the coursework and consists of a written portion and an oral presentation of a research proposal. A copy of this examination will be kept as part of the student's official record. The Dissertation Defense Examination is an oral examination taken as defense of the written dissertation.

## ELECTRICAL AND COMPUTER ENGINEERING

<i>C. S. Bauer, Ph.D., P.E.</i>	Professor
<i>A. J. Gonzalez, Ph.D., P.E.</i>	Professor
<i>D. C. Malocha, Ph.D., P.E.</i>	Professor
<i>W. B. Mikhael, Ph.D.</i>	Acting Chair & Professor
<i>M. G. Moharam, Ph.D.</i>	Professor
<i>R. L. Phillips, Ph.D.</i>	Professor
<i>M. J. Soileau, Ph.D.</i>	CREOL Director & Professor
<i>N. S. Tzannes, Ph.D.</i>	Professor
<i>M. A. Belkerdid, Ph.D., P.E.</i>	Associate Professor
<i>G. D. Boreman, Ph.D., P.E.</i>	Associate Professor
<i>C. G. Christodoulou, Ph.D.</i>	Associate Professor
<i>P. Delfyett, Ph.D.</i>	Associate Professor
<i>M. Georgiopoulos, Ph.D.</i>	Associate Professor
<i>J. E. Harvey, Ph.D.</i>	Associate Professor
<i>T. Kasparis, Ph.D.</i>	Associate Professor
<i>J. J. Liou, Ph.D.</i>	Graduate Coordinator & Associate Professor
<i>H. I. Klee, Ph.D., P.E.</i>	Associate Professor
<i>D. G. Linton, Ph.D., P.E.</i>	Associate Professor
<i>R. N. Miller, Ph.D., P.E.</i>	Associate Dean & Associate Professor
<i>A. Mortazawi, Ph.D.</i>	Associate Professor
<i>H. R. Myler, Ph.D., P.E.</i>	Associate Professor
<i>B. E. Petrasko, D.Eng.</i>	Associate Professor
<i>Z. Qu, Ph.D.</i>	Associate Professor
<i>S. M. Richie, Ph.D.</i>	Associate Professor
<i>K. B. Sundaram, Ph.D.</i>	Associate Professor
<i>P. F. Wahid, Ph.D.</i>	Associate Professor
<i>A. R. Weeks, Ph.D.</i>	Associate Professor
<i>J. S. Yuan, Ph.D.</i>	Associate Professor
<i>I. Batarseh, Ph.D.</i>	Assistant Professor
<i>H. K. Brown, Ph.D.</i>	Assistant Professor
<i>R. F. DeMara, Ph.D.</i>	Assistant Professor
<i>J. Dixon, Ph.D.</i>	Assistant Professor
<i>M. G. Haralambous, D.Sc., P.E.</i>	Assistant Professor
<i>P. Li Kam Wa, Ph.D.</i>	Assistant Professor

### Joint Appointees:

<i>L. C. Andrews, Ph.D.</i>	Professor of Mathematics
<i>M. Bass, Ph.D.</i>	Professor of Physics
<i>B. Chai, Ph.D.</i>	Professor of Physics
<i>J. K. Kim, Ph.D.</i>	Professor of Physics
<i>M. Richardson, Ph.D.</i>	Professor of Physics
<i>W. T. Silfvast, Ph.D.</i>	Professor of Physics
<i>G. Stegeman, Ph.D.</i>	Cobb-Hooker Professor of Physics
<i>E. W. Van Stryland, Ph.D.</i>	Professor of Physics
<i>D. J. Hagan, Ph.D.</i>	Associate Professor of Physics

The Electrical and Computer Engineering Department supports graduate degree programs and research in the major sub-discipline areas of electrical engineering, computer engineering, and optical sciences and engineering. The faculty include members with national and international reputations in teaching and research. Our facilities are among the best with a modern building and well equipped laboratories.

Research interests of the faculty include antennas, microwave and millimeter wave circuits and devices, communication systems, digital signal/image processing, IFF devices, electromagnetic theory, speech processing, VLSI design, spread spectrum systems, SAW and ACT devices, spectral estimation, solid state device modeling and CAD techniques, communication networks, integrated services digital networks, neural networks, systems and controls, robotics, robust control, computer control, microelectronics semiconductors, thin films, power system stability, bipolar device modeling, solid state lasers, optical propagation, fiber optics, optical signal processing, laser induced damage, optical testing, diffractive optics, phase conjugation, infrared

detectors, fourier optics, lens design, non-linear optics, power electronics, digital systems, computer architecture, software engineering, artificial intelligence, expert systems, simulation, computer communications and computer vision.

## **Degree Programs in Electrical Engineering**

The Department of Electrical and Computer Engineering offers the Master of Science in Electrical Engineering degree (M.S.E.E.), the Master of Science degree (M.S.), and the Doctor of Philosophy (Ph.D.).

### **MASTER OF SCIENCE IN ELECTRICAL ENGINEERING (M.S.E.E.)**

The M.S.E.E. degree is intended for students with a baccalaureate degree in electrical engineering or related field from an approved institution. Admission requirements include a minimum grade point average of 3.0 (A = 4.0) on the last 60 semester hours of the bachelor's degree and a minimum combined score of 1000 on the General test of the Graduate Record Examination. Students with a degree from an international institutional must score 550 or better on the Test of English as a Foreign Language (TOEFL).

Students with a grade point average of less than 3.0 may be admitted on a trial program basis in some circumstances. Additional courses may also be required to correct any course deficiencies. Students should contact the ECE Graduate Coordinator for further information.

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

### **Articulation**

Undergraduate articulation courses may be required for students with BS and/or MS degrees in fields other than electrical engineering. The articulation courses will be determined by the graduate coordinator in consultation with student's research advisor on a case by case basis.

### **Thesis Option Degree Requirements**

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

- a. At least 6 credits from one of the following specialization areas:
  - Communications
  - Controls
  - Digital Signal Processing
  - Electromagnetics
  - Electronics
  - Electro-optics
  - Solid State and Microelectronics
- b. One course from any other 2 areas listed in Part a (6 hours total).
- c. No more than 6 credits of thesis will count toward the degree requirement.
- d. The remainder of the program is chosen in conjunction with an advisor in an approved program of study.
- e. At least 15 credit hours must be from 6000 level courses.

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

### **Non-Thesis Degree Requirements**

This option requires a minimum of 36 semester hours of course work and is intended primarily for part-time students. Program requirements are the same as the thesis option except that the thesis requirement is replaced by 12 hours of course work. Students are required to pass a final comprehensive examination.

## **DOCTOR OF PHILOSOPHY (PH.D.) ELECTRICAL ENGINEERING**

The Ph.D. degree is primarily intended for students with a master's degree in electrical engineering or a closely related discipline who wish to pursue a career in research or academia. Specializations include communications, digital signal processing/image processing, controls, electro-optics, electromagnetics, electronics, and solid-state/microelectronics.

### **Admission**

Students must satisfy university requirements and have completed a master's degree in electrical engineering or a closely related discipline, with a minimum grade point average of 3.5 of a possible 4.0, and a minimum of 1100 on the combined scores of the General test of the Graduate Record Examination.

Students are admitted initially on a pre-Ph.D. basis and required to pass a Qualifying examination. Then the student must form a dissertation committee and submit an approved program of study before being admitted to degree seeking status.

### **Degree Requirements**

The Ph.D. degree requires a minimum of 84 semester hours of graduate course work, 24 of which will be dissertation hours. Graduate course work includes 5000 or higher level courses, with a maximum of 12 hours of independent study. Up to 6 hours of 4000 level work are acceptable if transferred from a master's degree program. At least 6 hours must be taken outside the college of engineering. There is a residency requirement of two contiguous semesters in full-time graduate student status (minimum of 9 semester hours) after acceptance to 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 admission to doctoral program.

### **Transfer Credits**

A limited number of credit hours may be transferred from a master's degree toward these requirements, including a maximum of 6 hours of 4000-level courses; no 3000-level courses; and no courses with grades less than "B".

### **Examinations**

In addition to the Qualifying Examination discussed above, the student must pass a Candidacy Examination and a Dissertation Defense Examination. The Candidacy Examination is normally taken near the end of the course work and consists of a written and oral presentation of a research proposal. The Dissertation Defense Examination is an oral examination taken in defense of the written dissertation.

## **Degree Programs in Computer Engineering**

The Department of Electrical and Computer Engineering offers the Master of Science in Computer Engineering (M.S.Cp.E.), and the Doctor of Philosophy.

## **MASTER OF SCIENCE IN COMPUTER ENGINEERING (M.S.CP.E.)**

This degree requires a baccalaureate degree in Computer Engineering or a closely related discipline from an approved institution. Admission requirements for regular status include a 3.0 grade point average (GPA) (A = 4.0) in the last 60 hours of the undergraduate degree program and a minimum of 1000 in the quantitative and verbal portions of the Graduate Record Examination (GRE). For students whose native language is not English, a minimum score of 550 on the Test of English as a Foreign Language (TOEFL) is required.

Students with a grade point average of less than 3.0 may be admitted on a trial program basis in some circumstances. Additional courses may also be required to correct any course deficiencies. Students should contact the ECE Graduate Coordinator for further information.

### **Articulation**

Undergraduate articulation courses may be required for students with BS and/or MS degrees in fields other than computer engineering. The articulation courses will be determined by the graduate coordinator in consultation with student's advisor on a case by case basis.

### Thesis Option Degree Requirements

This program requires 30 semester hours, at least half of which must be at the 6000 level and will include 6 hours of thesis credit. The prerequisites for the program are shown below. The CORE requirements for all students will be met by Required Courses. A program advisor and committee must be selected prior to completing 9 hours of coursework. Non-CORE courses taken before a student is in regular status and has a chair may not be accepted towards 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.

Required Courses (CORE)			9 Semester Hours
EEL	5881	Software Engineering I	3 hours
EEL	5704	Introduction to Digital Systems	3 hours
EEL	5874	Expert Systems & Knowledge Engineering	3 hours

### Non-Thesis Degree Requirements

This option requires a minimum of 36 semester hours of course work and is intended primarily for part-time students. Program requirements are the same as for the thesis option except that the thesis requirement is replaced by 12 hours of course work. Students are required to pass a final comprehensive examination.

## DOCTOR OF PHILOSOPHY (PH.D.) COMPUTER ENGINEERING

The Ph.D. degree is primarily intended for students with a master's degree in Computer Engineering or a closely related discipline who wish to pursue a career in research or academia. Specializations include digital systems, computer architecture, software engineering, intelligent systems, image processing and engineering systems analysis.

### Admission

Students must satisfy university requirements and have completed a master's degree in Computer Engineering or a closely related discipline, with a minimum grade point average (GPA) of 3.5 of a possible 4.0, and a minimum of 1100 on the combined scores of verbal and quantitative portions of the Graduate Record Examination (GRE).

Students are admitted initially on a pre-Ph.D. basis and required to pass a Qualifying Examination. Then the student must form a dissertation committee and submit an approved program of study before being admitted to degree seeking status.

### Degree Requirements

The Ph.D. degree requires a minimum of 84 semester hours of graduate course work, 24 of which must be dissertation hours. Graduate course work includes 5000 or higher level courses, with a maximum of 12 hours of independent study. Up to 6 hours of 4000 level work are acceptable if transferred from a master's degree program. At least 6 hours must be taken outside the college of engineering. There is a residency requirement of two contiguous semesters in full-time graduate student status (minimum of 9 semester hours) after acceptance to the graduate program at UCF. A program of study must be developed with an advisory committee and meet with departmental approval at the beginning of the Ph.D. program, at which time transfer credit will be evaluated on a by course basis. The degree must be completed within seven years from the date of admission to the doctoral program.

### Transfer Credits

A limited number of credit hours may be transferred from a master's degree toward these requirements, including a maximum of 6 hours of 4000-level courses; no 3000-level courses; and no courses with grades less than "B".

### Examinations

In addition to the Qualifying Examination discussed above, the student must pass a Candidacy Examination and a Dissertation Defense Examination. The Candidacy Examination is normally taken near the end of the course work and consists of a written and oral presentation of a research proposal. The Dissertation Defense Examination is an oral examination taken in defense of the written dissertation.

# OPTIONS in Optical Sciences and Engineering

## Admission

For admission into the MS program, applicants must have completed a Bachelor's degree with a major in electrical engineering, physics, optics, mathematics, or other appropriate discipline with a minimum grade point average of 3.0 out of 4.0 in the last 60 hours of undergraduate studies. For admission into the Ph.D. Program, applicants must have completed a master's degree with a major in electrical engineering, physics, optics, mathematics, or other appropriate discipline with a minimum grade point average of 3.5 out of 4.0 in the graduate program. A cumulative Graduate Record Examination (GRE) score of 1100. Foreign students whose native language is not English will be required to have a minimum score of 550 on the TOEFL examination.

## Articulation

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

## Master's Program — M.S.

The thesis option program consists of 30 credit hours, of which 6 are required thesis hours. The remaining 24 hours are divided into a minimum of 15 hours in optical science and engineering, a minimum of 3 hours of mathematics, and up to 6 hours of general sciences and engineering electives. The student must conduct a program of original scientific research or some other investigation involving creative element and to submit a written thesis detailing these investigations. An oral defense and examination of the thesis is required.

The non-thesis option program consists of 36 credit hours divided into a minimum of 24 hours of optical science and engineering, a minimum of 3 hours of mathematics, and up to 9 hours of general sciences and engineering electives. Students are required to pass a final comprehensive examination.

## Doctoral Program — Ph.D.

The program consists of 84 credit hours, of which 24 are required dissertation hours. The remaining 60 hours are divided into 24 hours of optical science and engineering, 12 hours of electrical engineering, sciences, or mathematics electives, and up to 24 hours of independent studies and research.

Admission to the Doctoral status is contingent upon passing the Qualifying Examination consisting of both written and oral portions which covers all material included in the core courses. A Candidacy Examination covering the course work and the general knowledge in the student's specialty area is required. The student must submit a written Dissertation Proposal describing the dissertation topic to be chosen by the candidate. An oral examination covering the details of the student's research project will be conducted. Upon completion of the original scientific research program, a written Dissertation describing the student's publishable research must be submitted. An oral defense of the dissertation is required.

# INDUSTRIAL ENGINEERING AND MANAGEMENT SYSTEMS

<i>John E. Biegel, Ph.D., P.E.</i> .....	Professor
<i>Yasser A. Hosni, Ph.D., P.E.</i> .....	Professor
<i>George F. Schrader, Ph.D., P.E.</i> .....	Professor Emeritus
<i>Gary E. Whitehouse, Ph.D., P.E.</i> .....	Provost, Academic Vice President & Professor
<i>Ahmed K. Elshennawy, Ph.D., C.Q.E.</i> .....	Associate Professor
<i>Gene C.H. Lee, Ph.D., P.E.</i> .....	Associate Professor
<i>Linda C. Malone, Ph.D.</i> .....	Associate Professor
<i>James M. Ragusa, D.B.A.</i> .....	Associate Professor
<i>Ralph V. Rogers, Ph.D.</i> .....	Associate Professor
<i>Robert R. Safford, Ph.D., P.E.</i> .....	Associate Professor
<i>José A. Sepúlveda, Ph.D., P.E.</i> .....	Associate Professor
<i>Robert L. Armacost, D.Sc.</i> .....	Graduate Coordinator & Assistant Professor

<i>Robert L. Hoekstra, Ph.D.</i> .....	Assistant Professor
<i>Pamela R. McCauley-Bell, Ph.D.</i> .....	Assistant Professor
<i>Mansoor Mollaghasemi, Ph.D.</i> .....	Assistant Professor
<i>Michael A. Mullens, Ph.D.</i> .....	Assistant Professor
<i>Julia J.A. Pet-Edwards, Ph.D.</i> .....	Assistant Professor
<i>Michael D. Proctor, Ph.D.</i> .....	Assistant Professor
<i>Kay M. Stanney, Ph.D.</i> .....	Assistant Professor
<i>Andrew Jackson, MBA</i> .....	Instructor
<i>John O. McIntosh, MSEE, MBA</i> .....	Assistant Chair & Instructor
<i>Kent E. Williams, Ph.D.</i> .....	Research Associate

The Department's graduate programs have been developed to support the emergence of the Central Florida area as one of the national centers of high technology as well as service industry. The original Master of Science in Engineering (M.S.E.) offerings included Industrial Engineering and Manufacturing Engineering. The original Master of Science (M.S.) offering included Computer Integrated Manufacturing, Engineering Management, and Operations Research. In 1984, the department began offering the nationally unique degree in Simulation Systems. This degree was specifically developed to support the Center of Excellence in Simulation and Training established in the Central Florida region. In 1989, the Department received Board of Regents permission to offer Florida's first graduate degree in Product Assurance Engineering. This degree serves the increasing demand for individuals trained in the areas of productivity and quality. In 1990, the Department was selected to offer the M.S. in Engineering Management to selected NASA engineers at the Kennedy Space Center. The program was recently expanded to include KSC contractor employees. Currently the program has an enrollment of 120 NASA and contractor engineers and has produced over 160 graduates. Recently, the Department has been designated as one of the seven schools where U.S. Army officers are sent to receive advanced civilian schooling at the M.S. and Ph.D. levels in Operations Research and Simulation Systems. Total graduate student enrollment in all programs exceeds 80 Ph.D. students and 350 M.S. students. The 19 active faculty members, representing graduates of leading engineering programs, are heavily involved in both teaching and research activities.

The Departmental sponsored research base of well over \$2.0 million places the Department well within the top ten industrial engineering departments in externally supported activities in the nation. The Department's emergence as one of the America's leading research units began in 1987 with a multi-year grant from the Florida High Technology and Industry Council to a consortium formed between General Electric Company, Embry-Riddle Aeronautical University, and UCF's Industrial Engineering Department. This grant was to support the development of an Intelligent Simulation and Training System (ISTS) to train air traffic controllers. These efforts are producing new knowledge about generic Intelligent Simulation and Training Systems. In 1988, the Department became one of the subcontractors to a multi-year research effort involving the University of Oregon and the Florida Solar Energy Center, sponsored by the U.S. Department of Energy. The purpose of this effort is to define how to achieve energy efficient, affordable industrialized housing in the 21st Century. In 1989, the Department became part of a multi-year effort with NASA to improve the efficiency and productivity of space shuttle processing operations. In 1993 the Department acquired the NASA funded Multimedia Applications Laboratory which conducts research on how knowledge based systems interfaced with multimedia software and hardware can provide intelligent information search, retrieval, and display. In the same year, a new major research effort involved the development of non-polluting alternative fuels that use mixtures of hydrogen and methane. System wide considerations include research in optimization of engine design and performance as well as development of the infrastructure to support such fuels. New research efforts involve various aspects of training simulations and the evaluation of distributed interactive simulation. Other current research involves a study of human computer interaction, particularly with respect to virtual reality applications. The Department has been recognized for its outstanding performance. In 1993, it was named the 1993 Public Organization of the Year for "world class leadership qualities and professional contributions to engineering education and research" by the Central Florida Joint Council of Engineering Societies and also received the Davis Productivity Award presented by the Florida Council of 100, Inc. and Florida Tax Watch, Inc. for its leading edge application of a Total Quality Management approach to the continuous improvement of student learning.



## Degree Programs

The Department of Industrial Engineering and Management Systems offers Master of Science in Engineering degrees in Industrial Engineering (M.S.I.E.) and in Industrial Engineering with a Manufacturing Engineering focus; and Masters of Science (M.S.) degrees in Computer Integrated Manufacturing, Engineering Management, Operations Research, Product Assurance Engineering, and Simulation Systems; and the Doctor of Philosophy (Ph.D.) degree in Industrial Engineering.

### Master's Program Admission Requirements

Students must satisfy the following criteria: Minimum TOEFL score of 550 (applicants whose native language is not English); and a minimum GPA of 3.0 in the last 60 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 hours of undergraduate studies. All students must complete the GRE. Students who do not meet all of the criteria may be admitted as post-baccalaureate students and demonstrate acceptable performance (minimum GPA of 3.25) in a 9-hour trial program of graduate courses.

### Master's Degree Requirements

The Master of Science in Industrial Engineering degrees require an undergraduate degree in Industrial Engineering (or a closely related discipline for the M.S.I.E. with Manufacturing Engineering focus). They are offered as 30 semester hour programs that include a 6 semester hour Thesis. The Master of Science options require an undergraduate degree in engineering (or a closely related discipline) and are available with thesis (30 semester hours) or without thesis (36 semester hours).

A program of study, satisfying the requirements of a departmental discipline, must be developed with a faculty advisor and meet with Departmental approval. Required courses vary from 15 to 24 semester hours depending on the program and are supplemented by electives which may include courses offered by other departments. A student with an undergraduate degree outside the selected departmental discipline may be required to satisfy an articulation program. Most of the graduate courses offered by the IEMS Department or required in the MSIE/MS programs are offered on the Florida Engineering Educational Delivery System (FEEDS) providing videotape versions available at the South Orlando, Brevard, and Daytona Beach campuses as well as at KSC and other industrial sites. Thesis students conduct an oral defense of their theses. Non-thesis students must pass an oral comprehensive examination at the end of their program of study.

## MASTER OF SCIENCE IN INDUSTRIAL ENGINEERING

(M.S.I.E.)

30 Semester Hours

This degree requires a Bachelor of Science in Industrial Engineering as a prerequisite.

### Required Courses

24 Semester Hours

EIN	5602C	Expert Systems in Industrial Engineering	3 hours
EIN	6140	Project Engineering	3 hours
EIN	6357	Advanced Engineering Economic Analysis	3 hours
ESI	5531	Discrete Systems Simulation	3 hours
ESI	6427	Linear Programming and Extensions	3 hours
STA	5205	Experimental Design	3 hours
EIN	6971	Thesis (required)	6 hours

### Electives

6 Semester Hours

### MANUFACTURING ENGINEERING (M.S.I.E)

30 Semester Hours

This degree is designed for students who have an undergraduate degree in Industrial Engineering or an allied engineering discipline.

### Prerequisites

- Manufacturing Engineering (EIN 4391)
- Engineering Economic Analysis (EGN 3613)
- Probability and Statistics for Engineers (STA 3032)\*
- Operations Research (ESI 4312)\*

\*These requirements may be met by taking ESI 5316 and STA 5156 as part of the program of study.

<b>Required Courses</b>			<b>27 Semester Hours</b>
EIN	5602C	Expert Systems in Industrial Engineering	3 hours
EIN	5415	Tool Engineering and Manufacturing Analysis	3 hours
EIN	6392C	Manufacturing Systems Engineering	3 hours
EIN	5399	Concurrent Engineering	3 hours
EIN	6605C	Robotics and Automated Systems	3 hours
EIN	6398	Advanced Manufacturing Processes	3 hours
ESI	6225	Quality Analysis and Control	3 hours
EIN	6971	Thesis (required)	6 hours

**Electives** **3 Semester Hours**

**MASTER OF SCIENCE — M.S.**  
**COMPUTER INTEGRATED MANUFACTURING (M.S.)** **30-36 Semester Hours**

This option is designed for students who have an undergraduate degree in Engineering, Mathematics, Computer Science, or allied fields.

**Prerequisites**

- Mathematics through Differential Equations (MAP 3302)
- Probability and Statistics for Engineers (STA 3032)\*
- Manufacturing Engineering (EIN 4391)
- Operations Research (ESI 4312)\*

\*These requirements may be met by taking ESI 5316 and STA 5156 as part of the program of study.

<b>Required Courses</b>			<b>18-24 Semester Hours</b>
EIN	5602C	Expert Systems in Industrial Engineering	3 hours
EIN	6392C	Manufacturing Systems Engineering	3 hours
EIN	6605C	Robotics and Automated Systems	3 hours
EIN	6607C	Computer Numerical Control	3 hours
EIN	6330	Quality Control in Automation	3 hours
EIN	5399	Concurrent Engineering	3 hours
EIN	6971	Thesis (optional)	6 hours

**Electives** **6-18 Semester Hours**

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

This program is designed for technically qualified individuals who plan to assume a management role in project or program-oriented environments in industry or government. It provides the skills to bridge the gap between a technical specialty and technical management.

**Prerequisites**

- Mathematics through Differential Equations (MAP 3302)
- High level computer language and microcomputer familiarity

<b>Required Courses</b>			<b>24-30 Semester Hours</b>
STA	5156	Probability and Statistics for Engineers	3 hours
EIN	5117	Management Information Systems	3 hours
EIN	5356	Cost Engineering	3 hours
EIN	6357	Advanced Engineering Economic Analysis	3 hours
EIN	6140	Project Engineering	3 hours
EIN	5602C	Expert Systems in Industrial Engineering	3 hours
EIN	6322	Engineering Management	3 hours
ESI	5316	Operations Research	3 hours
EIN	6971	Thesis (optional)	6 hours

**Electives** **0-12 Semester Hours**

**Operations Research (M.S.)** **30-36 Semester Hours**

This option is designed for students who have an undergraduate degree in engineering, mathematics, or science.

## Prerequisites

Operations Research (ESI 4312)\*  
Mathematics through Differential Equations (MAP 3302)  
Probability and Statistics for Engineers (STA 3032)\*  
Higher level computer programming and microcomputer familiarity

\*These requirements may be met by taking ESI 5316 and STA 5156 as part of the program of study.

## Required Courses

			21-27 Semester Hours	
	ESI	5531	Discrete Systems Simulation	3 hours
	ESI	6427	Linear Programming and Extensions	3 hours
	ESI	6437	Nonlinear Programming and Dynamic Programming	3 hours
or	ESI	6448	Network Analysis and Integer Programming	3 hours
	EIN	5602C	Expert Systems in Industrial Engineering	3 hours
	ESI	6358	Decision Analysis	3 hours
	STA	5205	Experimental Design	3 hours
or	STA	6236	Regression Analysis	3 hours
	STA	5825	Stochastic Processes and Applied Probability Theory	3 hours
	EIN	6971	Thesis (optional)	6 hours

## Electives

3-15 Semester Hours

## Product Assurance Engineering (M.S.)

30-36 Semester Hours

This option is designed for students who have an undergraduate degree in engineering or a closely related discipline. The program is designed to provide the student with the necessary knowledge in Product Assurance Engineering to plan, implement, and supervise the product assurance function in government, military, or individual organizations.

## Prerequisites

Mathematics through Differential Equations (MAP 3302)  
Manufacturing Engineering (EIN 4391)  
Operations Research (ESI 4312)\*  
Probability and Statistics for Engineers (STA 3032)\*

\*These requirements may be met by taking ESI 5316 and STA 5156 as part of the program of study.

## Required Courses

			24-30 Semester Hours	
	EIN	5602C	Expert Systems in Industrial Engineering	3 hours
	EIN	6140	Project Engineering	3 hours
	EIN	6392C	Manufacturing Systems Engineering	3 hours
	ESI	5236	Reliability Engineering	3 hours
	ESI	6224	Quality Assurance Management	3 hours
	ESI	6225	Quality Analysis and Control	3 hours
	ESI	6227	Total Quality Management	3 hours
	STA	5205	Experimental Design	3 hours
	EIN	6971	Thesis (optional)	6 hours

## Electives

0-12 Semester Hours

## Simulation Systems (M.S.)

30-36 Semester Hours

The Master of Science degree in Simulation Systems is designed to prepare individuals with undergraduate degrees in engineering, mathematics, or science for careers in the simulation field. There are two alternate tracks in this option: The Simulators and Training System Track and the Simulation Modeling and Analysis Track.

## Prerequisites (both tracks)

Mathematics through Differential Equations (MAP 3302)  
Probability and Statistics for Engineers (STA 3032)\*  
Computer Programming

\*May be satisfied by taking STA 5156 as part of the program of study.

### The Simulators and Training Systems Track

This track of the Masters in Simulation Systems program responds to the needs of professionals in the training simulation (simulator) industries. Students in this track will have an opportunity for first-hand experience in the simulation field through UCF's Institute of Simulation and Training.

#### Required Courses

#### 24-30 Semester Hours

EIN	6140	Project Engineering	3 hours
EIN	6317	Training Systems Engineering	3 hours
EME	6613	Instructional Systems Design	3 hours
EIN	5381	Engineering Logistics	3 hours
EIN	6645	Modeling and Simulation of Real-time Processes	3 hours
ESI	5531	Discrete Systems Simulation	3 hours
EIN	5255	Training Simulator Engineering	3 hours
EIN	5602C	Expert System in Industrial Engineering	3 hours
EIN	6971	Thesis (Optional)	6 hours

#### Electives

#### 0-12 Semester Hours

### The Simulation Modeling and Analysis Track

This alternate track of the Masters in Simulation Systems program caters to students desiring to gain expertise in simulation as an analysis and design tool for the manufacturing and service industries.

#### Required Courses

#### 21-27 Semester Hours

EIN	5602C	Expert Systems in Industrial Engineering	3 hours
EIN	6140	Project Engineering	3 hours
EIN	6647	Intelligent Simulation	3 hours
ESI	5316	Operations Research	3 hours
ESI	5531	Discrete Systems Simulation	3 hours
ESI	6532	Object Oriented Simulation	3 hours
STA	5205	Experimental Design	3 hours
EIN	6971	Thesis (optional)	6 hours

#### Electives

#### 3-15 Semester Hours

### Doctor Of Philosophy Degree (Ph.D.) 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 a particular topic in depth, with emphasis on some aspect of industrial engineering, manufacturing, engineering management, operations research, or simulation and training.

#### Doctoral Program Admission

Students must satisfy regular university admissions criteria specified for Master's program admissions. In addition, the student must have a Master's degree in Industrial Engineering or a closely related discipline from a recognized institution and have demonstrated above average performance at the Master's level. Students meeting these criteria and the approval of the Doctoral Committee will be admitted as Pre-Doctoral students. Before admission to the Doctoral program, students must complete any needed articulation course work and pass a Ph.D. Qualifying Examination. This examination is normally taken within the first year after all articulation work is completed. Admission decisions using these results and supplemental information are made by the Departmental Doctoral Committee.

#### Doctoral Degree Requirements

The Ph.D. degree requires a minimum of 84 semester hours of graduate course work, 24 of which will be dissertation hours. Graduate course work includes 5000 or higher level courses, with a maximum of 12 hours of independent study. A total of 33 semester hours are specified in required Industrial Engineering subjects. Additional course work is usually

taken in the student's research area. Up to 6 hours of 4000 level work are acceptable if transferred from a Master's degree program. At least 6 hours must be taken outside of the college of engineering. There is a residency requirement of two continuous semesters in full-time graduate student status (minimum of 9 semester hours) after acceptance into the doctoral program at UCF. At the beginning of the Ph.D. program, a preliminary program of study must be developed with an advisory committee and meet with Departmental approval. At this time transfer credit will be evaluated on a course by course basis. After completion of the Qualifying Examination, the official program of study is developed with an advisor and must meet with Departmental approval. The degree must be completed within seven years from the date of admission to doctoral program.

### Transfer Credits

A maximum of 36 semester hours, including up to 6 thesis hours, may be transferred from a Master's degree toward these requirements. Limitations: a maximum of 6 hours of 4000-level courses; no 3000-level courses; and no courses with grades less than "B". Any number of additional semester hours of post-Masters work may be transferred.

### Examinations

In addition to the Qualifying Examination, the student must pass a Candidacy Examination, a Dissertation Proposal Examination, and a Dissertation Defense Examination. The Candidacy Examination is normally taken near the end of the course work and consists of a written and oral presentation of a research proposal. The Dissertation Proposal Examination is an oral examination defending the written Dissertation Proposal and is taken after passing the Candidacy Examination. The Dissertation Defense Examination is an oral examination taken in defense of the written dissertation.

### Prerequisites

Students must have background (or articulation course work passed with a grade of B or better) in the following areas:

- A high level structured programming language
- Calculus through Differential Equations
- Probability and Statistics (STA 3032)\*
- Work Measurement (EIN 3314)
- Industrial Facilities Planning (EIN 4364)
- Manufacturing Engineering (EIN 4391)

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

## Doctor of Philosophy Degree (Ph.D.) in Industrial Engineering

### Required Courses

**33 Semester Hours**

The following areas must form part of the student's program of study. Substitute courses may be approved by the Department's Ph.D. Committee.

STA	5205	Experimental Design	3 hours
STA	6236	Regression Analysis	3 hours
EIN	6357	Advanced Engineering Economic Analysis	3 hours
EIN	5117	Management Information Systems	3 hours
EIN	6140	Project Engineering	3 hours
EIN	5248	Ergonomics	3 hours
EIN	5602C	Expert Systems in Industrial Engineering	3 hours
ESI	6225	Quality Analysis and Control	3 hours
ESI	5531	Discrete Systems Simulation	3 hours
ESI	6427	Linear Programming and Extensions	3 hours
EIN	6336	Production and Inventory Control	3 hours

### Electives

**27 Semester Hours**

### Dissertation

**24 Semester Hours**

## IEMS GRADUATE COURSES BY AREA OF STUDY

### Engineering Management

EIN	5117	Management Information Systems	3 hours
EIN	5381	Engineering Logistics	3 hours

EIN	5356	Cost Engineering	3 hours
EIN	6140	Project Engineering	3 hours
EIN	6322	Engineering Management	3 hours
EIN	6339	Productivity Engineering	3 hours
EIN	6357	Advanced Engineering Economic Analysis	3 hours
EIN	6933	Systems Acquisition	3 hours
ESI	5451	Network-based Project Planning Scheduling and Control	3 hours
<b>Ergonomics</b>			
EIN	5248C	Ergonomics	3 hours
EIN	6215	Systems Safety Engineering and Management	3 hours
EIN	6249C	Biomechanics	3 hours
EIN	6258	Ergonomics in High Tech Environments	3 hours
EIN	6264C	Environment Hygiene and Occupational Health	3 hours
EIN	6270C	Work Physiology	3 hours
<b>Expert Systems</b>			
EIN	5602	Expert Systems in Industrial Engineering	3 hours
EIN	6603	Readings in Expert Systems/AI in Industrial Engineering	3 hours
<b>Manufacturing/Operations Management</b>			
EIN	5388	Forecasting	3 hours
EIN	5415	Tool Engineering and Manufacturing Analysis	3 hours
EIN	6425	Scheduling and Sequencing	3 hours
EIN	5368	Materials Handling	3 hours
EIN	5399	Concurrent Engineering	3 hours
EIN	6336	Production and Inventory Control	3 hours
EIN	6392C	Manufacturing Systems Engineering	3 hours
EIN	6417	Precision Engineering	3 hours
EIN	6418C	Electronics Manufacturing	3 hours
EIN	6605C	Robotics and Automated Systems	3 hours
EIN	6607C	Computer Numerical Control	3 hours
EIN	6608	Surface Design and Manufacture	3 hours
EIN	6398	Advanced Manufacturing Processes	3 hours
<b>Operations Research</b>			
ESI	5316	Operations Research	3 hours
ESI	6336	Queuing Systems	3 hours
ESI	6427	Linear Programming and Extensions	3 hours
ESI	6437	Nonlinear Programming and Dynamic Programming	3 hours
ESI	6358	Decision Analysis	3 hours
ESI	6448	Network Analysis and Integer Programming	3 hours
<b>Simulation and Training</b>			
EIN	5255	Training Simulator Engineering	3 hours
EIN	6317	Training Systems Engineering	3 hours
EIN	6645	Modeling and Simulation of Real-time Processes	3 hours
EIN	6647	Intelligent Simulation	3 hours
EIN	6649	Intelligent Simulation Training System Design	3 hours
ESI	5531	Discrete Systems Simulation	3 hours
ESI	6217	Statistical Aspects of Digital Simulation	3 hours
ESI	6529	Advanced Systems Simulation	3 hours
ESI	6532	Object Oriented Simulation	3 hours
<b>Statistics and Quality Control</b>			
EIN	6330	Quality Control in Automation	3 hours
ESI	5236	Reliability Engineering	3 hours
ESI	6224	Quality Assurance Management	3 hours
ESI	6225	Quality Analysis and Control	3 hours
ESI	6227	Total Quality Management	3 hours
STA	5156	Probability and Statistics for Engineers	3 hours

# MECHANICAL AND AEROSPACE ENGINEERING

<i>P. J. Bishop, Ph.D., P.E.</i> .....	Director of Graduate Studies & Professor
<i>B. E. Eno, Ph.D., P.E.</i> .....	Graduate Coordinator & Professor
<i>E. R. Hosler, Ph.D., P.E.</i> .....	Associate Chair & Professor
<i>J. D. McBrayer, Sc.D., P.E.</i> .....	Professor
<i>F. A. Moslehy, Ph.D., P.E.</i> .....	Professor
<i>D. W. Nicholson, Ph.D.</i> .....	Chair & Professor
<i>S. L. Rice, Ph.D., P.E.</i> .....	Associate Dean & Professor
<i>W. F. Smith, Sc.D., P.E.</i> .....	Professor
<i>L. Chew, Ph.D.</i> .....	Associate Professor
<i>V. H. Desai, Ph.D., P.E.</i> .....	Associate Professor
<i>A. H. Hagedoorn, Ph.D., P.E.</i> .....	Associate Professor
<i>R. W. Johnson, Ph.D.</i> .....	Visiting Associate Professor
<i>K. C. Lin, Ph.D.</i> .....	Associate Professor
<i>A. Minardi, Ph.D.</i> .....	Associate Professor
<i>C. E. Nuckolls, Ph.D., P.E.</i> .....	Associate Professor
<i>G. G. Ventre, Ph.D., P.E.</i> .....	Associate Professor
<i>R. M. Byers, Ph.D., P.E.</i> .....	Assistant Professor
<i>R. H. Chen, Ph.D.</i> .....	Assistant Professor
<i>L. A. Giannuzzi, Ph.D.</i> .....	Assistant Professor
<i>A. Kar, Ph.D.</i> .....	Assistant Professor
<i>A. J. Kassab, Ph.D.</i> .....	Assistant Professor
<i>J. Nayfeh, Ph.D.</i> .....	Assistant Professor

### Joint Appointees:

<i>K. A. Cerqua-Richardson, Ph.D.</i> .....	Department of Chemistry
<i>B. Chai, Ph.D.</i> .....	Department of Physics
<i>L. Debnath, Ph.D.</i> .....	Department of Mathematics
<i>N. S. Dhere, Ph.D.</i> .....	Florida Solar Energy Center
<i>B. Nimmo, Ph.D.</i> .....	Florida Solar Energy Center
<i>K. Vajravelu, Ph.D.</i> .....	Department of Mathematics

### Fields of Emphasis and Research

Major fields of emphasis in the Mechanical and Aerospace Engineering Department include aerospace systems (experimental and computational aerodynamics and astrodynamics, high speed flows, turbulent flow, flight dynamics and simulation, optimal control and attitude dynamics of space vehicles, and aerospace design), materials science and engineering (corrosion, wear, thin films, electron microscopy, diffusion, electrodeposited, structural, high temperature and composite materials, and laser-aided manufacturing and materials processing), mechanical systems (experimental mechanics, finite and boundary elements, tribology, fracture, nonlinear dynamics, nondestructive evaluation), and thermo-fluids (laser machining, turbomachinery, two-phase flow, combustion, aeroacoustics, computational thermofluids, HVAC, and energy conservation). Current research projects in aerospace systems include design of a space robot, advanced life support automated remote manipulator, collision avoidance path planning for shuttle payload inspection and processing system, launch/ spacecraft control and test and evaluation methodology (real-time), application of laser doppler anemometry to supersonic flow, and design of a heavy gas wind tunnel. Current research projects in materials science and engineering include environmentally induced cracking, laser materials processing, high temperature materials, solar cells, crystal growth, microstructure of electrodeposits, and phase transformations. Current research projects in mechanical systems include laser-based techniques for space shuttle tile bond assessment, dynamics and friction and wear modeling in tribosystems, finite element simulation of dynamic crack tip stress fields and of penetration by composite projectiles, non-linear dynamics of composite and smart structures, and CAD/CAM. Current research projects in thermo-fluids include computer-aided laser machining, laser-material interactions, heat pipes, fire science and combustion studies, chaos analysis of internal combustion engines, inverse heat transfer problems, conjugate heat transfer, and boundary elements.

### Degree Programs

The Mechanical and Aerospace Engineering Department (MAE) offers the Master of Science in Mechanical Engineering (MSME) and the Doctor of Philosophy (Ph.D.) degrees with options in Aerospace Systems, Materials Science and Engineering, Mechanical Systems, and Thermo-Fluids.

## MASTER OF SCIENCE IN MECHANICAL ENGINEERING — MSME

### Admission

The MSME degree is intended primarily for a student with a bachelor's degree in mechanical or aerospace engineering or a closely related discipline from a recognized institution. Minimum requirements for admission to regular status are a 3.0 grade point average (4.0=A) in the last two years of undergraduate study, a combined score of 1000 on the quantitative and verbal portions of the Graduate Record Examination (GRE), and, for students whose native language is not English, a score of 550 on the Test of English as a Foreign Language (TOEFL). A post-baccalaureate trial program of 9 semester hours may be allowed for students with a grade point average of less than 3.0 but greater than 2.8.

### Degree Requirements

The MSME degree is offered as a thesis or a non-thesis program in each of the four departmental disciplines of Aerospace Systems, Materials Science and Engineering, Mechanical Systems, and Thermo-Fluids. The thesis program requires 30 semester hours, at least half of which must be at the 6000 level and will include 6 hours of thesis credit. The non-thesis program requires 36 semester hours of course work, at least 15 of which must be at the 6000 level. A program of study, satisfying the requirements of a departmental discipline, must be developed with an advisor at the beginning of the MSME study and meet with departmental approval. A student with an undergraduate degree outside of the selected departmental discipline may be required to satisfy an articulation program. Substitutions to the program of study must meet with the approval of the advisor and the department. A student pursuing the thesis program may not register for thesis credit hours until an advisory committee has been appointed and the committee has reviewed the program of study and the proposed thesis topic. Further information is available in a Master's Degree General Procedures manual available from the MAE Department.

### Aerospace Systems

30-36 Semester Hours

#### Prerequisites

Mathematics through Differential Equations (MAP 3302)  
Programming and Numerical Methods (EGN 3420)  
High Speed Aerodynamics (EAS 4134)  
Flight Mechanics (EAS 4105)  
Flight Structures (EAS 4200)  
Aerothermodynamics of Propulsion Systems (EAS 4300)

#### Required Courses

12 Semester Hours

EAS	5123	Intermediate Aerodynamics	3 hours	
EAS	6405	Advanced Flight Dynamics	3 hours	
EML	5060	Mathematical Methods in Mechanical and Aerospace Engineering	3 hours	
EML	6067	Finite Elements in Mechanical and Aerospace Engineering I	3 hours	
or	EML	6725	Computational Fluid Dynamics and Heat Transfer I	3 hours

#### Representative Electives

18-24 Semester Hours

EAS	5157	V/Stol Aerodynamics and Performance	3 hours
EAS	5302	Direct Energy Conversion	3 hours
EAS	5315	Rocket Propulsion	3 hours
EAS	6138	Advanced Gas Dynamics	3 hours
EAS	6185	Turbulent Flow	3 hours
EAS	6415	Spacecraft Attitude Dynamics and Control	3 hours
EAS	6507	Fundamentals of Astrodynamics	3 hours
EAS	6517	Optimal Control of Aerospace Vehicles	3 hours
EML	5066	Computational Methods in MAE	3 hours
EML	5105	Gas Kinetics and Statistical Thermodynamics	3 hours
EML	5152	Intermediate Heat Transfer	3 hours
EML	5224	Acoustics	3 hours
EML	5237	Intermediate Mechanics of Materials	3 hours
EML	5311	System Control	3 hours
EML	5402	Turbomachinery	3 hours



EML	5532	Computer-Aided Design for Manufacture	3 hours
EML	5713	Intermediate Fluid Mechanics	3 hours
EML	5xxx	Analysis and Control of Robot Manipulators	3 hours
EML	6062	Boundary Element Methods in Engineering	3 hours
EML	6067	Finite Elements in Mechanical and Aerospace Engineering I	3 hours
EML	6068	Finite Elements in Mechanical and Aerospace Engineering II	3 hours
EML	6124	Two Phase Flow	3 hours
EML	6223	Advanced Vibrational Systems	3 hours
EML	6305C	Experimental Mechanics	3 hours
EML	6547	Engineering Fracture Mechanics in Design	3 hours
EML	6712	Mechanics of Viscous Flow	3 hours
EML	6725	Computational Fluid Dynamics and Heat Transfer I	3 hours
EML	6726	Computational Fluid Dynamics and Heat Transfer II	3 hours
EAS	6971	Thesis	6 hours

### Materials Science and Engineering

30-36 Semester Hours

#### Prerequisites

Mathematics through Differential Equations (MAP 3302)  
 Programming and Numerical Methods (EGN 3420)  
 Structure and Properties of Materials (EGN 3365C)  
 Mechanics of Materials (EGN 3331) or Thermodynamics (EGN 3343)  
 Experimental Techniques in Materials Science and Engineering (EMA 3012L)

#### Required Courses

12 Semester Hours

	EML	5104	Intermediate Structure and Properties of Materials	3 hours
	EMA	5106	Metallurgical Thermodynamics	
or	EML	5237	Intermediate Mechanics of Materials	3 hours
	EMA	5516	XRD and Crystallography	3 hours
	EMA	6126	Physical Metallurgy	3 hours

#### Representative Electives

18-24 Semester Hours

	EMA	5140	Introduction to Ceramic Materials	3 hours
	EMA	5163	Polymer Science and Engineering	3 hours
	EMA	5326	Corrosion Science and Engineering	3 hours
	EMA	5504	Modern Characterization Techniques for Materials	3 hours
	EMA	5584	Biomaterials	3 hours
	EMA	5705	High Temperature Materials	3 hours
	EMA	5605	Materials Processing Techniques	3 hours
	EMA	5610	Laser Materials Processing	3 hours
	EMA	6136	Diffusion in Solids	3 hours
	EMA	6626	Mechanical Metallurgy	3 hours
	EMA	6628	Materials Failure Analysis	3 hours
	EMA	6130	Phase Transformations in Metals and Alloys	3 hours
	EMA	6129	Solidification and Microstructure Evolution	3 hours
	EMA	6149	Imperfections in Crystals	3 hours
	EMA	6518	Transmission Electron Microscopy	3 hours
	EML	5245	Tribology	3 hours
	EML	5060	Mathematical Methods in Mech. & Aero. Engineering	3 hours
	EML	5546	Engineering Design w/Composite Materials	3 hours
	EML	6062	Boundary Element Methods in Engineering	3 hours
	EML	6211	Continuum Mechanics	3 hours
	EML	6305C	Experimental Mechanics	3 hours
	EML	6531	Mechanical Behavior of Materials	3 hours
	EML	6547	Engineering Fracture Mechanics in Design	3 hours
	EEL	5332C	Thin Film Technology	3 hours
	EEL	6561	Fourier Optics	3 hours
	PHY	5937	Introduction to Crystal Growth	3 hours
	CHM	5711	The Chemistry of Materials	3 hours
	EMA	6971	Thesis	6 hours

**Mechanical Systems****30-36 Semester Hours****Prerequisites**

Mathematics through Differential Equations (MAP 3302)  
 Programming and Numerical Methods (EGN 3420)  
 Kinematics (EML 3262)  
 Machine Design (EML 3500)  
 Vibration Analysis (EML 4220)  
 Measurements (EML 4304C)  
 Feedback Controls (EML 4312)

**Required Courses****12 Semester Hours**

EML	5060	Mathematical Methods in Mechanical and Aerospace Engineering	3 hours
EML	5237	Intermediate Mechanics of Materials	3 hours
EML	5271	Intermediate Dynamics	3 hours
EML	6062	Boundary Elements in Engineering	3 hours
or	EML 6067	Finite Elements in Mechanical and Aerospace Engineering I	3 hours

**Representative Electives****18-24 Semester Hours**

EML	5066	Computational Methods in MAE	3 hours
EML	5224	Acoustics	3 hours
EML	5228	Modal Analysis	3 hours
EML	5245	Tribology	3 hours
EML	5311	System Control	3 hours
EML	5532C	Computer-Aided Design for Manufacture	3 hours
EML	5546	Engineering Design w/Composite Materials	3 hours
EML	5572	Probabilistic Methods in Design	3 hours
EML	5xxx	Analysis and Control of Robot Manipulators	3 hours
EML	6062	Boundary Elements in Engineering	3 hours
EML	6067	Finite Elements in Mechanical and Aerospace Engineering I	3 hours
EML	6068	Finite Elements in Mechanical and Aerospace Engineering II	3 hours
EML	6211	Continuum Mechanics	3 hours
EML	6223	Advanced Vibrational Systems	3 hours
EML	6226	Analytical Dynamics	3 hours
EML	6227	Nonlinear Vibrations	3 hours
EML	6279	Synthesis of Mechanisms	3 hours
EML	6305C	Experimental Mechanics	3 hours
EML	6531	Mechanical Behavior of Materials	3 hours
EML	6547	Engineering Fracture Mechanics in Design	3 hours
EML	6653	Theory of Elasticity	3 hours
EML	6971	Thesis	6 hours

**Thermo-Fluids****30-36 Semester Hours****Prerequisites**

Mathematics through Differential Equations (MAP 3302)  
 Programming and Numerical Methods (EGN 3420)  
 Thermodynamics (EML 3101)  
 Measurements (EML 4304C)  
 Fluid Mechanics (EML 4703)  
 Heat Transfer (EML 4142)

**Required Courses****12 Semester Hours**

EML	5060	Mathematical Methods in Mechanical and Aerospace Engineering	3 hours
EML	5713	Intermediate Fluid Mechanics	3 hours
EML	5152	Intermediate Heat Transfer	3 hours
EML	6725	Computational Fluid Dynamics and Heat Transfer I	3 hours

<b>Representative Electives</b>			<b>18-24 Semester Hours</b>
EAS	5302	Direct Energy Conversion	3 hours
EAS	5315	Rocket Propulsion	3 hours
EAS	6138	Advanced Gas Dynamics	3 hours
EAS	6185	Turbulent Flow	3 hours
EML	5066	Computational Methods in MAE	3 hours
EML	5105	Gas Kinetics and Statistical Thermodynamics	3 hours
EML	5131	Combustion Phenomena	3 hours
EML	5402	Turbomachinery	3 hours
EML	5532C	Computer-Aided Design for Manufacture	3 hours
EML	6062	Boundary Elements in Engineering	3 hours
EML	6104	Classical Thermodynamics	3 hours
EML	6124	Two Phase Flow	3 hours
EML	6154	Conduction Heat Transfer	3 hours
EML	6155	Convection Heat Transfer	3 hours
EML	6157	Radiation Heat Transfer	3 hours
EML	6158	Gaseous Radiation Heat Transfer	3 hours
EML	6712	Mechanics of Viscous Flow	3 hours
EML	6726	Computational Fluid Dynamics and Heat Transfer II	3 hours
EML	6971	Thesis	6 hours

## **Doctor Of Philosophy (Ph.D.) Mechanical Engineering**

The Ph.D. degree is primarily intended for a student with a master's degree in mechanical or aerospace engineering or a closely related discipline. The program is intended to allow a student to study in depth, with emphasis on research, in Aerospace Systems, Materials Science and Engineering, Mechanical Systems, or Thermo-Fluids.

### **Admission**

In addition to satisfying the admission requirements for the MSME degree, admission to the Ph.D. program requires that the student possesses a master's degree in mechanical or aerospace engineering or a closely related discipline from a recognized institution. Admission to Doctoral Status requires that the student passes a Ph.D. Qualifying Examination in one of the four departmental disciplines of Aerospace Systems, Materials Science and Engineering, Mechanical Systems, or Thermo-Fluids, establishes a Doctoral Advisory Committee, and submits a departmentally approved Program of Study. These steps are normally completed within the first year of study beyond the master's degree.

### **Degree Requirements**

The Ph.D. degree requires a minimum of 84 semester hours beyond the bachelor's degree, 24 of which will be dissertation credits and at least 9 credits of which must be graduate level mathematics courses. A maximum of 30 semester hours, including 6 thesis hours, may be transferred from a masters degree toward these requirements. Post-masters credit up to 18 semester hours may be considered for transfer. Transfer credit will be evaluated on a course by course basis as part of the Program of Study approval process.

### **Examinations**

In addition to the Qualifying Examination discussed above, the student must pass a Candidacy Examination and a Dissertation Defense Examination. The Candidacy Examination is normally taken near the end of the course work and consists of a written and oral presentation of a research proposal. The Dissertation Defense Examination is an oral examination taken in defense of the written dissertation. Further information on these examinations and other requirements of the Ph.D. program are contained in a Ph.D. Degree General Procedures manual available from the MAE Department.

## COURSE OFFERINGS

- CEG 5015** EN 3(3,0)  
**Geotechnical Engineering II:** PR: CEG 4101C. Continuation of CEG 4101C with emphasis on shear strength and design factors for earth pressures bearing capacity, and slope stability.
- CEG 5700** EN 3(3,0)  
**Geo-Environmental Engineering:** 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.
- CEG 6065** EN 3(3,0)  
**Soil Dynamics:** PR: CEG 4101C. Comprehensive coverage in calculating the dynamic response of foundations, presenting a variety of contemporary techniques for fields and laboratory.
- CEG 6115** EN 3(3,0)  
**Foundation Engineering:** PR: CEG 5015. Analysis and design of spread footings, mat foundations, retaining walls, sheeting and bracing systems and pile foundations.
- CEG 6317** EN 3(3,0)  
**Advanced Geotechnical Engineering:** PR: CEG 5015. Mechanics of soils and models; elasticity and plasticity of soil bodies; strength of soils and stability of soil structures.
- CES 5325** EN 3(3,0)  
**Bridge Engineering:** PR: CES 4605 and CES 4706. Structural systems for bridges, loading, analysis by influence lines, slab and girder bridges, composite design, prestressed concrete, rating of existing bridges, specifications and economic factors.
- CES 5143** EN 3(3,0)  
**Matrix Structural Analysis:** PR: CES 4100 or equivalent. Optimization and matrix methods applied to the design of real structures.
- CES 5606** EN 3(3,0)  
**Advanced Steel Structures:** 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.
- CES 5706** EN 3(3,0)  
**Advanced Reinforced Concrete:** PR: CES 4702 or CI. Design of frames, two-way systems, shear walls, shear and torsion, compression field theory; inelastic analysis, wind and seismic design; introduction to prestressed concrete.
- CES 6116** EN 3(3,0)  
**Finite Elements in Structures:** PR: C.I. Applications of the finite element method to the analysis and design of linear and non-linear structural components and systems.
- CES 6129** EN 3(3,0)  
**Analysis of Plates and Shells:** PR: EML 5237 or equivalent. Theory of bending of thin plates. Energy and approximation techniques. Non-linear behavior of plates. Theory of thin shells with small deformations.
- CES 6144** EN 3(3,0)  
**Matrix Methods of Structural Analysis:** PR: CES 5143 or C.I. Structural analysis of beams, frames, and plates using matrix methods and current computer programs.
- CES 6170** EN 3(3,0)  
**Boundary Element Methods in Civil Engineering:** PR: C.I. Green's theorems; integral formulations for two and three-dimensional and axisymmetric problems of solid mechanics; applications to structural and geomechanics problems; programming.
- CES 6209** EN 3(3,0)  
**Dynamics of Structures:** PR: C.I. Dynamic behavior of linear structures. Natural vibrations of structural systems. Damping in structures. Response to periodic and non-periodic excitations. Emphasis on matrix methods.
- CES 6218** EN 3(3,0)  
**Structural Stability:** PR: EML 5237 or equivalent. Analysis of structural elements, columns, frame-works, lateral stability. Introduction to the stability of plates. Energy and approximate methods.

- CES 6220** **EN 3(3,0)**  
**Wind and Earthquake Engineering:** 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.
- CES 6910** **EN 3(3,0)**  
**Research in Structural Engineering:** PR: C.I. Behavior and design of steel, concrete, or composite structures under cyclic, wind, earthquake, impact, or blast loading.
- CGN 5320C** **EN 3(2,2)**  
**Geographic Information Systems:** Programming theory and application of Geographic Information systems to Civil Engineering projects.
- CGN 5504C** **EN 3(2,2)**  
**Civil Engineering Materials:** PR: EGN 3365C, EGN 3331 or C.I. Structure, properties and applications of materials used in civil engineering including concrete, steel, asphalt, wood, soils, and composite materials.
- CGN 5506C** **EN 3(2,2)**  
**Asphalt Concrete Mix Design:** PR: CEG 4101C. Properties of asphalt, aggregate and asphalt mixtures, Marshall mix design, Hveem mix design, pavement rehabilitation.
- CGN 6425** **EN 3(3,0)**  
**Mathematical Modeling in Civil Engineering:** PR: C.I. Development of modeling techniques applied to the analysis of contemporary Civil Engineering problems including transportation, fluid flow, and two-dimensional continuum analysis.
- CGN 6606** **EN 3(3,0)**  
**Public Works Engineering:** PR: C.I. Principles and practices, operation and maintenance, equipment, utilities, planning and design, etc.
- CGN 6655** **EN 3(3,0)**  
**Regional Planning, Design, and Development:** PR: ENV 4651. Project course dealing with planning, design, and development of regional systems, including projections, case studies, design alternatives, environmental impact, etc.
- CWR 5205** **EN 3(3,0)**  
**Hydraulic Engineering:** PR: CWR 4101C and CWR 4203C. Concepts of fluid mechanics and hydrodynamics applied to natural and man-made flow of intent to civil and environmental engineering.
- CWR 5545** **EN 3(3,0)**  
**Water Resources Engineering:** PR: CWR 4101C, CWR 4203C. Systems identification and solution to complex water allocation problems, and other hydraulic engineering designs and operations using economic analysis and operations research techniques.
- CWR 6125** **EN 3(3,0)**  
**Groundwater Hydrology:** PR: CWR 4203C or equivalent. Theories of groundwater movement, geological factors, analysis and design techniques, etc. Emphasis on practical considerations.
- CWR 6126** **EN 3(3,0)**  
**Groundwater Modeling:** PR: CWR 6125. Review of contemporary computer-based groundwater flow models and their application to environmental engineering problems.
- CWR 6235** **EN 3(3,0)**  
**Open Channel Hydraulics:** PR: CWR 4203C or C.I. Free surface flow studies by empirical and theoretical methods for the design, operation, and management of open channels.
- CWR 6535** **EN 3(3,0)**  
**Modeling Water Resources Systems:** PR: CWR 4101C and CWR 4203C. Contemporary mathematical models for water quality and quantity considerations including computer-based hydraulic and hydrologic models.
- EAS 5123** **EN 3(3,0)**  
**Intermediate Aerodynamics:** PR: EAS 4134. CR: EML 5060. Aerodynamic characteristics of airfoils, finite wings, waves, wing-body combinations, viscous flow and flow instabilities. Airfoil design.

- EAS 5157** **EN 3(3,0)**  
**V/Stol Aerodynamics and Performance:** PR: EAS 4105, CR: EML 5060. Momentum theory, blade element theory, hover and forward flight, stability, aeroelasticity.
- EAS 5302** **EN 3(3,0)**  
**Direct Energy Conversion:** PR: EML 3101 and PHY 3101. Direct methods of energy conversion; particular emphasis on fuel cells, thermoelectrics, thermionics, solar energy, photovoltaics and magnetohydrodynamics. Analysis and systems design.
- EAS 5315** **EN 3(3,0)**  
**Rocket Propulsion:** PR: EAS 4134 or EML 4703. Analysis and performance of rocket motors; selection and thermochemistry of chemical propellants; liquid and solid propellant rockets.
- EAS 6138** **EN 3(3,0)**  
**Advanced Gas Dynamics:** 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.
- EAS 6185** **EN 3(3,0)**  
**Turbulent Flow:** 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.
- EAS 6405** **EN 3(3,0)**  
**Advanced Flight Dynamics:** 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.
- EAS 6415** **EN 3(3,0)**  
**Spacecraft Attitude Dynamics and Control:** PR: EML 4312. Rotational dynamics of rigid, multi-body, and flexible spacecraft. Control methodologies for momentum exchange actuators and thrusters.
- EAS 6507** **EN 3(3,0)**  
**Fundamentals of Astrodynamics:** PR: EAS 4505 or C.I. Solution of the two body problem. Ballistic trajectories, orbital maneuvers, lunar and planetary trajectories.
- EAS 6517** **EN 3(3,0)**  
**Optimal Control of Aerospace Vehicles:** PR: EML 5271. CR: EML 5060. Calculus of variations and necessary conditions for optimality. Numerical Methods for solving optimal trajectory and attitude maneuvers for aircraft, launch vehicles and spacecraft.
- ECM 5135** **EN 3(3,0)**  
**Engineering Math Analysis I:** PR: MAP 3302. Topics in advanced engineering mathematics including systems of differential equations, phase plane, linear algebra, and vector differential calculus.
- ECM 6235** **EN 3(3,0)**  
**Engineering Math Analysis II:** PR: EEL 5135. Advanced engineering math topics including Fourier series, partial differential equations, and complex variables.  
 noninstitutional imbalance.
- EEL 5173** **EN 3(3,0)**  
**Signal and System Analysis:** PR: EEL 3122C and EEL 3657. Continuous and discrete dynamic models; emphasis on state variable models. Laplace, Z-transform and time domain solutions of dynamic model behavior. Real-time digital simulation. Sampling theory.
- EEL 5240C** **EN 3(2,1)**  
**Power Electronics:** PR: EEL 4309. Principles of power electronics, power semiconductor devices, inverter topologies, switch-mode and resonant dc-to-dc converters, cyclo-converters, applications.
- EEL 5255** **EN 3(3,0)**  
**Power Systems Analysis and Electric Machinery:** PR: EEL 4216 or C.I. System modeling, machinery, protection, load flow, stability.
- EEL 5332C** **EN 3(2,1)**  
**Thin Film Technology:** PR: EEL 3306 or equivalent. To present the various thin film deposition techniques for the fabrication of microelectronic, semiconductor and optical devices.

- EEL 5352** **EN 3(3,0)**  
**Semiconductor Material and Device Characterization:** PR: EEL 3306 or C.I. Semiconductor material characterization resistivity, mobility, doping carrier lifetime, device properties, threshold voltage, interface charge of MOS devices, optical and surface characterization of films.
- EEL 5353** **EN 3(3,0)**  
**Semiconductor Device Modeling and Simulation:** PR: EEL 3307. Large signal and small signal model development for semiconductor diodes, BJTs, and MOSFETs. Parameter extraction, numerical algorithm, and SPICE simulation are included.
- EEL 5355C** **EN 4(3,3)**  
**Fabrication of Solid-State Devices:** PR: EEL 4308. Fabrication of microelectronic devices, processing technology, ion implantation and diffusion, device design, and layout. Laboratory includes device processing technology.
- EEL 5357** **EN 3(3,0)**  
**CMOS Analog and Digital IC Design:** PR: EEL 3306 and EEL 4309. The objective of this course is to present the principles and techniques of the design of analog and digital circuits that are to be implemented in a CMOS technology.
- EEL 5370** **EN 3(3,0)**  
**Operational Amplifiers:** 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.
- EEL 5434** **EN 3(3,0)**  
**Microwave Circuits and Devices:** PR: EEL 4436 or EEL 5555. Planar transmission lines; passive microwave circuits; active circuit design using Gunn, IMPATT, FETS, RTDS, etc.; microwave integrated circuits.
- EEL 5441** **EN 3(3,0)**  
**Introduction to Wave Optics:** PR: EEL 4440, or PHY 4424 or C.I. Electromagnetic foundation of light waves as applied to reflection, refraction, diffraction, interference, polarization, coherence, and guided waves.
- EEL 5450C** **EN 3(2,10)**  
**Thin Film Optics:** PR: PHY 4424 or EEL 4440 and EEL 5441 or EEL 5451. Principles of thin film optics and its applications in optical electro-optical, and laser systems.
- EEL 5453** **EN 3(3,0)**  
**Geometrical Optics:** PR: C.I. or G.S. Fundamentals of Geometrical Optics, Geometrical Theory of Image Formation, Optical System Layout.
- EEL 5451L** **EN 3(1,4)**  
**Electro-Optics Laboratory:** PR: EEL 4440 or EEL 5441 or C.I. Study of laboratory techniques for optical measurements and performance of measurements on electro-optic devices to determine operational characteristics.
- EEL 5462C** **EN 3(3,1)**  
**Antenna Analysis and Design:** PR: EEL 3470 or equivalent. Fundamentals of antennas; dipoles, loops, arrays, apertures, and horns. Analysis and design of various antennas.
- EEL 5513** **EN 3(3,0)**  
**Digital Signal Processing Applications:** PR: EEL 4750. The design and practical consideration for implementing Digital Signal Processing Algorithms including Fast Fourier Transform techniques, and some useful applications.
- EEL 5517** **EN 3(3,0)**  
**Surface Acoustic Wave Devices and Systems:** PR: EEL 3552C. Course discusses SAW technology which includes the physical phenomenon, transducer design and synthesis, filter design and performance parameters. Actual devices and communication systems are presented.
- EEL 5542** **EN 3(3,0)**  
**Random Processes I:** PR: EEL 3552C and STA 3032. Elements of probability theory; random variables, and stochastic processes.

- EEL 5547** **EN 3(3,0)**  
**Introduction to Radar Systems:** Introduction to pulse and CW Radar Systems. Chirp Radar Systems. Tracking Radar. Noise in Radar Systems.
- EEL 5555** **EN 3(2,1)**  
**RF Communications:** PR: EEL 3552C. RF communication systems, 10 MHz to 1500 MHz. Scattering parameters, noise, receiver design, system implementation, spread spectrum. RF network and spectrum analyzers.
- EEL 5563** **EN 3(3,0)**  
**Fiber Optics Communication:** PR: EEL 3552C, EEL 3470. Use of fiber optics as a communication channel. Principles of fiber optics. Mode theory, transmitters, modulators, sensors, detectors, and demodulators.
- EEL 5630** **EN 3(3,0)**  
**Digital Control Systems:** PR: EEL 3657. Real time digital control systems analysis and design. Z-transforms, sampling and reconstruction, time and frequency response, stability analysis, digital controller design.
- EEL 5704** **EN 3(3,0)**  
**Computer Aided Logical Design:** PR: EEL 3342 or C.I. Analysis and synthesis of sequential logic circuits and systems. Data path and controller design using VHDL, a hardware description language.
- EEL 5708** **EN 3(3,0)**  
**High performance Computer Architecture:** PR: EEL 4767. Engineering of high performance computer systems. Memory, processor and control sub-systems design tradeoffs. Virtual and cache memory. pipelining, vector commuting.
- EEL 5741C** **EN 3(2,3)**  
**Microcomputer-based Monitoring and Control Systems:** PR: EEL 3342; EEL 4767C or C.I. Machine language programming; software development aids; systems design; interfacing considerations.
- EEL 5762** **EN 3(3,0)**  
**Performance Analysis of Computer and Communication Systems:** 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.
- EEL 5771C** **EN 3(2,3)**  
**Engineering Applications of Computer Graphics:** PR: EGN 3420 or C.I. Computer Graphics in Engineering Applications. Laboratory program assignments.
- EEL 5820** **EN 3(3,0)**  
**Image Processing:** PR: MAP 3302, 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.
- EEL 5825** **EN 3(3,0)**  
**Pattern Recognition:** PR: MAP 3302, EGN 3420. Theoretic and syntactic methods of pattern analysis. Decision functions; optimum decision criteria; training algorithms; feature extraction; unsupervised learning; data reduction and potential functions.
- EEL 5874** **EN 3(3,0)**  
**Expert Systems and Knowledge Engineering:** PR: EEL 4872 or C.I. Introduction to expert systems in engineering. Expert systems tools and interviewing techniques. This course is hands-on and project-oriented.
- EEL 5881** **EN 3(3,0)**  
**Software Engineering I:** PR: EGN 3420, EEL 4851 or C.I. Design, implementation, and testing of computer software for Engineering applications.
- EEL 5891** **EN 3(3,0)**  
**Continuous System Simulation I:** PR: EEL 3657 or C.I. Use of state-space techniques, numerical integration, and CSSL programs. Laboratory assignments.
- EEL 6338** **EN 3(3,0)**  
**Advanced Topics in Microelectronics:** PR: C.I. The course covers advanced topics in microelectronics such as semiconductor device physics, semiconductor device fabrication, and semiconductor device modeling.



- EEL 6354** **EN 3(3,0)**  
**Advanced Semiconductor Device I:** PR: EEL 3306. First course in advanced semiconductor device Physics and Modeling. Main stream devices including junction diode, bipolar transistor, and metal-oxide field-effect transistor.
- EEL 6371** **EN 3(3,0)**  
**Advanced Electronics I:** PR: EEL 5357 or EEL 5370. Models for integrated-circuit active devices. Analysis and design of IC amplifiers. Feedback amplifiers. Frequency response and stability. Compensation of amplifiers.
- EEL 6372** **EN 3(3,0)**  
**Advanced Electronics II:** PR: EEL 5357 or EEL 6371. Advanced topics of current interest in VLSI design.
- EEL 6443** **EN 3(3,0)**  
**Electro-optics:** PR: EEL 3470, EEL 5441. Principles, design and use of birefringent and periodic electro-optic devices. Nonlinear and phase-conjugate optics.
- EEL 6446** **EN 3(3,0)**  
**Optical Systems Design:** PR: EEL 5453 or C.I. Design principles of lens and mirror optical systems; evaluation of designs using computer techniques.
- EEL 6457** **EN 3(3,0)**  
**Advanced Topics in Electro-Optics:** PR: C.I. Current research topics in electro-optics, such as optical computing, binary optics, advanced system design issues, novel laser systems, etc.
- EEL 6463** **EN 3(3,0)**  
**Antenna Analysis and Design II:** PR: EEL 5462C. Moment method, GTD, aperture antennas, reflectors, frequency independent antennas and microstrip antennas.
- EEL 6488** **EN 3(3,0)**  
**Electromagnetic Fields:** PR: EEL 3470 or C.I. Maxwell's equations. Boundary conditions. Propagation, reflection, and refraction of waves. Guided waves. Radiation.
- EEL 6492** **EN 3(3,0)**  
**Advanced Topics in Electromagnetics and Microwaves:** PR: C.I. Advanced and current topics in EM fields, antennas, and microwaves.
- EEL 6502** **EN 3(3,0)**  
**Adaptive Digital Signal Processing:** 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.
- EEL 6504** **EN 3(3,0)**  
**Communications Systems Design:** 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.
- EEL 6505** **EN 3(3,0)**  
**Multi-dimensional Digital Processing:** PR: EEL 5513 or C.I. Multi-dimensional signals and systems. Two-dimensional transforms and filters. Image processing applications.
- EEL 6530** **EN 3(3,0)**  
**Communication Theory:** PR: EEL 5542 or C.I. Communication in the presence of noise; analog and pulse modulation; use of phase-locked loops, synthesizers, VCOs, system implementations.
- EEL 6537** **EN 3(3,0)**  
**Detection and Estimation:** PR: EEL 6543. Use of hypothesis testing (Bayes, Minimax, Neyman-Pearson) and estimation theory (Bayes, Maximum-likelihood) for detecting or estimating signals in noise. Application in communications and radar.
- EEL 6543** **EN 3(3,0)**  
**Random Processes II:** PR: EEL 5542. Stochastic processes. Mean-squared estimation. Queueing theory. Spectral estimation. Applications to communications and radar systems.
- EEL 6558** **EN 3(3,0)**  
**Advanced Topics in Digital Signal Processing:** PR: C.I. Advanced and current topics in digital signal processing, such as neural network, spectral analysis, speech processing.

- EEL 6560** **EN 3(3,0)**  
**Laser Engineering:** PR: EEL 5441 or C.I. Principles of laser amplification and oscillations; design of lasers; general characteristics of excitation systems.
- EEL 6561** **EN 3(3,0)**  
**Fourier Optics:** Application of Fourier transform theory to optical systems design. Development of optical correlation techniques. Holographic techniques and applications.
- EEL 6564** **EN 3(3,0)**  
**Optical Communication Theory:** PR: EEL 6530 or C.I. Optical communication schemes; Statistical modelling; coherent and non-coherent detection time synchronization channel characterization.
- EEL 6565** **EN 3(3,0)**  
**Radiation and Detection:** PR: C.I. Radiometry, Planck radiators, spectrometers, photon-counting statistics, detector noise analysis, detector mechanisms.
- EEL 6590** **EN 3(3,0)**  
**Advanced Topics in Communications:** PR: C.I. Advanced and current topics in communications, such as coding theory, information theory, spread spectrum, etc.
- EEL 6616** **EN 3(3,0)**  
**Adaptive Control:** PR: EEL 5173 System identification and adaptive control design, including identification algorithms, MRAC, STR, and stochastic adaptive control. Lyapunov stability and input-output stability.
- EEL 6617** **EN 3(3,0)**  
**Fundamentals of Modern Multivariable Control:** PR: EEL 4657, EEL 5173 or C.I. Emphasis on stability and performance analysis in time and frequency domains and on design tools for optimal performance and robustness.
- EEL 6621** **EN 3(3,0)**  
**Nonlinear Control Systems:** PR: EEL 5173. Phase plane descriptions of non-linear phenomena, limit cycles, jump conditions, stability, describing functions, Liapunov and Popov theory, time and frequency domain analysis for non-linear systems.
- EEL 6671** **EN 3(3,0)**  
**Modern and Optimal Control Systems:** 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 HamiltonJacobi equations. Computational considerations.
- EEL 6674** **EN 3(3,0)**  
**Optimal Estimation for Control:** PR: EEL 5173 or C.I. Optimal filtering, smoothing and prediction methods are analyzed with applications to a number of linear and nonlinear dynamic systems.
- EEL 6680** **EN 3(3,0)**  
**Advanced Topics in Modern Control Systems:** PR: C.I. To introduce the student to present-day issues in control systems analysis, design, and implementation.
- EEL 6707** **EN 3(3,0)**  
**Parallel Processing:** PR: EEL 5707, EEL 5762. Systems with one or more central I/O processors. Types of parallelism granularity and memory organization. Processor/memory message passing systems. Shared memory multiprocessors.
- EEL 6743C** **EN 3(2,3)**  
**Microcomputer Applications Design:** PR: EEL 5741C or C.I. Advanced applications of microcomputer systems. Design of systems and software to implement a case study in microcomputer usage.
- EEL 6763** **EN 3(3,0)**  
**Current Topics in Parallel Processing:** PR: EEL 6708 or C.I. Research topics in parallel architectures, including, but not limited to, systolic architectures, wavefront arrays, interconnection networks, reconfigurable architectures and fast algorithms.
- EEL 6769** **EN 3(3,0)**  
**Parallel Knowledge Processing Systems:** 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.

- EEL 6785** **EN 3(3,0)**  
**Advanced Computer Communications:** PR: EEL 4781, EEL 5762. Data network protocol design and analysis for point-to-point communication multi-user communication and routing.
- EEL 6812** **EN 3(3,0)**  
**Introduction to Neural Networks:** PR: EEL 5825 or C.I. Artificial neural network theory, models and architectures. Neurobiological basis, learning theory, applications, and hardware implementation issues.
- EEL 6823** **EN 3(3,0)**  
**Image Processing II:** PR: EEL 5820 or C.I. Advance topics in image processing: non-linear and adaptive filtering morphological processing, color image processing, texture analysis, and image encoding.
- EEL 6843** **EN 3(3,0)**  
**Machine Perception:** PR: EEL 5820 or EEL 5825 or C.I. Advanced methods of machine understanding; simulation of intelligent machine systems; automatic recognition systems; visual tracking systems; multi-spectral feature analysis.
- EEL 6845** **EN 3(3,0)**  
**Intelligent Control:** PR: C.I. Design and development of intelligent machine systems; decision theory; intelligence modeling; neural models; advanced techniques in intelligent control.
- EEL 6857** **EN 3(3,0)**  
**Engineering Data Reduction:** PR: C.I. Digital analysis of multidimensional data. Applications of multidimensional orthogonal transforms.
- EEL 6875** **EN 3(3,0)**  
**Engineering of Artificial Intelligence Systems:** PR: EEL 5874 or C.I. Introduction to the engineering of knowledge-based automated reasoning systems including the use of representation languages and object-oriented techniques. It is based on LISP.
- EEL 6876** **EN 3(3,0)**  
**Current Topics in Artificial Intelligence in Engineering Systems:** PR: EEL 6875 or C.I. Research in current topics including artificial intelligence, relevant to engineering systems including causal modeling, qualitative reasoning, temporal reasoning and inductive reasoning. Review of current literature.
- EEL 6878** **EN 3(3,0)**  
**Modeling and Artificial Intelligence:** PR: EEL 6875 or C.I. Introduction to various applications of artificial intelligence techniques as they affect the engineering aspects of computer-based simulation, modeling and training. The course will be taught as a seminar, making significant use of the current research literature. Topics include Intelligent Tutoring Systems, Situational Awareness, Intelligent Instructor Support, and Qualitative Modeling .
- EEL 6883** **EN 3(3,0)**  
**Software Engineering II:** PR: EEL 5881 or equivalent; C.I. Continuation of EEL 5881. Emphasis on term projects and case studies.
- EEL 6885** **EN 3(3,0)**  
**Software Engineering Quality Assurance Methods:** PR: EEL 5881, EEL 6883. Methods for verification and validation of software quality, including software engineering metrics and models.
- EEL 6887** **EN 3(3,0)**  
**Software Engineering Life-Cycle Control:** PR: EEL 5881, EEL 6883. Issues in software development life-cycle control including project cost and time estimation, methods and models, manpower allocation, and system configuration management.
- EEL 6893** **EN 3(3,0)**  
**Continuous System Simulation II:** PR: EEL 5891. Continuation of EEL 6426 including advanced features of Continuous Simulation Languages such as user-defined macros, linear analysis package, sampled data systems. A simulation study term project is required.
- EEL 6895** **EN 3(3,0)**  
**Current Issues in Real-Time Simulation:** PR: EEL 5771C, EEL 5891. Design considerations in real-time, computer based, training simulator systems. Laboratory assignments.
- EEL 6897** **EN 3(3,0)**  
**Software Development for Real-Time Engineering Systems:** PR: EEL 5881, EEL 6883. Issues associated with developing software for real-time systems, including parallel processing, task synchronization, and task scheduling.

- EGN 5720** **EN 3(2,3)**  
**Internal Combustion Engine Analysis and Optimization:** PR: Thermo/Fluids or Thermodynamics or permission of instructor. Internal combustion engine operating principles. Topics covered include engine design, and operating parameters, combustion, thermodynamics, induction flow, and basic mathematical models.
- EGN 5034** **EN 3(3,0)**  
**Engineering and Public Works:** PR: C.I. The purposes, function, and role of engineering within public works.
- EGN 5035** **EN 3(3,0)**  
**Topics in Technological Development:** PR: C.I. Selected topics in the technological development of western civilization including the weight-driven clock, steam engine, electric light, etc.
- EGN 5036** **EN 2(2,0)**  
**Engineering Codes and Standards:** PR: C.I. Development, history, and function of engineering codes and standards and their use in protecting public health and safety.
- EGN 5840** **EN 3(3,0)**  
**Small Rocket Applications for Teachers:** PR: Admission to Martin Marietta/UCF Academy. Earth and space environments, rocket propulsion, meteorological and environmental measurements, payload launch procedures, orbits and trajectories, safety, model rocket experiments, field trips, student science experiments.
- EIN 5117** **EN 3(3,0)**  
**Management Information Systems I:** PR: C.I. Design and implementation of computer-based management information systems. Organizational, managerial, and economic aspects of MIS.
- EIN 5247** **EN 3(3,0)**  
**Experimental Design & Taguchi Methods:** PR: Sta 3032 or ESI 4234. Introduction to Taguchi Concepts and Methodologies, use of design of experiments for quality design and improvement.
- EIN 5248C** **EN 3(3,0)**  
**Ergonomics:** PR: C.I. Applications of anthropometry; functional anatomy, mechanics, and physiology of the musculoskeletal concepts in the engineering design of industrial tools, equipments and workstations.
- EIN 5255** **EN 3(3,0)**  
**Training Simulator Engineering:** Introduction to significant topics relative to the development and use of simulators for knowledge transfer in the technical environment.
- EIN 5356** **EN 3(3,0)**  
**Cost Engineering:** Cost estimation and control of engineering systems throughout the product life cycle.
- EIN 5368** **EN 3(2,2)**  
**Materials Handling:** Material handling function in manufacturing environment; quantitative techniques for analysis, controls, storage and warehousing, automation and cost justification; lab focuses on plant trips and case studies.
- EIN 5381** **EN 3(3,0)**  
**Engineering Logistics:** Study of the logistics life-cycle involving planning, analysis and design, testing, production, distribution, and support.
- EIN 5388** **EN 3(3,0)**  
**Forecasting:** PR: STA 3032 or STA 5156. Industrial applications of forecasting methods with emphasis on microcomputer based packages.
- EIN 5415** **EN 3(3,0)**  
**Tool Engineering and Manufacturing Analysis:** PR: EIN 4391 or C.I. Tool materials and design, tolerance technology, theory of metal cutting, and machineability.
- EIN 5602C** **EN 3(2,2)**  
**Expert Systems in Industrial Engineering:** Overview of basic concepts, architecture and construction of expert systems in IE. Intelligent simulation training systems, case studies and problems. Laboratory exercises.
- EIN 6140** **EN 3(3,0)**  
**Project Engineering:** PR: C.I. Role of engineer in project management with emphasis on project life cycle, quantitative and qualitative methods of cost, schedule, and performance control.

- EIN 6215** **EN 3(3,0)**  
**System Safety Engineering and Management:** 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.
- EIN 6249C** **EN 3(2,2)**  
**Biomechanics:** PR: EIN 5248C or consent of instructor. Applications of body link system, kinematic aspect of body movement and mechanics of the human body concepts in the engineering design of work systems.
- EIN 6258** **EN 3(2,2)**  
**Ergonomics in High Tech Environments:** Computer task analysis, human-computer design guidelines and history, usability testing, next generation user interfaces, human-virtual environment interaction.
- EIN 6264C** **EN 3(2,2)**  
**Environmental Hygiene and Occupational Health:** PR: EIN 5215 or C.I. Evaluation and control of mechanical, physical, and chemical environment. Environments considered include heat, cold, noise, vibration, light pressure, radiation, solid waste, air contaminants, etc.
- EIN 6270C** **EN 3(2,2)**  
**Work Physiology:** PR: EIN 5248 or C.I. Applications of the concepts of endurance fatigue, recovery and the energy cost of work in the determination of work capacity, job design, personnel assignment, and work/rest scheduling.
- EIN 6317** **EN 3(3,0)**  
**Training Systems Engineering:** How human performance deficiencies should be addressed from a systems engineering point of view. Manpower, personnel, and training considerations will be examined.
- EIN 6322** **EN 3(3,0)**  
**Engineering Management:** PR: EIN 5117, EIN 5356 and EIN 6140. Capstone investigation and analysis of topics for improving engineering enterprises in national and international competitive environments. Quantitative engineering tools/methods will be used.
- EIN 6330** **EN 3(3,0)**  
**Quality Control in Automation:** PR: ESI 4234 or C.I. Quality control applications in industrial automation, implementation of quality control through automated inspection, statistical tolerancing, application of statistics in quality control.
- EIN 6336** **EN 3(3,0)**  
**Production & Inventory Control:** PR: EIN 4333 or equivalent. Review of models and techniques used in forecasting, production control and inventory control. Includes aggregate planning, production scheduling, inventory management, models, etc.
- EIN 6339** **EN 3(3,0)**  
**Productivity Engineering:** Basic concepts and tools including measurement, evaluation, planning, and improvement. Latest models and techniques pertinent to both the manufacturing and service sectors are introduced.
- EIN 6357** **EN 3(3,0)**  
**Advanced Engineering Economic Analysis:** PR: EGN 3613; STA 3032 or equivalent. Topics include measuring economic worth, economic optimization under constraints. Analysis of economic risk and uncertainty, foundations of utility functions.
- EIN 6392C** **EN 3(2,2)**  
**Manufacturing Systems Engineering:** PR: EIN 4391 C. The integration of manufacturing technologies and information processing concepts into a system for controlling the manufacturing enterprise.
- EIN 6398** **EN 3(2,2)**  
**Advanced Manufacturing Processes:** PR: EIN 4391. Latest methods and developments in manufacturing process engineering.
- EIN 6399** **EN 3(3,0)**  
**Concurrent Engineering:** Elements of concurrent engineering and its applications. Topics include quality function deployment, design for manufacturability and design for assembly.

- EIN 6417** **EN 3(3,0)**  
**Precision Engineering:** PR: ESI 4234 or C.I. Designing for high precision, machine accuracy, error reduction, thermal effects, coordinate measuring machines, and machine calibration with laser interferometry.
- EIN 6418C** **EN 3(3,0)**  
**Electronics Manufacturing:** PR: EIN 4391 or C.I. Electronics fabrication and assembly, FMS and CAD/CAM in electronics, information and control systems, micromachining with lasers, and surface mount technology.
- EIN 6425** **EN 3(3,0)**  
**Scheduling and Sequencing:** Basic problems, models and techniques of scheduling. Emphasis on general job shop scheduling problems. Analytical, graphical and heuristic methods are examined.
- EIN 6603** **EN 3(3,0)**  
**Readings in Expert Systems/AI in Industrial Engineering:** 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.
- EIN 6605C** **EN 3(3,2)**  
**Robotics and Automated Systems:** PR: 4411C or equivalent. Robotic cells and automated systems design for industrial applications, on-line and off-line programming.
- EIN 6607C** **EN 3(2,2)**  
**Computer Numerical Control:** Computer numerical control (NC) systems and languages. Surface and part definition.
- EIN 6608** **EN 3(3,0)**  
**Surface Design and Manufacture:** Techniques for designing surfaces and parts, and methods for describing their manufacture.
- EIN 6645** **EN 3(3,0)**  
**Modeling and Simulation of Real-time Processes:** Mathematical modeling and computer simulation of engineering and scientific systems. Examination of hardware, software and solution methods for real-time systems.
- EIN 6647** **EN 3(2,2)**  
**Intelligent Simulation:** The use of intelligent objects in building simulation models to achieve a goal by altering the scenarios during problem solution.
- EIN 6649** **EN 3(2,2)**  
**Intelligent Simulation Training System Design:** A systems approach to building intelligent simulation training systems. Emphasis on removing the human instructor from the content training.
- EIN 6933** **EN 3(3,0)**  
**Systems Acquisition:** What the engineer needs to know about the systems acquisition process when dealing with government contracting agencies.
- EMA 5104** **EN 3(3,0)**  
**Intermediate Structure and Properties of Materials:** PR: EGN 3365C. Fundamentals of dislocation theory, metallurgical thermodynamics and diffusion. Phase transformations, strengthening mechanisms and fracture. Introduction to engineering polymers, ceramics and composites.
- EMA 5106** **EN 3(3,0)**  
**Metallurgical Thermodynamics:** PR: EGN 3343, EGN 3365C. Laws of thermodynamics, phase equilibria, reactions between condensed and gaseous phases, reaction equilibria in condensed solution and phase diagrams.
- EMA 5108** **EN 3(3,0)**  
**Surface Science:** PR: PHY 3049 and C.I. Methods of chemical and physical analysis of surfaces, with emphasis on ultra-high vacuum spectroscopies utilizing electron, ion and photon probes.
- EMA 5140** **EN 3(3,0)**  
**Introduction to Ceramic Materials:** PR: EGN 3365C. Uses, structure, physical and chemical properties, and processing of ceramic materials. Discussions will include recent developments for high technology applications.

- EMA 5163** **EN 3(3,0)**  
**Polymer Science and Engineering:** PR: EGN 3365C. Molecular structure, physical and chemical properties, preparation and processing of macromolecular materials. Discussions will include recent developments for high technology applications.
- EMA 5326** **EN 3(3,0)**  
**Corrosion Science and Engineering:** PR: EGN 3365C. Electrochemical principles and applications to detecting and monitoring corrosion processes. Various forms of corrosion, their causes and control. Techniques of corrosion protection.
- EMA 5504** **EN 3(3,0)**  
**Modern Characterization of Materials:** PR: EMA 5104. Techniques and operation of instrumentation (light, scanning, transmission, and auger microscopy) for the characterization of structure, defects, composition, and surfaces.
- EMA 5516** **EN 3(3,0)**  
**X-Ray Diffraction and Crystallography:** PR: EMA 5104 or C.I. Theory and experimental techniques of X-ray diffraction of materials. Topics include the structure of crystalline solids, including lattices, point group and space group theory.
- EMA 5584** **EN 3(3,0)**  
**Biomaterials:** PR: EGN 3365C. Properties of natural biological materials and their relation to microstructure, biocompatibility, specific applications in orthopedic, cardiovascular, visual, neural, and reconstructive implants.
- EMA 5605** **EN 3(3,0)**  
**Materials Processing Techniques:** PR: EGN 3365C, EGN 3343 or C.I. Phase transformation; grain size; surface, powder and composite processing; shape forming; polymer processes; liquid and vapor phase synthesis; Radiation-induced processes.
- EMA 5610** **EN 3(3,0)**  
**Laser Materials Processing:** PR: EGN 3343 or EMA 5106 or C.I. Laser beam optics; laser-material interactions; Laser heating, melting, vaporization. Plasma formation; Laser surface treatment, welding, machining; laser material synthesis. Thin film deposition, crystal growth.
- EMA 5705** **EN 3(3,0)**  
**High Temperature Materials:** PR: EMA 5104. Desired material properties for high temperature applications, physical metallurgy of such materials, corrosion, hot corrosion and oxidation properties, aero- and land-based gas turbine requirements.
- EMA 6126** **EN 3(3,0)**  
**Physical Metallurgy:** PR: EMA 5104 or EML 3236. Analytical methods in crystallography, dislocation theory, annealing, solid solutions, phases and phase diagrams, ferrous and non ferrous alloy systems.
- EMA 6129** **EN 3(3,0)**  
**Solidification and Microstructure Evolution:** PR: EML 4142, EMA 5104 or C.I. Cooling process, nucleation, spinodal decomposition, interface instability, cells, dendrites, eutectic and peritectic microstructures, solute segregation, modeling project.
- EMA 6130** **EN 3(3,0)**  
**Phase Transformation in Metals and Alloys:** PR: EMA 5104 and EMA 5106 or C.I. Principles of thermodynamics, kinetics and phase diagrams for the understanding of diffusion and diffusionless phase transformations in ferrous and non-ferrous alloys.
- EMA 6136** **EN 3(3,0)**  
**Diffusion in Solids:** PR: EMA 5104 and EML 5060. Fundamental equations and mechanisms of diffusion. Diffusion in metallic, ionic and semiconducting materials with emphasis on measurement techniques.
- EMA 6149** **EN 3(3,0)**  
**Imperfections in Crystals:** PR: EMA 5104 or C.I. Point, line, and planar defects in crystalline materials are described. Vacancy formation, dislocation theory, plasticity. grain boundary modeling, and the interaction between defects are discussed.
- EMA 6518** **EN 3(3,0)**  
**Transmission Electron Microscopy:** 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.

- EMA 6626** **EN 3(3,0)**  
**Mechanical Metallurgy:** PR: EMA 5104 or EML 3234. Elastic behavior and plasticity, dislocation theory, mechanical behavior of materials, fracture, elements of fracture mechanics, environment assisted cracking, creep and fatigue failures.
- EMA 6628** **EN 3(3,0)**  
**Materials Failure Analysis:** 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.
- EML 5808** **EN 3(3,0)**  
**Analysis and Control of Robot Manipulators:** PR: EML 4312, EML 3262. Architecture of Robot Manipulators, kinematics, and dynamic equation of motion. Path planning and control implementation.
- EML 5060** **EN 3(3,0)**  
**Mathematical Methods in Mechanical and Aerospace Engineering:** PR: MAP 3302. Vector field theory, generalized coordinates, complex variables, contour integration and Laplace and Fourier transforms and inversions, variable coefficient ODE's and solution of PDE's for governing equations of heat transfer, ideal fluid flow, and mechanics.
- EML 5066** **EN 3(3,0)**  
**Computational Methods in Mechanical and Aerospace Engineering:** PR: EGN 3420, MAP 3302. Error Norms, interpolation and extrapolation, quadratures and adaptive quadratures, solution of linear and nonlinear systems of equations, functional approximation, solution of ODE's and MWK.
- EML 5105** **EN 3(3,0)**  
**Gas Kinetics and Statistical Thermodynamics:** PR: EAS 4134 or EML 4703C. Molecular and statistical viewpoint of gases and thermodynamics; Boltzmann collision integral, partition functions, non-equilibrium flows. Applications in thermo-fluid systems.
- EML 5131** **EN 3(3,0)**  
**Combustion Phenomena:** PR: EML 4703C, EML 3127. Physical and chemical aspects of combustion phenomena. Rate processes, chemical kinetics, structure, propagation and stability of premixed and diffusion flames.
- EML 5152** **EN 3(3,0)**  
**Intermediate Heat Transfer:** PR: EML 4142, EML 5713, CR: 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.
- EML 5224** **EN 3(3,0)**  
**Acoustics:** PR: EML 4220, CR: EML 5060. Elements of vibration theory and wave motion; radiation, reflection, absorption, and transmission of acoustic waves; architectural acoustics; control and abatement of environmental noise pollution; transducers.
- EML 5228C** **EN 3(3,0)**  
**Modal Analysis:** PR: EML 4220, EML 4303C, EML 5060. Theoretical basis. Measurement techniques, excitation, transducers, data acquisition. Detailed data analysis, modal parameter extraction, curve-fitting procedures. Modelling.
- EML 5237** **EN 3(3,0)**  
**Intermediate Mechanics of Materials:** PR: EML 3500, CR: EML 5060. Elements of elasticity. Failure theories. Bending and torsion. Thin plates. Energy principles. Thick-walled cylinders. Applications to design.
- EML 5245** **EN 3(3,0)**  
**Tribology:** PR: EGN 3331, EGN 3353, EGN 3365C, or C.I. Principles of fluid film lubrication (liquid and gas, journal and thrust bearings), contact mechanics (rolling element bearings), design of bearings and load bearing surfaces, friction and wear of materials, tribotesting.
- EML 5271** **EN 3(3,0)**  
**Intermediate Dynamics:** Dynamics of particles, rigid bodies and distributed mass systems. Hamilton's principle. Lagrange's equations. Numerical methods. Mechanisms.
- EML 5311** **EN 3(3,0)**  
**System Control:** PR: EML 4312; CR: EML 5060. Modern control theory for linear and non-linear systems; controllability and observability. Linear state feedback and state estimators, compensator design.



- EML 5402** **EN 3(3,0)**  
**Turbomachinery:** PR: EML 3101, EML 4703 or EAS 4134. Application of the principles of fluid mechanics, thermodynamics and aerodynamics to the design and analysis of steam and gas turbines, compressors and pumps.
- EML 5532C** **EN 3(2,2)**  
**Computer-aided Design for Manufacture:** PR: EGN 3331 and EML 3500 or C.I. Theory and application of computer algorithms for the synthesis, simulation, design and manufacture of mechanical and thermal systems.
- EML 5546** **EN 3(3,0)**  
**Engineering Design with Composite Materials:** 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.
- EML 5572** **EN 3(3,0)**  
**Probabilistic Methods in Mechanical Design:** PR: EML 3500, STA 3032. Uncertainty modelling in design. Use of probabilistic mathematics to assess strength, stiffness, toughness, and stability. Applications.
- EML 5713** **EN 3(3,0)**  
**Intermediate Fluid Mechanics:** 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.
- EML 6062** **EN 3(3,0)**  
**Boundary Element Methods in Engineering:** PR: EML 5237 or EML 5713 or C.I. Integral (numerical) solution of potential, Poisson and diffusion equations; applications to heat transfer and fluid flow; complex variable boundary element methods.
- EML 6067** **EN 3(3,0)**  
**Finite Elements in Mechanical and Aerospace Engineering I:** PR: EML 5237 or EML 5713 or C.I. 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.
- EML 6068** **EN 3(3,0)**  
**Finite Elements in Mechanical and Aerospace Engineering II:** 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.
- EML 6104** **EN 3(3,0)**  
**Classical Thermodynamics:** 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.
- EML 6124** **EN 3(3,0)**  
**Two-Phase Flow:** 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.
- EML 6154** **EN 3(3,0)**  
**Conduction Heat Transfer:** PR: EML 5152 or C.I. Classical and numerical techniques applied to the solution of steady and transient conduction problems. Applications to the design of thermal systems.
- EML 6155** **EN 3(3,0)**  
**Convection Heat Transfer:** PR: EML 5152, EML 5713 or C.I. Convection heat, mass and momentum transfer in laminar and turbulent flows. Applications to the design of thermal systems.
- EML 6157** **EN 3(3,0)**  
**Radiation Heat Transfer:** 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.
- EML 6158** **EN 3(3,0)**  
**Gaseous Radiation Heat Transfer:** PR: EML 6157. Development of Radiative Transfer Equation, radiative properties of gases, and solutions to gaseous radiation problems.

- EML 6211** **EN 3(3,0)**  
**Continuum Mechanics:** PR: EML 5237, EML 4703 or equivalent. Tensors; deformation and strain; stress; field equations, constitutive equations, applications in fluid dynamics and linear elasticity.
- EML 6223** **EN 3(3,0)**  
**Advanced Vibrational Systems:** PR: EML 4220, EML 5271 or C.I. Mechanical systems with multi-degrees-of-freedom. Introduction to non-linear and random vibrations. Concepts of modern dynamic analysis.
- EML 6226** **EN 3(3,0)**  
**Analytical Dynamics:** PR: EML 5271. Kane method for kinematics and dynamics of particle and rigid bodies is developed and contrasted with Newton and Lagrange methods.
- EML 6227** **EN 3(3,0)**  
**Nonlinear Vibration:** PR: EML 5060 and EML 5271. Robust, reliable algorithms for simulation of non-linear phenomena; phase planes; limit cycles; stability; period-multiplying bifurcations; strange attractors; Poincare maps; Floquet theory; Lyapunov exponents; applications to mechanical and aerospace systems.
- EML 6279** **EN 3(3,0)**  
**Synthesis of Mechanisms:** PR: EML 5271 or C.I. Advanced synthesis, analysis, and design of planar and spatial mechanisms. Inversion techniques; computer applications; design of robotic manipulators.
- EML 6305C** **EN 3(2,2)**  
**Experimental Mechanics:** PR: EML 4304, EML 5237. Selected topics in strain measurements, photoelasticity, holographic interferometry; laser speckle measurement; acoustic emission, measurement of correlation and coherence functions.
- EML 6531** **EN 3(3,0)**  
**Mechanical Behavior of Materials:** PR: EML 5237 or C.I. Failures of materials in mechanical design. Macroscopic concepts of damage tolerance, life prediction and fracture control. Introduction to plasticity, creep, fretting, shock, instability and wear.
- EML 6547** **EN 3(3,0)**  
**Engineering Fracture Mechanics in Design:** 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.
- EML 6653** **EN 3(3,0)**  
**Theory of Elasticity:** PR: EML 5237. Review of stress and strain; solution by tensor stress and potential functions, axisymmetric problems; wave propagation.
- EML 6712** **EN 3(3,0)**  
**Mechanics of Viscous Flow:** PR: EML 5060, EML 5713. Principal concepts and methods for viscous fluid motion. Incompressible and compressible boundary layer analysis for laminar and turbulent flows.
- EML 6725** **EN 3(3,0)**  
**Computational Fluid Dynamics & Heat Transfer I:** PR: EML 5152 or C.I. Finite Difference methods; error and stability analysis; applications to model equations and further developments; matrix methods.
- EML 6726** **EN 3(3,0)**  
**Computational Fluid Dynamics & Heat Transfer II:** PR: EML 6725. Development of governing equations; turbulence modeling; numerical solution of Euler and potential equations, Navier-Stokes equations, and boundary layer equations; grid generation.
- ENV 5071** **EN 3(3,0)**  
**Environmental Analysis of Transportation Systems:** PR: EGN 3704, CWR 3201 or C.I. Prediction and abatement of pollution from transportation sources. Analysis techniques and environmental laws.
- ENV 5116C** **EN 3(2,3)**  
**Air Pollution Monitoring:** PR: ENV 4121C or C.I. Air pollution sampling techniques, equipment, and monitor siting. Emphasis on theory and direct applications in air pollution monitoring.
- ENV 5334** **EN 3(3,0)**  
**Characterization of Hazardous Waste Sites:** PR: CWR 4101C and ENV 4341 or C.I. Practical and comprehensive methods of hazardous waste site characterization, to determine site properties, contamination type, magnitude and risk, and remedial actions.

- ENV 5335** **EN 3(3,0)**  
**Hazardous Waste Management:** PR: EGN 3704 or C.I. Engineering planning and analysis associated with the handling, storage, treatment, transportation, and disposal of hazardous wastes.
- ENV 5413** **EN 3(3,0)**  
**Outdoor Noise Control:** PR: C.I. Community noise evaluations and control, legislative standards, instrumentation and measurement, abatement methods, and noise modeling.
- ENV 5415C** **EN 3(2,3)**  
**Potable Water Treatment:** PR: EES 4202C and EES 4111C. Engineering application of potable water chemistry involving coagulation, softening, filtration, corrosion, disinfection quality and drinking water.
- ENV 5505** **EN 3(3,0)**  
**Sludge Management Operations in Environmental Engineering:** PR: ENV 4561. Theory and design of sludge management operations and processes in environmental engineering, including stabilization dewatering and ultimate disposal.
- ENV 5615** **EN 3(3,0)**  
**Environmental Impact Assessment:** PR: C.I. Estimating, predicting, and evaluating the effects of projects, processes, and systems upon the environment, and upon human society.
- ENV 6015** **EN 3(3,0)**  
**Physical/Chemical Treatment Systems in Environmental Engineering:** PR: ENV 4561 and EES 4202C or C.I. Theory and design of physical and chemical operations and processes in environmental engineering using latest technologies.
- ENV 6016** **EN 3(3,0)**  
**Biological Treatment Systems in Environmental Engineering:** PR: EES 4111C and ENV 4561 or C.I. Theory and design of biological operations and processes in environmental engineering using the latest technologies.
- ENV 6017L** **EN 3(1,6)**  
**Unit Operations & Processes Laboratory:** PR: ENV 6015, ENV 6016, STA 3032 or C.I. Laboratory exercises in physical, chemical, and biological processes applicable to design. Experimental design and modeling of environmental engineering systems.
- ENV 6018** **EN 3(3,0)**  
**Environmental Engineering Process Control:** PR: ENV 4563, ENV 4561. Environmental systems using feedback and feedforward real-time Laplace or frequency domain dynamics.
- ENV 6055** **EN 3(3,0)**  
**Fate and Transport of Subsurface Contaminants:** PR: EES 4111C, EES 4202C, CWR 6125. Principal concepts and modeling of the physical, chemical, and biological transport and transformation processes for subsurface contaminants.
- ENV 6106** **EN 3(3,0)**  
**Theory and Practice of Atmospheric Dispersion Modeling:** PR: ENV 4121C or C.I. Atmospheric composition and dynamics. Engineering methods of mathematical modeling, both for point source and mobile source. Current computer models will be used.
- ENV 6126** **EN 3(3,0)**  
**Design of Air Pollution Controls:** PR: ENV 4121C. Current methods for engineering design and performance analysis of air pollution control equipment to include scrubbers, baghouses, electrostatic precipitators, VOC incinerators, others.
- ENV 6336** **EN 3(3,0)**  
**Site Remediation and Hazardous Waste Treatment:** PR: EES 4111C, EES 4202C, and ENV 4561 or C.I. Biological and physical/chemical remediation technologies, including theory and application, for groundwater and hazardous wastes.
- ENV 6347** **EN 3(3,0)**  
**Hazardous Waste Incineration:** Theory and applications of design and operations of hazardous waste incinerators. Includes detailed consideration of air pollution control equipment.
- ENV 6356** **EN 3(3,0)**  
**Solid Wastes Management:** PR: ENV 4341 or C.I. Study of the extent and characteristics of the solid waste problem, collection and disposal systems, environmental modeling and selected designs.

- ENV 6519** **EN 3(3,0)**  
**Aquatic Chemical Processes:** PR: EES 4202C and EES 4111C or C.I. The applicability of water chemistry and physical chemistry on natural waters and waste-water with emphasis on environmental engineering problems.
- ENV 6558** **EN 3(3,0)**  
**Industrial Waste Treatment:** PR: ENV 4561. Theories, methods, unit operations of management, reduction, treatment, disposal of industrial wastes.
- ENV 6616** **EN 3(3,0)**  
**Receiving Water Impacts:** PR: EES 4202C and EES 4111C or C.I. Study of fate and transport of pollutant loadings into receiving waters, based upon physical, chemical, and biological interactions in natural systems.
- ESI 5236** **EN 3(3,0)**  
**Reliability Engineering:** 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.
- ESI 5316** **EN 3(3,0)**  
**Operations Research:** Methods of operations research including formulation for models and derivation of solutions; linear programming, network models queuing theory, simulation and nonlinear optimization techniques.
- ESI 5451** **EN 3(3,0)**  
**Network Based Project Planning, Scheduling and Control:** PR: ESI 4312 or ESI 5316. Probabilistic and deterministic approaches for planning, scheduling, and controlling complex, large scale projects. PERT, CPM, resource leveling, risk analysis.
- ESI 5531** **EN 3(3,0)**  
**Discrete Systems Simulation:** PR: STA 3032 or STA 5156, COP 3215. Methods for performing discrete systems simulation, including network modeling, will be treated.
- ESI 6217** **EN 3(3,0)**  
**Statistical Aspects of Digital Simulation:** PR: STA 5156 or C.I. Statistical issues in digital simulation including input data analysis, pseudorandom number generation, experimental design, and simulation output analysis.
- ESI 6224** **EN 3(3,0)**  
**Quality Assurance Management:** PR: ESI 4234 or equivalent or C.I. Implementation and management of the quality assurance function. Planning and organization for quality, quality cost, Quality Audit and Corrective Actions.
- ESI 6225** **EN 3(3,0)**  
**Quality Analysis and Control:** PR: ESI 4234 or equivalent. Methods for quality improvement, statistical process control (SPC), process capability, sampling plans, MIL-STDs and Taguchi Methods.
- ESI 6227** **EN 3(3,0)**  
**Total Quality Management:** PR: ESI 6225 or equivalent. Origins and practices of the U.S. TQM movement. TQM as a competitive strategy. Productivity and performance improvement strategies with TQM.
- ESI 6336** **EN 3(3,0)**  
**Queuing Systems:** PR: STA 5156. Analysis of queuing systems and waiting line problems using analytical and Monte Carlo methods. Laboratory assignments.
- ESI 6358** **EN 3(3,0)**  
**Decision Analysis:** PR: ESI 4212 or ESI 5316. Classical Bayesian analysis; utility and its measurement; multiattribute utility methods; influence diagrams; Analytic Hierarchy Process; behavioral aspects; simulation.
- ESI 6427** **EN 3(3,0)**  
**Linear Programming and Extensions:** PR: ESI 4312 or ESI 5316. Simplex and Revised Simplex Method; interior-point methods; duality; large-scale optimization; decomposition algorithms; upper bounds; linearization; parametric LP; goal programming.

- ESI 6437** **EN 3(3,0)**  
**Nonlinear Mathematical Programming and Dynamic Programming:** PR: ESI 4312 or ESI 5316. Optimality conditions and algorithms for unconstrained and constrained nonlinear problems. Introduction to dynamic programming approach to multistage problems.
- ESI 6448** **EN 3(3,0)**  
**Network Analysis and Integer Programming:** PR: ESI 6427. Modeling and solution methods for problems that can be formulated in terms of flow in networks and for discrete optimization problems.
- ESI 6529** **EN 3(3,0)**  
**Advanced Systems Simulation:** PR: ESI 5531. Combined networks discrete and continuous simulation, applications, statistical analysis and comparison of simulation languages.
- ESI 6532** **EN 3(2,2)**  
**Object-oriented Simulation:** Object-oriented modeling and development techniques for building large process-based discrete event simulation models. Concurrency in discrete event simulation. Object-oriented simulation environment.
- MET 5710** **EN 3(3,0)**  
**Meteorology for Engineers:** PR: MAC 3313. Studies of the atmospheric processes from physical thermodynamics and synoptic viewpoints.
- TTE 5204** **EN 3(3,0)**  
**Traffic Engineering:** PR: TTE 4004. Study of operator and vehicle characteristics, and design for street capacity, signals, signs, and markings.
- TTE 5205** **EN 3(3,0)**  
**Highway Capacity and Traffic Flow Analysis:** PR: TTE 4004. Highway capacity for all functional classes of highways. Traffic signalization; including traffic studies, warrants, cycle length, timing, phasing and coordination.
- TTE 5700** **EN 3(3,0)**  
**Railroad Engineering:** PR: TTE 4004 and C.I. The major technical factors in location, construction, maintenance, and operation of railroad transportation systems.
- TTE 5805** **EN 3(3,0)**  
**Geometric Designs of Transportation Systems:** PR: TTE 4004. Study of geometric and construction design elements in the engineering of transportation systems.
- TTE 5835** **EN 3(3,0)**  
**Pavement Design:** PR: CEG 4101. Pavement types, wheel loads, stresses in pavement components, design factors such as traffic configurations, environmental, economic, drainage, and materials.
- TTE 6256** **EN 3(3,0)**  
**Traffic Operations:** PR: STA 3032; TTE 4004 and TTE 5204 or C.I. Fundamental theories and applications of traffic movements on streets and highways.
- TTE 6270** **EN 3(3,0)**  
**Intelligent Vehicle Highway Systems:** PR: TTE 4004 and TTE 5204 and C.I. Theories and applications of intelligent vehicle highway systems in transportation engineering.
- TTE 6526** **EN 3(3,0)**  
**Planning and Design of Airports:** PR: C.I. Background of aviation and airport development, aircraft characteristics. Planning and design of airport components. Heliport and STOL ports and pavement and drainage design.
- TTE 6625** **EN 3(3,0)**  
**Mass Transportation Systems:** PR: C.I. Planning, design, construction, operation, and administration of mass transportation systems.

EN 3630	EN 3637
Nonlinear Mathematical Programming and Dynamic Programming: PR: EN 4512 or EN 5218	Optimal control and algorithmic techniques and constrained nonlinear problems. Introduction to dynamic programming techniques in multivariable systems.
EN 3631	EN 3645
Network Analysis and Integer Programming: PR: EN 5427. Modeling and solution methods for problems that can be formulated in terms of flow in networks and for discrete optimization problems.	
EN 3632	EN 3653
Advanced Systems Simulation: PR: EN 5251. Combined network models and continuous simulation. Application, selection, analysis and comparison of simulation languages.	
EN 3633	EN 3652
Optimized Simulation: Object-oriented modeling and development techniques for building large discrete-event simulation models. Concurrency in discrete event simulation. Object-oriented simulation environments.	
EN 3634	MET 3710
Metamorphology for Engineers: PR: MET 3612. Studies of the metamorphic processes from physical and mathematical and synthetic viewpoints.	
EN 3635	TTE 3504
Traffic Engineering: PR: TTE 4004. Study of capacity and vehicle characteristics and design for roads, capacity, signal, signs and markings.	
EN 3636	TTE 3505
Highway Capacity and Traffic Flow Analysis: PR: TTE 4004. Highway capacity for all functions classes in highway. Traffic signalization, including traffic studies, warrants, cycle length, timing planning and coordination.	
EN 3637	TTE 3700
Railroad Engineering: PR: TTE 4004 and C.I. The major technical factors in railroad construction, performance, and operation of railroad transportation systems.	
EN 3638	TTE 3602
Geometric Design of Transportation Systems: PR: TTE 4004. Study of geometric and construction design elements in the engineering of transportation systems.	
EN 3639	TTE 3603
pavement Design: PR: CEQ 4101. Pavement types, wheel loads, stresses in pavement components, design factors such as traffic configurations, environmental, economic, drainage, and materials.	
EN 3640	TTE 3555
Traffic Operations: PR: STA 3032, TTE 4004 and TTE 5204 or C.I. Fundamental theories and application of traffic movements on streets and highways.	
EN 3641	TTE 3210
Intelligent Vehicle Highway System: PR: TTE 4004 and TTE 5204 and C.I. Theories and application of intelligent vehicle highway systems in transportation engineering.	
EN 3642	TTE 3622
Planning and Design of Airports: PR: C.I. Background of aviation and airport development, aircraft characteristics, planning and design of airport components, flight and STOL ports and pavement and drainage design.	
EN 3643	TTE 3615
Mass Transportation Systems: PR: C.I. Planning, design, construction, operation, and administration of mass transportation systems.	

# COLLEGE OF HEALTH AND PUBLIC AFFAIRS

The College of Health and Public Affairs offers seven graduate programs: the Master of Arts in Communicative Disorders, the Master of Science in Criminal Justice, the Master of Science in Health Services Administration, the Master of Science in Molecular Biology and Microbiology, the Master of Science in Nursing, the Master of Public Administration, and the Master of Social Work. 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 providing graduate education that exceeds national standards while meeting the research and service needs of the local community.

Departments in the college provide professional education, emphasizing the relationship between policy, practice and the importance of research. By focusing on the development of critical thinking and problem-solving skills, students receive an education that prepares them for a lifetime of professional and personal achievement.

## COLLEGE ADMINISTRATION

<i>B. R. McCarthy</i> .....	Dean
<i>M. Sweeney</i> .....	Associate Dean
<i>J. Dorner</i> .....	Associate Dean

## Faculty

### Communicative Disorders

<i>T. A. Mullin, Ph.D.</i> .....	Acting Chair and Associate Professor
<i>D. L. Hedrick, Ph.D.</i> .....	Professor
<i>D. L. Ratusnik, Ph.D.</i> .....	Professor
<i>R. E. Talbott, Ph.D.</i> .....	Professor
<i>D. B. Ingram, Ph.D.</i> .....	Associate Professor
<i>H. Parker, M.A.</i> .....	Assistant Professor
<i>J. Ryalls, Ph.D.</i> .....	Assistant Professor
<i>H. A. Utt, Ph.D.</i> .....	Assistant Professor
<i>M. Vanryckeghem, Ph.D.</i> .....	Assistant Professor

### Criminal Justice

<i>B. J. McCarthy, Ph.D.</i> .....	Chair and Professor
<i>B. R. McCarthy, Ph.D.</i> .....	Dean and Professor
<i>S. Mahan, Ph.D.</i> .....	Associate Professor
<i>R. Pyle, Ph.D.</i> .....	Associate Professor
<i>J. Sanborn, Ph.D.</i> .....	Associate Professor
<i>C. Bast, J.D.</i> .....	Assistant Professor
<i>D. Becker, M.S.</i> .....	Assistant Professor
<i>L. Calvert-Hanson, J.D.</i> .....	Assistant Professor
<i>P. Griset, Ph.D.</i> .....	Assistant Professor
<i>D. Hall, Ph.D.</i> .....	Assistant Professor
<i>M. Lanier, Ph.D.</i> .....	Assistant Professor
<i>K. Lucken, Ph.D.</i> .....	Assistant Professor
<i>D. Slaughter, J.D.</i> .....	Assistant Professor
<i>K. Cook, J.D.</i> .....	Internship Coordinator

### Health Services Administration

<i>G. H. Frazer, Ph.D.</i> .....	Chair and Associate Professor
<i>J. F. Bergner, Ph.D.</i> .....	Professor
<i>M. J. Sweeney, Ph.D.</i> .....	Associate Dean and Professor
<i>J. S. Lytle, M.S., M.P.H.</i> .....	Associate Professor
<i>T. S. Mendenhall, Ph.D.</i> .....	Associate Professor
<i>J. A. Valentine, Ph.D.</i> .....	Assistant Professor
<i>C. J. Barr, M.S.</i> .....	Instructor
<i>K.G. Youmans, M.P.A.</i> .....	Instructor

## Molecular Biology and Microbiology

<i>R. N. Gennaro, Ph.D.</i>	Chair and Professor
<i>O. M. Berringer, Ph.D.</i>	Professor
<i>M. J. Sweeney, Ph.D.</i>	Professor
<i>R. S. White, Ph.D.</i>	Professor
<i>R. J. Wodzinski, Ph.D.</i>	Professor
<i>J. F. Charba, Ph.D.</i>	Associate Professor
<i>D. W. Washington, Ph.D.</i>	Associate Professor
<i>D. F. Hitchcock, M.S.</i>	Instructor

## School of Nursing

<i>J. Dorner, M.N., RN</i>	Acting Director, Associate Dean and Associate Professor
<i>D. Wink, Ed.D., RNC</i>	Associate Director and Associate Professor
<i>G. Giovinco, Ph.D., Ed.D., RN</i>	Associate Professor
<i>R. Gropper, Ph.D., RN</i>	Associate Professor
<i>J. Kijek, Ph.D., RN</i>	Associate Professor
<i>M. L. Noll, Ph.D., RN, CCRN</i>	Associate Professor
<i>N. Peragallo, DrPH, RN</i>	Associate Professor
<i>F. Smith, Ed.D., RN</i>	Associate Professor
<i>V. Browne-Krimsley, Ed.D., RN</i>	Assistant Professor
<i>L. Hennig, M.A., RN</i>	Assistant Professor
<i>M. L. Brunell, M.S.N., RN</i>	Instructor
<i>M. Covelli, M.A., RN</i>	Instructor
<i>M. E. Ramey, M.N.Ed., RN</i>	Instructor

## Public Administration

<i>W. C. Lawther, Ph.D.</i>	Interim Chair and Associate Professor
<i>P. W. Colby, Ph.D.</i>	Professor
<i>R. B. Denhardt, Ph.D.</i>	Professor
<i>R. A. Shapek, Ph.D.</i>	Professor
<i>K. Denhardt, Ph.D.</i>	Associate Professor
<i>J. D. Jurie, D.P.A.</i>	Associate Professor
<i>M. P. Aristigueta, M.P.A.</i>	Instructor

## Social Work

<i>Ira C. Colby, DSW</i>	Chair and Professor
<i>D. Poole, Ph.D.</i>	Professor
<i>K. Kazmerski, DSW</i>	Associate Professor
<i>E. K. Suh, Ph.D.</i>	Associate Professor
<i>E. M. Abel, M.S.W.</i>	Assistant Professor
<i>C. E. Green, Ph.D.</i>	Assistant Professor
<i>A. Leon, Ph.D.</i>	Assistant Professor
<i>E. Pomeroy, Ph.D.</i>	Assistant Professor
<i>R. Kiam, M.S.W.</i>	Coordinator, Field Education

## COMMUNICATIVE DISORDERS

Professional education is offered in Communicative Disorders leading to the Master of Arts degree in Speech-Language Pathology. The program requires the equivalent of two years full-time attendance to complete and is designed to meet the certification requirements of the American Speech-Language-Hearing Association. The program is accredited by the Educational Standards Board of the American Speech-Language-Hearing Association. Full-time registration (at least 6 hours) in the program is required.

The faculty is keenly aware of the need for combining clinical skills with theoretical foundations. Supervised student practica are offered in the Communicative Disorders Clinic on campus as well as in external settings. Selected outstanding professionals in Central Florida (physicians, speech/language pathologists) make up the clinical faculty which supplements the clinical expertise of the regular faculty.

All students will enroll in SPA 6505 or 6506, Clinical Practica, or equivalents, each semester in attendance, with the exception of the semester they are enrolled in SPA 5553L, Differential Diagnosis in Speech and Language Laboratory, and the semester they are completing the thesis/non-thesis option. Students must complete 375 clock hours of



practicum experience as outlined by the American Speech-Language-Hearing Association before graduation.

**Admission Requirements for Communicative Disorders**

Admission to graduate status in the Master of Arts (M.A.) in Communicative Disorders degree program is based on the following:

- A. A baccalaureate degree from a regionally accredited college or university and a grade point average (GPA) of 3.0 (on a 4.0 scale) for the last 60 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. Every applicant must submit official GRE scores.
- B. Three letters of recommendation, preferably from former instructors.
- C. A letter of intent, stating background and experience, interest in the field, future goals, and the semester in which admission is desired.
- D. A copy of all transcripts from previously attended colleges and/or universities.
- E. A copy of the graduate application and GRE score report.

The department requires international students and students whose native language is not English to have a TOEFL score of 500.

Admission into the graduate program will be determined each semester. Students must have all required materials in the department by the deadline for consideration.

**Master of Arts in Communicative Disorders**

*Harold A. Utt* . . . . . Graduate Program Coordinator  
 Office: HPB 113, Phone (407) 823-2121  
 Brevard Campus (407) 631-5586

**Degree Requirements**

**PREREQUISITES**

B.A. in Speech and Hearing (Communicative Disorders) or special prerequisite courses to be arranged with the program coordinator.

All students must take STA 4163, Statistical Methods II, or equivalent, and achieve a grade of "C" or better prior to, or during, their graduate program. This course is a prerequisite to SPA 5805, Research in Communicative Disorders.

**REQUIRED COURSES**

**39 Semester Hours**

SPA	5307	Differential Diagnosis in Audiology	3 hours
SPA	5600	Administration and Management of Communicative Disorders	3 hours
SPA	5805	Research in Communicative Disorders	3 hours
SPA	6410	Language Problems in Adults: Aphasia and Other Symbolic Disorders	3 hours
SPA	5225	Fluency Disorders	3 hours
SPA	6553	Differential Diagnosis in Speech and Language	3 hours
SPA	6553L	Differential Diagnosis in Speech and Language Laboratory	1 hour
SPA	6132	Measurements in Speech Science	3 hours
SPA	6204	Advanced Studies in Communicative Disorders: Articulation	3 hours
SPA	6211	Voice Disorders	3 hours
SPA	6403	Language Disorders: School Age Language	3 hours
SPA	5236	Speech Problems in Adults: Motor Speech Disorders	3 hours
SPA	5404	Language Disorders: Pre-School	3 hours

**Electives:**

SPA	5225L	Fluency Disorders Laboratory	3 hours
SPA	6204L	Articulation Laboratory	3 hours
SPA	6211L	Voice Disorders Laboratory	3 hours

Two Seminars must be included in the Program of Study:

SPA	6407	Seminar in Language	2 hours
SPA	6526	Seminar in Speech Pathology	2 hours
SPA	6826	Seminar in Research	2 hours

**PRACTICUM credit toward degree**

**6 Semester Hours**

All students must register for three hours each semester while in attendance, with exceptions as noted in the graduate manual.

**THESIS/NON-THESIS OPTIONS**

Each student will complete a thesis or non-thesis option.

**Thesis Option**

**6 Semester Hours**

Students selecting the thesis option will complete a thesis in the area of speech/language pathology for six semester hours of credit. An advisory committee of three faculty members, chaired by a departmental faculty member, will be selected to guide the student through the thesis requirements. An oral defense of the thesis is required.

**Non-thesis Option**

**7 Semester Hours**

A student selecting the Clinical Internship option must complete six semester hours of Internship in Speech-Language Pathology. In addition, a student in the Clinical Internship option must register for one hour of Directed Research.

**EXAMINATIONS**

A final comprehensive examination on course work is required. This examination must be passed before a student can be considered a degree candidate.

Total Minimum Semester Hours Required:

Speech-Language Pathology

50 Semester Hours

**CRIMINAL JUSTICE**

*Pamela Griset* . . . . . Graduate Program Coordinator,  
Office: PH 116, Phone (407) 823-2603

The Master of Science in Criminal Justice will offer 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 will be examined. Students will also learn valuable research and computer skills.

The course of study will include an analysis of patterns and theories of criminal behavior; criminal justice administration, including critical problems facing law enforcement, courts, corrections, and the juvenile justice system; the relationship between law and the legal system; individual and organizational strategies for change; research methods, statistics, and computer technologies in criminal justice; and fieldwork in criminal justice agencies.

Federal, state, and local criminal justice agencies benefit from an informed and innovative workforce 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 students from a variety of settings. Some will be recent college graduates interested in pursuing a professional career in criminal justice. Others will be employees of criminal justice agencies interested in learning more about their field and advancing their careers. Still others will enter the program as a first step towards a Ph.D. in criminal justice or a related field. And some may be driven simply by a desire to enrich their intellectual lives. Whatever their motivations and background, graduates of the Masters program will be better prepared to meet the many challenges facing the criminal justice system today.

**Admission**

The Graduate Record Examination (GRE) is required of all graduate students. Minimum requirements for regular admission are a grade point average (GPA) of 3.0 for the last 60

semester hours of undergraduate study; or a total score of 1000 or higher on the verbal-quantitative sections of the GRE; or a previous graduate degree. Also, applicants will be asked to submit a personal statement reflecting their educational and career goals. Individuals whose native language is other than English are required to have a minimum TOEFL score of 550.

## Degree Requirements for M.S. Program in Criminal Justice

The M.S. program in Criminal Justice consists of 30 hours. Each student completes a core of 5 courses (15 semester hours), and advanced curriculum of 3 courses (9 semester hours) selected in consultation with an advisor, and 6 hours of field work or the equivalent number of semester hours from Criminal Justice or a related field.

Minimum Core Requirements			15 Semester hours
CCJ	5704	Research Methods in Criminal Justice	3 hours
CCJ	5011	The Nature of Crime	3 hours
CCJ	5456	The Administration of Justice	3 hours
CCJ	5706	Quantitative Methods Computer Utilization in Criminal Justice	3 hours
and ONE of the Following:			
CCJ	5105	Foundations of Law Enforcement	3 hours
		or	
CCJ	5305	Foundations of Corrections	
Advanced Curriculum			9 Semester hours
Choose three of the following:			
CCJ	5705	Applied Criminal Justice Research	
CCJ	6501	The Juvenile Justice System	
CCJ	6730	Planned Change and Innovation in Criminal Justice	
CCJ	6106	Policy Analysis in Criminal Justice	
CCJ	6217	Law and Social Control	
CCJ	6908	Independent Study	
CCJ	XXXX	Fieldwork	

(A student may not take over 6 hours total of Independent Study or Field Work)

### Total Number of Hours for a M.S. in Criminal Justice 30

Students may transfer up to six hours of related graduate course work toward the Master of Science degree. Only courses where the student earned a B or above will be accepted for transfer from an accredited university of college.

## HEALTH SCIENCES

*Gregory H. Frazer* . . . . . Chair and Graduate Program Coordinator  
Office: HPB 102, Phone (407) 823-2359

At this time, the only options for the degree program are in Health Services Administration and Medical Laboratory Sciences Specialization. The Medical Laboratory Sciences option is administered by the Department of Molecular Biology and Microbiology. Admission and degree requirements for the Medical Laboratory Sciences option are listed under the section for the Department of Molecular Biology and Microbiology. The program of study required for the Health Services Administration option is outlined below:

### Admission

Admission to graduate status in the Master of Science in Health Sciences/Health Services Administration program is based on the following:

- a. A baccalaureate degree from a regionally accredited college or university and a grade point average of 3.0 on a 4.0 scale for the last 60 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 semester hours and a GRE score of at least 1000 (A GMAT score of 500 may be used to satisfy this requirement). The GRE, GMAT or a graduate degree from a regionally accredited institution must not be over 7 years old.

- b. Submission of three letters of recommendation from individuals capable of assessing the applicant's ability to undertake graduate work.
- c. Completion of undergraduate course work comprising a knowledge of the U.S. health care systems, basic statistics, and personal computers.

Admission into graduate status is determined twice a year for the Fall and Spring semesters. All students must take the GRE or GMAT. After acceptance, all students must meet with their academic advisor to plan a program of study.

## HEALTH SERVICES ADMINISTRATION

### REQUIRED COURSES:

HSC	6636	Issues and Trends in the Health Care Industry
HSC	6911	Scientific Inquiry
PHC	6000	Epidemiology
HSA	5198	Information Systems and Computer Applications in Medicine
HSA	6107	Health Care Organization and Management I
HSA	6108	Health Care Organization and Management II
PHC	6160	Health Care Finance
PHC	6420	Case Studies in Health Law

### Electives:

Students must choose a minimum of five courses in consultation with the advisor. Electives may include a research project, thesis, independent study or courses from such areas as Business, Public Administration, Engineering, Computer Science, or Health Services Administration.

### Comprehensive Examination:

A final written examination is required of all students in the Program. The exam will be completed within the first four weeks of the term in which the student expects to graduate. Examinations will receive an evaluation of "pass," "conditional pass," or "fail." If a student receives a "conditional pass" on the comprehensive examination, a written re-examination will have to be taken covering the area failed. A student failing the examination must repeat the entire examination. All students must successfully pass the comprehensive examination to graduate.

### Thesis and Research Report Option:

Students may choose to do a research project or thesis with the consent of the academic advisor. Normally, three credit hours is earned for the research project and 6 for the thesis. Students should discuss this with the advisor when the program of study is completed.

**Total Hours Required for the Degree:**

**39 Semester Hours**

## MOLECULAR BIOLOGY AND MICROBIOLOGY

*R. M Gennaro* . . . . . Chair and Graduate Program Coordinator  
Office: BIO 330, Phone: (407) 823-5932

### Admission

The minimum requirements for consideration for graduate status in the M.S. Program in Molecular Biology and Microbiology are a grade point average (GPA) of at least 3.0 for the last 60 semester hours of undergraduate study and a score of at least 1000 on the combined quantitative-verbal sections of the Graduate Record Exam (GRE). Additionally, the department requires three letters of recommendation plus a written statement of past experience and research, area of interest, and immediate and long-range goals. Personal interviews are helpful but not required.

The department requires international students and students whose native language is not English to have a minimum TOEFL score of 550.

Applicants who fail to meet either the minimum program GPA or GRE requirement may occasionally be accepted if there is other convincing evidence of potential for high achievement and success. Applicants failing to satisfy minimum program criteria should submit a

GRE Subject Biochemistry, Cell and Molecular Biology Test score at or above the 50th percentile. In no case will GRE scores (verbal, quantitative, or advanced) older than five years be accepted.

Applicants need not have an undergraduate degree in molecular biology or microbiology but are expected to have the equivalent of 16 semester hours credit in biological sciences including a course in general microbiology, plus one year of organic chemistry, one year of physics, basic university mathematics and statistics, and laboratory skills equivalent to the minimum required of our own undergraduates. Minor deficiencies may be remedied after acceptance by enrollment at the first opportunity in an appropriate course.

### Examinations

A comprehensive examination is required of all students in the M.S. program. The comprehensive exam must be taken no later than the fourth week of that semester after the one in which the student completes all course work in the program of study. If a student fails the comprehensive examination, a minimum of four weeks must elapse before re-examination. The comprehensive exam may be taken a maximum of two times. In addition, an oral thesis defense is required. A minimum of four weeks must elapse between the comprehensive and thesis defense examinations.

### Master of Science Degree Requirements

The course and credit requirements will consist of a minimum of 30 semester hours of credit, including six credits of Thesis, two credits of Graduate Seminar, and such other courses as specified by the student's graduate committee in the Approved Program of Study.

#### MOLECULAR BIOLOGY AND MICROBIOLOGY

MCB	6554	Applied Microbiology	3 cr (3,0)
MCB	6407C	Laboratory Methods for Molecular Biology	5 cr (3,4)
MCB	5205	Infectious Processes	3 cr (3,0)
MCB	5505C	Virology	3 cr (2,3)
MCB	6417C	Microbial Metabolism	3 cr (3,1)
PCB	5235	Immunopathology	3 cr (3,0)
PCB	5806	Endocrinology	3 cr (3,0)
ZOO	5745L	Essentials of Neuroanatomy	4 cr (3,2)
MCB	6971	Thesis	1-6 cr

### SUMMARY OF M.S. DEGREE REQUIREMENTS

#### ADMISSION

1. 3.0 G.P.A. Last 60 semester hours and 1000 on GRE (quant. + verbal).
2. Three letters of recommendation.
3. TOEFL of 550.
4. 16 semester hours in Biological sciences, including one course in general microbiology, plus one year of organic chemistry, one year of physics, basic university math and statistics, and lab skills equivalent to the minimum of our undergraduate.

#### EXAMINATION

1. Comprehensive covering all course work in program of study.
2. Final thesis defense.

#### DEGREE REQUIREMENTS

Minimum of 30 semester hours, including six (6) semester hours of Thesis, and two (2) Semester hours of Graduate Seminars (1/2 6000 level ect.).

The MS degree in Health Science with the option in Medical Laboratory Sciences is administered by the Department of Molecular Biology and Microbiology. The admission requirements are listed below.

## MEDICAL LABORATORY SCIENCES SPECIALIZATION

*Dorilyn Hitchcock* . . . . . Medical Laboratory Sciences Coordinator  
Office: BIO 103, Phone (407) 823-2968

Advance professional education in Medical Laboratory Sciences is designed for the certified Medical Technologist (generalist or specialist). This program will allow for specialized instruction in one of 3 areas of interest, along with management and additional laboratory skills that advancing practitioners will find essential.

GRE and GPA admission requirements are the same as those stated for the MS program in Molecular Biology and Microbiology.

Prerequisite courses in biochemistry, immunology and statistics are required for admission. Students must choose and complete 12 credits of specialization courses and complete a minimum of 28 credits of core coursework.

### REQUIRED COURSES:

**28 Semester Hours**

PCB	5235	Immunopathology	3 hours
BSC	6407	Lab Methods for Molecular Biology	5 hours
PHC	6160	Health Care Finance	3 hours
HSA	6107	Health Care Organization & Management I	3 hours
HSA	6108	Health Care Organization & Management II	3 hours
MLS	6909	Research Report	3 hours
MLS	6938	MLS Graduate Seminars	2 hours
PHC	6000	Epidemiology	3 hours
PHC	6420	Case Studies in Health Law	3 hours

### Electives:

Students must choose a minimum of 4 courses within a specialty area of MLS.

#### \*Immunohematology

**12 Semester Hours**

MLS	6940	Practicum I	3 hours
MLS	6941	Practicum II	3 hours
MLS	6942	Practicum III	3 hours
MLS	6943	Practicum IV	3 hours

\*Contingent on acceptance and completion of the Specialist in Blood Bank program at Central Florida Blood Bank.

#### Microbiology:

**12 Semester Hours**

APB	5236	Applied Microbiology	3 hours
MCB	5505C	Virology	3 hours
MCB	6417	Microbial Metabolism	3 hours
MCB	5205	Infections Processes	3 hours

#### Laboratory Management

**12 Semester Hours**

MAN	6206	Organization Behavior & Management	3 hours
MAR	5055	Marketing Concepts	3 hours
PAD	6335	Strategic Planning & Management	3 hours
MLS	5XXX	Concepts in Laboratory Management	3 hours

### Comprehensive Exam:

A final written examination is required of all students in the Program. The exam will be completed within the first four weeks of the term in which the student expects to graduate. Examinations will receive an evaluation of "pass," "conditional," or "fail." If a student received a "conditional" on the comprehensive examination, a written re-examination will be administered covering the area failed. A student failing the examination must repeat the entire examination. All students must pass the comprehensive examination to graduate.

**TOTAL HOURS REQUIRED FOR THE DEGREE:**

**40 Semester Hours**

## NURSING

Mary Lou Noll ..... Graduate Program Coordinator  
HPB 423, Phone (407) 823-2744

The Master of Science in Nursing (M.S.N.) program is designed to build upon the student's baccalaureate nursing education and professional experience. The goals of the program are to prepare advanced nurse practitioners and administrators to assume leadership position in a variety of health care settings.

The program will prepare the student to:

1. Analyze theories as they apply to profession, health care system, and political systems.
2. Analyze social, economic, ethical, legal, and political issues influencing nursing practice and health care delivery.
3. Synthesize advanced knowledge from the sciences, the humanities, and nursing theories to support advanced nursing practice.
4. Participate in research and disseminate research findings.
5. Use nursing research findings to improve nursing practice.
6. Demonstrate critical thinking skills in planning, evaluating, and changing the delivery of health care.
7. Develop and implement leadership, management, and teaching strategies for the improvement of health care.
8. Collaborate with others to improve the quality of professional nursing practice and the health care system.
9. Assume responsibility for improving the delivery of health care and influencing health policy.
10. Practice in an advanced nursing role. (Graduates of the FNP program who complete the FNP Practicum Elective will be eligible to sit for the ANA certification examination.)

### Programs in Nursing

Two majors are offered at this time: Family Nurse Practitioner and Nursing Administration.

### Admission Requirements

Requirements for admission to the program include the following:

1. A baccalaureate degree in nursing. Program should be NLN accredited.
2. An overall grade point average of 3.0 (on a 4.0 scale) for last 60 hours of undergraduate work.
3. A minimum GRE score of 1000 on the verbal/quantitative sections.
4. Licensure as a Registered Nurse in Florida.
5. One year (or equivalent) experience as a Registered Nurse.
6. Completion of undergraduate courses in statistics and health assessment.
7. Letter of intent stating interest in the field and career goals.
8. A resume or vitae (no longer than 2 pages) stating background and experiences.
9. Three references on School of Nursing form
10. Professional liability insurance coverage.
11. TOEFL score of 500 (International students only)

### Degree Requirements

Graduate students must complete a minimum of 36-43 semester hours of graduate level course work, depending on major. Either a thesis or research utilization project is required.

All students must take the following required courses:

NGR	5110	Theoretical Bases in Nursing	3 cr (3,0)
NGR	5195	Issues in Nursing and Health Care Policy	3 cr (3,0)
NGR	5810	Research Methods in Nursing	3 cr (3,0)
NGR	6840	Statistical Methods in Nursing Research	3 cr (3,0)
NGR	6971	Thesis or Research Utilization Project	3 cr (3,0)
OR			
NGR	6813	Research Utilization Project	3 cr (3,0)

**Total Hours Required**

**15 credits**

**Requirements for Nurse Practitioner Majors:**

NGR	5155	Health Promotion Across the Lifespan	3 cr (3,0)
NGR	5141	Pathophysiological Bases for Advanced Nursing Practice	3 cr (3,0)
NGR	5002C	Advanced Health Assessment	3 cr (2,1)
NGR	5192	Pharmacology for Advanced Nursing Practice	3 cr (3,0)
NGR	6600C	Family Nurse Practitioner I	4 cr (2,2)
NGR	6601C	Family Nurse Practitioner II	4 cr (1,3)
NGR	6602C	Family Nurse Practitioner III	4 cr (1,3)
NGR	6603C	Family Nurse Practitioner Practicum Elective	4 cr (6,4)
		Required courses (listed above)	15 credits

**Total Hours Required****43 credits****Requirements for Nursing Administration Majors:**

NGR	5720	Organizational Dynamics	3 cr (3,0)
NGR	6722	Financial Mgt. and Resource Development	3 cr (3,0)
HSA	5198	Information systems and Computer Applications	3 cr (3,0)
NGR	6723	Nursing Administration I	4 cr (2,2)
NGR	6724	Nursing Administration II	5 cr (2,3)
NGR		Elective	3 cr (3,0)
		Required courses (listed above)	15 credits

**Total Hours Required****35 credits****PUBLIC ADMINISTRATION**

*Kathryn Denhardt* ..... Graduate Program Coordinator  
Office: HPB 202, Phone (407) 823-2604

**Admission**

The Graduate Record Examination (GRE) is required of all graduate students. Minimum requirements for regular admission are a grade point average (GPA) of 3.0 for the last 60 semester hours of undergraduate study or a total score of 1000 or higher on the verbal-quantitative sections of the GRE or a previous graduate degree. A limited number of students who do not meet these requirements but who do have at least a 2.5 GPA and an 800 GRE score may be admitted on a provisional basis. These students must demonstrate proven public sector leadership experience, present strong recommendations from either academic or professional advisors, and provide a clear statement of education goals. More specific information on provisional admissions may be obtained from the department. Individuals whose native language is other than English are required to have a minimum TOEFL score of 550.

**Program in Public Administration**

The Department of Public Administration's Master of Public Administration (M.P.A.) degree program provides opportunities for students to prepare for employment or advance their careers as public administrators. Our intention is to produce graduates equipped with the public management skills and analytic techniques needed for successful careers in government, non-profit, and closely-related business fields.

**Master of Public Administration Degree Requirements**

The M.P.A. Program consists of 36-42 hours. Each student completes a core of eight courses (24 hours), an advanced curriculum of three courses (9 hours) selected in consultation with the advisor, and a capstone experience equivalent to one course (3 hours). Those students without practical administrative experience in the public sector must complete an internship (3 hours). Finally, a research report option is available for students wishing to complete a more substantial research project than might be accommodated in the other courses.

**MINIMUM CORE REQUIREMENTS****24 Semester Hours**

PAD	6053	Public Administrators in the Governance Process
PAD	6035	Public Administrators in the Policy Process



PAD	6700	Analytic Techniques for Public Administrators I
PAD	6701	Analytic Techniques for Public Administrators II
PAD	6037	Public Organization Management
PAD	6227	Public Budgeting and Financial Management
PAD	6417	Human Resource Management
PAD	6335	Strategic Planning and Management

**ADVANCED CURRICULUM**

**9 hours**

An advanced curriculum of at least three courses that concentrate on a specific area germane to the practice of public administration may be taken within the Department of Public Administration or from other departments. Those elective courses offered within the Department will provide an emphasis on state and local government; however, other emphases may be developed in consultation with the advisor.

**CAPSTONE EXPERIENCE**

**3 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. This course will be graded on a pass/fail basis.

**INTERNSHIP**

**3 hours**

The internship, required of students without experience in a public sector administrative position, will provide the student with the opportunity to apply theory and analytic techniques to a real world situation. The student will be required to submit a summary and critique paper on the experience to the department's internship coordinator at the end of the assignment.

**RESEARCH REPORT (Optional)**

**6 hours**

Six semester hours of credit may be earned by completing an independent investigatory research report which results in a report acceptable to the department's graduate committee. Three of the six hours credit for the research report may substitute for three hours of the advanced curriculum requirement. This option is available only by permission of the graduate program coordinator.

**TOTAL HOURS**

**36-42 Semester Hours**

Basic Requirements (Core, Advanced Curriculum, Capstone Experience)	36 hours
Basic Requirements plus Internship	39 hours
Basic Requirements plus Research Report	39 hours
Basic Requirements plus Internship plus Research Report	42 hours

**SOCIAL WORK**

**(M.S.W.) in CLINICAL SOCIAL WORK PRACTICE**

*Dennis Poole* ..... Graduate Coordinator  
Office: TR 42 Phone (407) 823-2114

The master degree program in social work (M.S.W.) is focused on the study of rehabilitative and preventive interventions aimed at reducing the impact of social problems on families and individuals. This advanced degree in social work prepares students for licensed clinical practice in Florida.

The UCF program in CLINICAL SOCIAL WORK PRACTICE prepares students for clinical specialist practice functions, particularly in urban settings. "Clinical Specialist Practice Functions" consist of (a) resolving client problems through individual, family, and group therapies, and (b) preventing social problems.

The M.S.W. program is in candidacy status for accreditation by the Council on Social Work Education.

## **Admission Policy**

Students begin coursework in Social Work in the Fall semester only. Potential students make application to the Graduate School of the University of Central Florida and take the GRE test. UCF requires the following of all applicants to the MSW program:

- ◆ Bachelor 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 semester credit hours of college studies; or, a score of at least 1000 on the required GRE.
- ◆ One official transcript of all undergraduate and graduate course work attempted and/or completed, and a resume that outlines work experience. Three references (one academic, one employment, and one applicant's choice). If an employment reference is not available, then a personal reference may be submitted in support of graduate study. If a person graduated more than five years ago, that applicant may substitute work or personal references in place of academic references.
- ◆ One college level course in each of the following six areas: biology, English or communications, culture, mathematics or computer science, psychology, and sociology.
- ◆ A medical history report on the UCF health form.
- ◆ A typed PERSONAL STATEMENT. Directions for completing this statement may be obtained from the Department of Social Work. In the statement the applicant describes reasons and experiences leading to the choice 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 Graduate Admissions Office; and TOEFL test results.

Students in the program are expected to demonstrate initiative, dependability, social concern, self awareness, appreciation for diversity in others, problem solving ability, ease in relating with others, skill in writing and speaking, and professional ethics.

## **Full-time Study**

The full-time program includes two years of full-time study in residence. The program includes 24 semester credits in class work and 6 semester credits in field education. The second-year of study includes 22 semester credits in class work and 8 semester credits in the field.

## **Advanced Standing**

If the criteria for admission are met, applicants with baccalaureate degrees in social work from a CSWE-accredited school/program are invited to apply for Advanced Standing admission to the Master of Social Work program. Admission with Advanced Standing is limited to those who demonstrate the potential to meet the academic demands of the program and adequate preparation for MSW practice with only one year of graduate study.

In Advanced Standing admission, a maximum of 30 undergraduate credits may be accepted as transfer credits to the MSW program. These credits are accepted to meet specific 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.

## **Part-time Study**

Applicants may be admitted as part-time students to either the regular M.S.W. program or advanced standing M.S.W. program. Careful advanced planning is required to ensure that all requirements will be met. Part-time students must follow an educational plan that provides for the appropriate sequencing of courses. Students are required to complete a minimum of six credit hours each semester while enrolled in the part-time program. The entire degree may be completed on a part-time basis; however, the plan of study must be completed within a four-year time span.

## **Field Instruction**

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 foun-

dition and advanced practice skills. Decisions regarding the field assignment are jointly reached by the student and the director of Field Placements. Only sites on the Department's approved list may be used for field instruction. First year M.S.W. students complete a minimum of 448 hours in the field; advanced students complete a minimum of 608 clock hours in the agency.

## CURRICULUM

### PREREQUISITES

**18 Semester Hours**

Introductory college-level courses or equivalents are required before admission into the program.

Biology	English or Communications
Psychology	Mathematics or Computer Science
Sociology	Culture

### Foundation: GENERALIST SOCIAL WORK PRACTICE

**30 Semester Hours**

SOW	5305	Social Work Practice I: Generalist Practice	3 hours
SOW	5306	Social Work Practice II: Interventions	3 hours
SOW	5105	Human Behavior and Social Environment I: Individuals	3 hours
SOW	5106	Human Behavior and Social Environment II: Social Systems	3 hours
SOW	5404	Social Work Research	3 hours
SOW	5432	Evaluating Social Work	3 hours
SOW	5235	Social Welfare Policies & Services	3 hours
SOW	5132	Client Populations	3 hours
SOW	5532	Field Education I: Generalist Practice (224 clock hours)	3 hours
SOW	5533	Field Education II: Interventions (224 clock hours)	3 hours

### ADVANCED: CLINICAL SPECIALIST

**30 Semester Hours**

SOW	6348	Clinical Practice with Individuals	3 hours
SOW	6324	Clinical Practice with Groups	3 hours
SOW	6612	Clinical Practice with Families	3 hours
SOW	6123	Psychosocial Pathology: An Urban Perspective	3 hours
SOW	6246	Urban Problems and Policies	2 hours
SOW	6914	Research Project: Clinical Practice in Urban Setting	2 hours
SOW	6535	Field Education III: Clinical Practice — Individuals & Families (304 clock hours)	4 hours
SOW	6536	Field Education IV: Clinical Practice-Groups (304 clock hours)	4 hours

Practice Elective 3 hours

Practice or General Elective 3 hours

**Total credit hours 60 hours**

## COURSE OFFERINGS

- CCJ 5011** **HPA 3(3,0)**  
**The Nature of Crime:** This course provides an overview of major dimensions of crime in the U.S.; epidemiology of crime, costs of crime, and typologies of crime and criminals.
- CCJ 5105** **HPA 3(3,0)**  
**Foundations of Law Enforcement:** This course will examine law enforcement systems in the United States and issues that influence the police; individual, group, social, legal, economic, and political manifestations.
- CCJ 5305** **HPA 3(3,0)**  
**Foundations of Corrections:** This course provides an overview of the field of corrections, including a discussion of theories of punishment and their implications for the punishment of offenders.
- CCJ 5456** **HPA 3(3,0)**  
**The Administration of Justice:** This course provides an overview of the criminal justice system and a critical analysis of formal and informal processing of offenders by criminal justice agencies.
- CCJ 5704** **HPA 3(3,0)**  
**Research Methods in Criminal Justice:** An examination of the philosophy and techniques of research as applied in the Criminal Justice field.
- CCJ 5706** **HPA 3(3,0)**  
**Quantitative Methods and Computer:** Provides a working knowledge of statistical techniques in criminal justice research using criminal justice databases. The student will develop interpretive ability of statistical results using SPSS.
- CCJ 6106** **HPA 3(3,0)**  
**Policy Analysis in Criminal Justice:** This course is designed to familiarize students with the causes and consequences of public policy with an emphasis on criminal justice policy.
- CCJ 6217** **HPA 3(3,0)**  
**Law and Social Control:** This course will examine the types of behavior the state has sought to control and the means employed to exert such control.
- CCJ 6501** **HPA 3(3,0)**  
**The Juvenile Justice System:** This course will focus on the development and philosophy of the Juvenile Justice System; the measurement of delinquency, theories and correlates of delinquency and prevention.
- CCJ 6705** **HPA 3(3,0)**  
**Applied Criminal Justice Research:** Upon successful completion of this course the student will gain an understanding of the major philosophical, theoretical, and conceptual approaches to evaluation research.
- CCJ 6730** **HPA 3(3,0)**  
**Planned Change and Innovation in Criminal Justice:** This course will provide participants with an understanding of planned individual and organizational change so that they may become successful agents of such change.
- HSA 5198** **HPA 3(3,0)**  
**Information Systems and Computer Applications in Medicine:** PR: C.I. Overview of health information systems with an emphasis on computer applications. Discussion of software and hardware requirements.
- HSA 6107** **HPA 3(3,0)**  
**Health Care Organization and Management I:** Study of health care organizations, including modern management, organizational structure, systems control, human performances, planning, and leadership.
- HSA 6108** **HPA 3(3,0)**  
**Health Care Organization and Management II:** PR: HSA 6107, HSA 5148, HSC 6911. Emphasis on planning, development, marketing approaches, and problem solving using computer methods.
- HSA 6815** **HPA 2-6(0,20)**  
**Practicum in Health Care Management:** PR: Graduate status or C.I. Supervised practicum in health care institution management.

- HSC 6132** **HPA 3(3,0)**  
**Health Care Finance:** PR: ACC 5004, FIN 5405, Graduate status. The identification of resources available to health care institutions, allocation of resources and control of resource expenditures.
- HSC 6245** **HPA 3(3,0)**  
**Community Health Education:** Development and evaluation of community health education programs within voluntary health organizations. HMOs, hospitals, and academic institutions.
- HSC 6247** **HPA 3(3,0)**  
**Health Science Curriculum Development:** PR: Graduate status or C.I. Developing an instructional plan for Health Science curriculum including goal and task analysis, performance objectives, varied learning experiences and student evaluation.
- HSC 6306** **HPA 3(3,0)**  
**Organization and Management of Health Science Programs:** PR: Graduate status or C.I. Management of professional health education programs in various institutional settings: university, community college, academic medical centers. Includes program planning, development, and evaluation.
- HSC 6392** **HPA 3(3,0)**  
**Issues and Trends in the Health Professions:** PR: Graduate status or C.I. Exploration of current status, issues, problems and future trends in the practice and education of health professions.
- HSC 6402** **HPA 3(3,0)**  
**Environmental Health:** PR: Graduate status or C.I. Recognition and evaluation of control problems arising from environmental contamination, which includes safe water supply, waste disposal, and food resources.
- HSC 6412** **HPA 3(3,0)**  
**Epidemiology:** PR: Graduate status or C.I. A study of the distribution and determinants of diseases and injuries in human populations.
- HSC 6513** **HPA 3(3,0)**  
**Principles and Practice of Medicine:** PR: Graduate status or C.I. A comprehensive survey of medicine.
- HSC 6555** **HPA 3(3,0)**  
**Principles and Applications of Medicine:** PR: HSC 4550 or comparable course. The study of medical principles and conditions and their applications to health management and health education settings.
- HSC 6556** **HPA 3(3,0)**  
**Current Concepts in Pathophysiology Mechanisms:** PR: HSC 4550 or equivalent, Human Anatomy and Physiology or C.I. A study of pathophysiologic mechanisms in causation and evolution of various disease states with special emphasis on recent work.
- HSC 6559** **HPA 3(3,0)**  
**Prevention of Cardiovascular Disease:** Current methods of prevention and management of major cardiovascular disturbances. Diagnostic measures, intervention techniques for prevention, and rehabilitation and management methods.
- HSC 6568** **HPA 3(3,0)**  
**Issues in Geriatric Health Care:** Identification of the health care needs of the elderly and the services required to meet them. Analysis of the current issues, problems, and trends in geriatric health.
- HSC 6575** **HPA 3(3,0)**  
**Principles of Preventive Medicine:** Total concept of health care including methods of screening, diagnosis, treatment, rehabilitation, and promotion of health in diverse populations.
- HSC 6605** **HPA 3(3,0)**  
**Health and Society:** PR: Graduate status or C.I. Understanding health and illness as defined by patients, providers, and other persons in the social system.
- HSC 6636** **HPA 3(3,0)**  
**Issues and Trends in the Health Professions:** Exploration of current status, issues, problems, and future trends in the practice and education of health professions.
- HSC 6815** **HPA 2-6(0,20)**  
**Practicum in Health Science Education:** PR: Graduate status or C.I. Supervised practicum in academic, clinical, or community instructional program.

<b>HSC 6909</b> <b>Research Report</b>	<b>HPA 3(3,0)</b>
<b>HSC 6911</b> <b>Scientific Inquiry in the Health Profession:</b> PR: Graduate status or C.I. Research design and evaluation in health professions.	<b>HPA 3(3,0)</b>
<b>HSC 6911</b> <b>Scientific Inquiry in the Health Professions:</b> PR: STA 2014 or comparable course. The course will cover research design and evaluation, theory building, and biostatistics.	<b>HPA 3(3,0)</b>
<b>HSC 6971</b> <b>Thesis</b>	<b>HPA 1-6</b>
<b>HUN 5937</b> <b>Nutrition and Exercise Physiology:</b> This course correlates human nutrition with exercise physiology. Nutritional concepts are related to human performance and fitness.	<b>HPA 3(3,0)</b>
<b>LIN 5705</b> <b>Psycholinguistics:</b> PR: Graduate status or C.I. Foundations of language in affective consciousness and the human nervous system. Pragmatic analysis of word meaning and its precise scientific measurement. Implications for communicative disorders.	<b>HPA 3(3,0)</b>
<b>MCB 5205</b> <b>Infectious Processes:</b> PR: MCB 3013C or C.I. Discussion of current theories of the infectious process and the response of host cells and tissue to infection.	<b>HPA 3(3,0)</b>
<b>MCB 5505C</b> <b>Virology:</b> PR: MCB 3013C and BCH 4053. Nature of viruses and other intracellular parasites, including structure nomenclature, isolation, propagation and identification.	<b>HPA 4(3,3)</b>
<b>MCB 5654</b> <b>Applied Microbiology:</b> PR: MCB 3013C or C.I. Biochemistry of industrial processes including: economics, screening, scale up, quality control and applied genetics.	<b>HPA 3(3,0)</b>
<b>MCB 6407C</b> <b>Laboratory Methods for Molecular Biology:</b> PR: PCB 4524 or MCB 4404. Experimental techniques and design in laboratory biological research.	<b>HPA 5(3,4)</b>
<b>MCB 6417C</b> <b>Microbial Metabolism:</b> PR: C.I. Relationship between microbial metabolism and and principal cellular activities, emphasizing transport, respiration, differentiation and synthesis.	<b>HPA 3(3,0)</b>
<b>MCB 6971</b> <b>Thesis</b>	<b>HPA 1-6</b>
<b>MLS 5512</b> <b>Clinical Immunology:</b> PR: PCB 3233, MLS 4511, or C.I. Advanced theory and application of immunologic diagnostic testing stressing the utilization of monoclonal technology.	<b>HPA 3(3,0)</b>
<b>MLS 5710</b> <b>Current Concepts in Laboratory Mgmt.:</b> Overview of current administration and supervision concepts in a clinical laboratory to include laboratory planning, personnel administration, and financial management.	<b>HPA 3(3,0)</b>
<b>MLS 6340</b> <b>Advanced Hemostasis:</b> PR: MLS 4334C or C.I. Examination of current theories and practice and the relationship to pathophysiologic processes in hemostasis.	<b>HPA 3(3,0)</b>
<b>MLS 6940</b> <b>Advanced Clinical Practicum I:</b> PR: C.I. Advanced clinical experience related to current practices and trends in one of the following areas of clinical laboratory technology: immunohematology; hematology; clinical chemistry; immunopathology; clinical microbiology; electron microscopy or toxicology.	<b>HPA 3(2,15)</b>
<b>MLS 6941</b> <b>Advanced Clinical Practicum II:</b> PR: C.I. Advanced study in one of the clinical laboratory areas.	<b>HPA 3(2,15)</b>

- MLS 6942** **HPA 3(2,15)**  
**Advanced Clinical Practicum III:** PR: C.I. Advanced study in one of the clinical laboratory areas.
- MLS 6943** **HPA 3(2,15)**  
**Advanced Clinical Practicum IV:** PR: C.I. Advanced study in one of the clinical laboratory areas.
- NGR 5002C** **HPA 3(2,1)**  
**Advanced Health Assessment:** PR: Basic Health Assessment course; current RN license in FL; Bacc. Degree in Nsg. Concepts and skills of advance physical/behavior health assessment over the lifespan.
- NGR 5110** **HPA 3(3,0)**  
**Theoretical Bases in Nursing:** PR: Bacc. Degree in Nsg. Exploration and analysis of the philosophical, conceptual and theoretical bases of Nursing.
- NGR 5141** **HPA 3(3,0)**  
**Pathophysiological Bases for Advanced Nursing Practice:** PR: Bacc. Degree in Nsg. Critical examination of the physiological and pathophysiological mechanisms affecting individuals.
- NGR 5155** **HPA 3(3,0)**  
**Health Promotion Across the Lifespan:** PR: Bacc. Degree in Nsg. Application of theories and models of health promotion, education, motivation, assessment and planning. Promotion and maintenance of health from conception to death.
- NGR 5195** **HPA 3(3,0)**  
**Issues in Nursing and Health Care Policy:** PR: Bacc. Degree in Nsg. Study of selected legal, ethical, socio-cultural, and policy issues related to advanced nursing practice and health care delivery systems.
- NGR 5720** **HPA 3(3,0)**  
**Organizational Dynamics:** PR: Bacc. Degree in Nsg. Analysis of theories and models of health care organizational systems. Emphasis on nursing administration roles.
- NGR 5721** **HPA 3(3,0)**  
**Dimensions of Nursing Administration:** PR: Bacc. Degree in Nsg. Basic principles and organization theory for nursing administration.
- NGR 5810** **HPA 3(3,0)**  
**Research Methods in Nursing:** PR: Undergraduate statistics course; Bacc. Degree in Nsg. Study of research designs, qualitative and quantitative methods commonly used in nursing research. Proposal development and research utilization.
- NGR 6192** **HPA 3(3,0)**  
**Pharmacology for Advanced Nursing Practice:** PR: Pathophysiological Bases for Advanced Nursing Practice. Comprehensive study of medications used in the promotion and maintenance of health across the lifespan. Examination of the implications for advanced nursing practice.
- NGR 6600C** **HPA 4(2,2)**  
**Family Nurse Practitioner I:** PR: Theoretical Bases in Nursing; Pathophysiological Bases for Advanced Nursing Practice; Advanced Health Assessment; Adm. to MSN program. Foundation of the specialized role of the family nurse practitioner. Application of principles of case management with selected individuals and groups.
- NGR 6601C** **HPA 4(1,3)**  
**Family Nurse Practitioner II:** PR: Research Methods in Nursing, Pharmacology for Advanced, FNP I Nursing Practice, Health Promotion Across the Lifespan. Theoretical and clinical bases for early diagnosis and therapeutic intervention of health care problems of individuals and families throughout the lifespan.
- NGR 6602C** **HPA 4(1,3)**  
**Family Nurse Practitioner III:** PR: FNP II, Issues in Nursing and Health Care Policy. Theoretical and clinical bases for management of high risk problems within families and target populations.
- NGR 6603L** **HPA 4(0,4)**  
**Family Nurse Practitioner Practicum:** PR: Family Nurse Practitioner III. Supervised advanced clinical practice in the role of the family nurse practitioner in a variety of clinical settings.

- NGR 6722** **HPA 3(3,0)**  
**Financial Management and Resource Development:** PR: Admission to MSN program; Organizational Dynamics. Comprehensive overview of health care economics for the nurse executive; financial management, resource development and impact of nursing and health care services.
- NGR 6723** **HPA 4(2,2)**  
**Nursing Administration I:** PR: Adm. to MSN program, Theoretical Bases in Nursing; Organizational Dynamics. Theories and principles of nursing administration: Nursing care delivery systems, program evaluation, staffing, personnel management, issues and trends.
- NGR 6724** **HPA 5(2,3)**  
**Nursing Administration II:** PR: Nursing Administration I; Financial Management and Resource Development. Continuing of Nursing Administration I.
- NGR 6813** **HPA 3(3,0)**  
**Research Utilization Project:** PR: Statistical Methods in Nursing Research. Development of a project which evaluates nursing research findings for applicability to practice.
- NGR 6840** **HPA 3(3,0)**  
**Statistical Methods in Nursing Research:** PR: Research Methods in Nursing. Data analysis and interpretation of quantitative and qualitative research methods in nursing. Use of computerized statistical software.
- PAD 5041** **HPA 3(3,0)**  
**Ethics and Values in Public Administration:** Issues of ethics in the public sector — the basis for public concern, past practice, present patterns of response; individual/social aspects of ethical behavior.
- PAD 5336** **HPA 3(3,0)**  
**Introduction to Urban Planning:** PR: C.I. Issues of urbanization, regional development, land use and comprehensive planning, environmental planning, and social planning.
- PAD 5337** **HPA 3(3,0)**  
**Urban Design:** PR: C.I. Planning techniques such as planned unit developments, capital improvements planning, and growth management, and planning methods including needs assessment and graphic design.
- PAD 5338** **HPA 3(3,0)**  
**Land Use and Planning Law:** Review of national and local aspects of the legal underpinnings of urban planning aspects such as
- PAD 5425** **HPA 3(3,0)**  
**Dispute Resolution in the Public Sector:** An examination of the skills needed to resolve disputes in the public sector through facilitation, mediation, and other alternative methods.
- PAD 5427** **HPA 3(3,0)**  
**Labor Relations in the Public Sector:** Current trends and developments in employment relations in the public sector, especially employee organization, negotiations, and the collective bargaining process.
- PAD 5806** **HPA 3(3,0)**  
**Local Government Operations:** Operational functions of municipal and county governments and the role of the chief executive officer.
- PAD 5807** **HPA 3(3,0)**  
**Administrative Practice in the Public Sector:** Application of various theoretical concepts to the real world of public administration. Policy formulation and execution is examined through the case study model.
- PAD 6035** **HPA 3(3,0)**  
**Public Administration in the Policy Process:** Analysis of the role of the public administrator in the analysis, formulation, implementation, and evaluation of public policies, especially at the state and local level.
- PAD 6037** **HPA 3(3,0)**  
**Public Organization Management:** Structure, functioning, performance of public organizations, and behavior of individuals and groups, application for public management, includes both macro and micro approaches to organizational behavior.



- PAD 6053** **HPA 3(3,0)**  
**Public Administrators in the Governance Process:** An examination of the political, social, economic, and moral context of modern public administration, with special attention to the ethical dimensions of the administrator's role.
- PAD 6062** **HPA 3(3,0)**  
**Advanced Concepts and Applications in Public Administration:** PR: Completion of all core requirements. An integrative course applying the skills, knowledge, and values considered in the program to selected public problems. This course will be taught on a pass/fail basis.
- PAD 6227** **HPA 3(3,0)**  
**Public Budgeting and Financial Management:** Budgets as planning programming documents, stressing the relationships of policy and budgetary decisions, problems in grantsmanship and revenue decision making, program budgeting, PPBS and incrementalism.
- PAD 6307** **HPA 3(3,0)**  
**Policy Implementation:** Program analysis and organization structure as policy tools, examining the implementation of differential policy and the administrator as policy maker and change agent.
- PAD 6327** **HPA 3(3,0)**  
**Public Program Evaluation Techniques:** Techniques and skills utilized in the evaluation of public programs.
- PAD 6335** **HPA 3(3,0)**  
**Strategic Planning and Management:** An examination and analysis of planning, goal setting, and strategic management in public sector organizations.
- PAD 6353** **HPA 3(3,0)**  
**Environmental Program Management Research:** Research of environmental programs, problems, issues, and policies and to prepare persons working for or entering government service for environmental program staff or management responsibilities.
- PAD 6417** **HPA 3(3,0)**  
**Human Resource Management:** Administrator as manager and motivator of public employees with particular emphasis on organizational behavior and contemporary public service legislation.
- PAD 6700** **HPA 3(3,0)**  
**Analytic Techniques for Public Administration I:** Statistical methodology and use of computers as a tool for decision making in the public sector.
- PAD 6701** **HPA 3(3,0)**  
**Analytic Techniques for Public Administration II:** PR: Completion of PAD 6700. Applied analytical tools for administrators in the public sector. Practical use of computers in policy and decision making.
- PAD 6716** **HPA 3(3,0)**  
**MIS for Public Managers:** PR: C.I. Use of systems concept and computers in contemporary public sector management information systems.
- PAD 6908** **HPA Variable Credit 1-7**  
**Directed Independent Studies**
- PAD 6918** **HPA 6(6,0)**  
**Directed Research**
- PAD 6934** **HPA 3(3,0)**  
**Special Issues in Public Administration:** Substantive and theoretical issues confronting the broad spectrum of contemporary public administration. May be repeated for credit.
- PAD 6946** **HPA 3(3,0)**  
**Internship:** PR: C.I.
- PET 5355** **HPA 3(3,0)**  
**Exercise Physiology and Health:** In-depth study of adaptations of cardiovascular and respiratory systems during varying degrees of exercise.
- PHC 6000** **HPA 3(3,0)**  
**Epidemiology:** PR: HSC 6911 or equivalent. A study of the distribution and determination of diseases and injuries in human populations.

- PHC 6010** **HPA 3(3,0)**  
**Quantitative Methods in Epidemiology:** PR: Admission to MSHS graduate program and PHC 6000. Principles of managerial epidemiology, quantitative methods, application of statistics, use of personal computers to handle data and solve problems.
- PHC 6146** **HPA 3(3,0)**  
**Health Planning and Policy:** Review of the determinants of the revolution of the health care system in the U.S.; analysis of public health, preventive medicine, and therapeutic medicine in terms of quality, access, and cost; methodologies and issues in comprehensive health planning; and trends in health policy development.
- PHC 6160** **HPA 3(3,0)**  
**Health Care Finance:** The identification of resources available to health care institutions, allocation of resources, and control of resource expenditures.
- PHC 6300** **HPA 3(3,0)**  
**Environmental Health:** Recognition and evaluation of control problems arising from environmental contamination, which includes safe water supply, waste disposal, and food resources.
- PHC 6411** **HPA 3(3,0)**  
**Health and Society:** Understanding health and illness as defined by patients, providers, and other persons in the social system.
- PHC 6420** **HPA 3(3,0)**  
**Case Studies in Health Law:** Health law including patient care, liability, malpractice, workmen's compensation, and legal responsibilities of health personnel.
- RET 5910** **HPA 3(3,0)**  
**Research Methods in Cardiopulmonary Physiology:** Introduction to methods used in scientific and medical research in cardiopulmonary physiology. Literature review, experimentation, and analysis of data.
- RET 6555** **HPA 3(3,0)**  
**Cardiac Rehabilitation:** PR: HSC 6566. Lecture course emphasizing the principles underlying the formulation and implementation of a comprehensive cardiac rehabilitation and prevention program.
- SOW 5105** **HPA 3(3,0)**  
**Human Behavior and Social Environment I:** Individual and study of human development and psychosocial functioning of individuals at various life stages with particular attention to implications of human diversity.
- SOW 5106** **HPA 3(3,0)**  
**Human Behavior and Social Environment II:** Social Systems: Study of the patterns and dynamics of families, groups, organizations, and communities from a social work and a systems perspective.
- SOW 5132** **HPA 3(3,0)**  
**Client Populations:** Study of human diversity, focusing on the needs, resources, problems and service issues of several identified minority client populations.
- SOW 5235** **HPA 3(3,0)**  
**Social Welfare Policies and Services:** Study of societal responses to human needs; forces shaping social welfare systems; and frameworks for analyzing social policies and programs.
- SOW 5305** **HPA 3(3,0)**  
**Social Work Practice I:** Generalist Practice: Study of social work functions, knowledge, values, roles and skills; the use of a generalist model of practice.
- SOW 5306** **HPA 3(3,0)**  
**Social Work Practice II:** Intervention Approaches: Study of selected social work theories, strategies, and techniques for helping people and improving system responsiveness to human needs.
- SOW 5355** **HPA 3(3,0)**  
**Studies in Urban Social Work Practice:** Analysis of one or more urban practice issues and approaches. May be repeated for credit.
- SOW 5373** **HPA 3(3,0)**  
**Clinical Supervision:** Supervisory theory and practice in clinical settings.

- SOW 5404** **HPA 3(3,0)**  
**Social Work Research:** Study of group research designs in social work; quantitative analyses; and related ethical issues.
- SOW 5432** **HPA 3(3,0)**  
**Evaluating Social Work:** Study of single case designs in social work; recording methods; behavioral and standardized measures; applications to individuals, families, groups, programs, communities.
- SOW 5532** **HPA 3(3,0)**  
**Field Education I:** Generalist Practice: CR:SW Practice I. Supervised practice of social work in an agency for 224 clock hours.
- SOW 5533** **HPA 3(0,3)**  
**Field Education II:** Interventions: PR: SOW 5532 Field Education I. CR: SW Practice II. Continuation of SOW 5532 Field Education I in the same field agency for 224 clock hours.
- SOW 5625** **HPA 3(3,0)**  
**Social Work with Women:** Alternative approaches to the treatment of women in the urban setting.
- SOW 5655** **HPA 3(3,0)**  
**Child Abuse: Treatment and Prevention:** The social worker's role and interventions with victims of child abuse and their family members.
- SOW 5662** **HPA 3(3,0)**  
**Strategies in Employee Assistance Programs:** Techniques for establishing, providing, and evaluating services to people with problems which affect job performance.
- SOW 5712** **HPA 3(3,0)**  
**Interventions with Substance Abusers:** Strategies for working with persons who abuse drugs, alcohol, and other substances.
- SOW 6123** **HPA 3(3,0)**  
**Psychosocial Pathology:** An urban Perspective Study of psychosocial dynamics of dysfunctional behavior prevalent in urban settings.
- SOW 6246** **HPA 2(2,0)**  
**Urban Problems and Policies:** Study of urban problems, policies and planning from the perspective of their impact on individuals and families.
- SOW 6324** **HPA 3(3,0)**  
**Clinical Practice with Groups:** Group therapy and support approaches to such problems as addictions, sexually transmitted diseases, spouse abuse, and batterers
- SOW 6348** **HPA 3(3,0)**  
**Clinical Practice with Individuals:** Behavioral, crisis, and psychosocial theories applied to such problems as adjustment, rape, suicide, elder and child abuse, homelessness, residential/shelter care, delinquency and retardation.
- SOW 6535** **HPA 4(0,4)**  
**Field Education III:** Clinical Practice-Individuals and Families: PR: SOW 5532 and SOW 5533. Supervised specialist practice in a field agency for 304 clock hours.
- SOW 6536** **HPA 4(0,4)**  
**Field Education IV:** Clinical Practice-Groups: PR: SOW 6535. Continuation of SOW 6535, Field Education III, in the same field agency for 304 additional clock hours.
- SOW 6612** **HPA 3(3,0)**  
**Clinical Practice with Families:** Family-focused models of intervention applied to such problems as resettlement/uprooting, divorce, single parenting and blended families.
- SOW 6689** **HPA 3(3,0)**  
**Sex Therapy:** Intervention approaches for sex related problems.
- SOW 6914** **HPA 2(2,0)**  
**Research Project:** Clinical Practice in Urban Setting: Student selected research on an issue of clinical practice in urban settings.

- SPA 5005** **HPA 3(3,0)**  
**Survey of Communicative Disorders:** PR: C.I. A survey of speech, language, and hearing disorders for habilitative personnel and other interested professionals.
- SPA 5120** **HPA 4(4,3)**  
**Physiological Acoustics:** PR: SPA 4032, Graduate status or C.I. Lectures, readings and experiments pertaining to the subjective reception of sound.
- SPA 5225** **HPA 3(3,0)**  
**Fluency Disorders:** PR: Graduate status or C.I. Identification and evaluation of disorders of rhythm. Emphasis will be on methods of intervention in disorders of fluency.
- SPA 5225L** **HPA 1(0,2)**  
**Fluency Disorders Laboratory:** PR: Graduate status or C.I. Practical application of clinical skills in fluency disorders.
- SPA 5236** **HPA 3(3,0)**  
**Speech Problems in Adults:** Motor Speech Disorders: PR: Graduate status or CI, SPA 4251. A study of dysarthrias, apraxias, and other motor speech disorders in adults associated with neurological problems, braininjury, systematic disease and aging.
- SPA 5307** **HPA 3(3,0)**  
**Differential Diagnosis of Auditory Disorders:** PR: SPA 4032. Graduate status or C.I. Clinical techniques in pure tone speech, acoustic impedance and electrophysiologic response audiometry.
- SPA 5327** **HPA 4(4,0)**  
**Aural Habilitation/Rehabilitation:** PR: Graduate status or C.I. Principles and procedures involved in speech and language acquisition, management, utilization of residual hearing, speech reading and the use of hearing aids.
- SPA 5404** **HPA 3(3,0)**  
**Language Disorders: Preschool:** PR: Graduate status or CI, LIN 4710, SPA 4402. Graduate students will apply their knowledge of the normal processes of language development to the diagnosis and intervention of communicative impairments of infants and toddlers.
- SPA 5553L** **HPA 1(0,4)**  
**Differential Diagnosis in Speech and Language Laboratory:** PR: SPA 6204, SPA 6403, SPA 6211, SPA 5805. Students will be assigned to diagnostic teams in which they will apply the techniques presented in SPA 5553. Experiences will include test administration, interviewing, writing of diagnostic reports and oral presentations with staffings.
- SPA 5600** **HPA 3(3,0)**  
**Administration and Management of Communicative Disorders Programs:** PR: SPA 3002. Methods and techniques for organization and administration of Speech/Language and Hearing Disorders in public school, hospital, rehabilitation center and private practice facilities.
- SPA 5805** **HPA 3(3,0)**  
**Research in Communicative Disorders:** PR: STA 4163, Graduate status or C.I. This course is designed to introduce the student to empirical research in the area of communication disorders. Emphasis is on hypothesis testing, methodology, analysis and interpretation of results.
- SPA 6132** **HPA 3(1,4)**  
**Measurements in Speech Science:** PR: Graduate status or C.I. The application of instrumentation to research in normal speech and language behaviors. Measurements include use of electronic instruments, such as the oscilloscope.
- SPA 6204** **HPA 3(3,0)**  
**Advanced Studies in Communicative Disorders:** PR: Graduate Status or C.I. Articulation: PR: SPA 3112, SPA 3112L, SPA 4201. Advanced theory, diagnostic techniques and therapeutic procedures for articulation disorders. May be repeated for credit.
- SPA 6204L** **HPA 1(0,2)**  
**Advanced Studies in Communicative Disorders: Articulation Laboratory:** PR: SPA 3112, SPA 3112L, SPA 4201. Practical application of clinical skills in articulation disorders. May be repeated for credit.
- SPA 6211** **HPA 3(3,0)**  
**Voice Disorders:** PR: SPA 3101. Basic principles and practices in the treatment of organic voice pathologies including laryngectomy, cleft palate and other disorders of the vocal mechanisms.

<b>SPA 6211L</b>	<b>HPA 1(0,2)</b>
<b>Voice Disorders Laboratory:</b> PR: Graduate status or C.I. Practical application of clinical skills in voice disorders.	
<b>SPA 6308</b>	<b>HPA 4(4,0)</b>
<b>Auditory Evaluation and Assessment Procedures for Special Populations:</b> PR: Graduate status or C.I. Audiometric testing and functional communicative assessment procedures for geriatric, pediatric, and other special populations.	
<b>SPA 6345</b>	<b>HPA 4(4,0)</b>
<b>Amplification:</b> PR: Graduate status or C.I. Hearing aids, selective evaluation procedures, electro-acoustic measurements, coupling techniques, and orientation and counseling.	
<b>SPA 6353</b>	<b>HPA 4(4,0)</b>
<b>Hearing Conservation:</b> PR: SPA 4032, SPA 5120. Industrial audiometry, community noise abatement and public school hearing conservation.	
<b>SPA 6403</b>	<b>HPA 3(3,0)</b>
<b>Language Disorders:</b> School Age: PR: LIN 4710; SPA 4402 and Graduate status or C.I. Presentation of the syntactic, semantic and pragmatic nature of children's language disorders. Emphasis will be on techniques and methods of diagnosis and intervention with school age children.	
<b>SPA 6407</b>	<b>HPA 2(2,0)</b>
<b>Seminar in Language:</b> PR: Graduate status or C.I. Examines innovative and disorder — specific evaluation and treatment in adult and pediatric language disorders.	
<b>SPA 6410</b>	<b>HPA 3(3,0)</b>
<b>Language Problems in Adults: Aphasia and Other Symbolic Disorders:</b> PR: SPA 4251, Graduate Status, or C.I. A study of the symbolic disorders in adults associated with neurological problems, brain injury, systemic disease, and aging.	
<b>SPA 6505</b>	<b>HPA 3(0,6)</b>
<b>Clinical Practicum in Speech Pathology-Language:</b> PR: Graduate status or C.I. Advanced clinical practice in communicative disorders. May be repeated with change of content.	
<b>SPA 6506</b>	<b>HPA 3(0,6)</b>
<b>Clinical Practicum in Audiology:</b> PR: SPA 4032. Advanced clinical practice in communicative disorders. May be repeated with change of content.	
<b>SPA 6526</b>	<b>HPA 2(2,0)</b>
<b>Seminar in Speech Pathology:</b> PR: Graduate status or C.I. Examines innovative and disorder — specific evaluation and treatment procedures. Topics will be in the area of adult and pediatric speech disorders.	
<b>SPA 6553</b>	<b>HPA 3(3,0)</b>
<b>Differential Diagnosis in Speech and Language:</b> PR: SPA 6204, SPA 6403, SPA 6211, SPA 5805. Administration and interpretation of evaluation techniques, including standardized tests, will be presented. Emphasis will be on those techniques which allow for differential diagnosis of speech and language disorders.	
<b>SPA 6826</b>	<b>HPA 2(2,0)</b>
<b>Seminar in Research:</b> PR: Graduate status or C.I. Examination of major issues in research, of clinical or theoretical importance.	
<b>SPA 6908</b>	<b>HPA 1-6</b>
<b>Directed Independent Studies</b>	
<b>SPA 6918</b>	<b>HPA 1-6</b>
<b>Directed Independent Research</b>	
<b>SPA 6938</b>	<b>HPA 1-6</b>
<b>Special Topics/Seminars</b> — May be repeated for credit.	
<b>SPA 6946</b>	<b>HPA 1-6</b>
<b>Internship, Practicums, Clinical Practice</b>	
<b>SPA 6971</b>	<b>HPA 1-6</b>
<b>Thesis</b>	

**Essentials of Neuroanatomy:** PR: Human/Comparative Anatomy, or Human/Animal Physiology or C.I. Fundamental concepts of both morphological and functional organization of the nervous system. Primary emphasis on human structure.

HPA 4021  
Auditory Evaluation and Assessment Procedures for Special Populations: PR: Graduate status in Audiology; hearing and functional communication assessment procedures for cerebral deafness and other special populations.

HPA 4022  
Amplification: PR: Graduate status or C.I. Hearing aids, selective evaluation devices, electric hearing instruments, coupling techniques, and orientation and counseling.

HPA 4023  
Hearing Conservation: PR: SPA 4022, SPA 5120, industrial safety, community noise assessment and public school hearing conservation.

HPA 4024  
Language Disorders: School Age: PR: LIT 4111, SPA 4403 and Graduate status or C.I. Presentation of the syntactic, semantic and pragmatic nature of children's language disorders. Emphasis will be on techniques and methods of diagnosis and intervention with school age children.

HPA 4025  
Genetics in Language: PR: Graduate status or C.I. Examine descriptive and diagnostic criteria and treatment in adult and pediatric language disorders.

HPA 4026  
Language Problems in Adults: Aphasia and Other Symbolic Disorders: PR: SPA 4021, Graduate status or C.I. A study of the symbolic disorder in adults associated with neurological processes, brain injury, systemic disease and aging.

HPA 4027  
Clinical Problems in Speech Pathology-Literature: PR: Graduate status or C.I. Advanced clinical practice in communication disorders. May be repeated with change of content.

HPA 4028  
Clinical Practice in Audiology: PR: SPA 4021, Advanced clinical practice in communication disorders. May be repeated with change of content.

HPA 4029  
Genetics in Speech Pathology: PR: Graduate status or C.I. Examine descriptive and diagnostic criteria and treatment procedures. Topics will be in the area of adult and pediatric speech disorders.

HPA 4030  
Differential Diagnosis in Speech and Language: PR: SPA 4021, SPA 5120, SPA 5121, SPA 5122, identification and interpretation of evaluation techniques, including standardized tests, will be the central focus. Emphasis will be on those techniques which allow for differential diagnosis of speech and language disorders.

HPA 4031  
Genetics in Research: PR: Graduate status or C.I. Examination of major issues in research of clinical or theoretical importance.

HPA 4032  
Directed Independent Studies

HPA 4033  
Directed Independent Research

HPA 4034  
Special Topics/Sections — May be repeated for credit.

HPA 4035  
Internship/Practicum, Clinical Practice

HPA 4036  
Thesis

# COURSE DESCRIPTIONS

## CLASSIFICATION OF COURSES

- 3000-4999** are junior- and senior-level courses and are designed primarily for advanced undergraduate students. Selected 4000-4999 courses may serve the needs of the individual graduate students if approved for inclusion in an individual program of graduate study by a supervisory committee approved by the Dean of the college.
- 5000-5999** are beginning graduate-level courses.
- 6000-6999** are courses open only to graduate students.
- 7000** are 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 postsecondary institutions in Florida and by two participating private institutions. The major purpose of this system is to facilitate the transfer of courses between participating institutions.

Each participating institution controls the title, credit, and content of its own courses and assigns the first digit of the course number to indicate the level at which students normally take the course. Course prefixes and the last three digits of the course numbers are assigned by members of faculty discipline committees appointed for that purpose by the Florida Department of Education in Tallahassee. Individuals nominated to serve on these committees are selected to maintain a representative balance as to type of institution and discipline field or specialization.

The course prefix and each digit in the course number have meaning in the Statewide Course Numbering System (SCNS). The list of course prefixes and numbers, along with their generic titles, is referred to as the "SCNS taxonomy." Descriptions of the content of courses are referred to as "course equivalency profiles."

### 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 the participating institutions that offer the course, with a few exceptions. (Exceptions are listed below.)

For example, a survey course in social problems is offered by 31 different postsecondary institutions. Each institution uses "SYG\_010" to identify its social problems course. The level code is the first digit and represents the year in which students normally take this course at a specific institution. In the SCNS taxonomy, "SYG" means "Sociology, General," the century digit "0" represents "Entry-Level General Sociology," the decade digit "1" represents "Survey Course," and the unit digit "0" represents "Social Problems."

In science and other areas, a "C" or "L" after the course number is known as a lab indicator. The "C" represents a combined lecture and laboratory course that meets in the same place at the same time. The "L" represents a laboratory course or the laboratory part of a course, having the same prefix and course number without a lab indicator, which meets at a different time or place.

Transfer of any successfully completed course from one participating institution to another is guaranteed in cases where the course to be transferred is offered by the receiving institution and is identified by the same prefix and last three digits at both institutions. For example, SYG 1010 is offered at a community college. The same course is offered at a state university as SYG 2010. A student who has successfully completed SYG 1010 at the

community college is guaranteed to receive transfer credit for SYG 2010 at the state university if the student transfers. The student cannot be required to take SYG 2010 again since SYG 1010 is equivalent to SYG 2010. Transfer credit must be awarded for successfully completed equivalent courses and used by the receiving institution to determine satisfaction of requirements by transfer students on the same basis as credit awarded to native students. It is the prerogative of the receiving institution, however, to offer credit for courses successfully completed which have not been designated as equivalent.

Sometimes, as in Chemistry, a sequence of one or more courses must be completed at the same institution in order for the courses to be transferable to another institution, even if the course prefix and numbers are the same. This information is contained in the individual SCNS course equivalency profiles for each course in the sequence.

## THE COURSE PREFIX

The course prefix is a three-letter designator for a major division of an academic discipline, subject matter area, or sub-category 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 EQUIVALANT COURSES

State Board of Education Rule 6A-10.024(17), Florida Administrative Code, reads:

When a student transfers among institutions that participate in the common course designation and numbering system, the receiving institution shall award credit for courses satisfactorily completed at the previous participating institutions when the courses are judged by the appropriate common course designation and numbering system faculty task forces to be equivalent to courses offered at the receiving institution and are entered in the course numbering system. Credit so awarded can be used by transfer students to satisfy requirements in these institutions on the same basis as native students.

## EXCEPTIONS TO THE GENERAL RULE FOR EQUIVALENCY

The following courses are exceptions to the general rule for course equivalencies and may not be transferable. Transferability is at the discretion of the receiving institution:

- A. Courses in the \_900-\_999 series (e.g., ART 2905)
- B. Internships, practica, clinical experiences, and study abroad courses
- C. Performance or studio courses in Art, Dance, Theater, and Music
- D. Skills courses in Criminal Justice
- E. Graduate courses

College preparatory and vocational preparatory courses may not be used to meet degree requirements and are not transferable.

Questions about the Statewide Course Numbering System and appeals regarding course credit transfer decisions should be directed to Dr. David Dees in the Office of Enrollment and Academic Services, AD 210, Phone (407) 823-2691 or the Florida Department of Education, Office of Postsecondary Education Coordination, 1101 Florida Education Center, Tallahassee, Florida 32399-0400. Special reports and technical information may be requested by calling telephone number (904) 488-6402 or Suncom 278-6402.

## SPECIAL COURSES

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

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

	SPECIAL GRAD	GRAD & PROF
Directed Independent Studies	5907	6908
Directed Research	5917	6918
Special Topics/Seminars	5937	6938
*Internships, Practicums, Clinical Practice	5944	6946
Study Abroad	5957	6958
*Research Report		6909
*Treatise (Thesis or Research Report)		6971



*Thesis — Specialist	6973
*Doctoral Research	7919
*Doctoral Special Topics/Seminars	7939
*Doctoral Dissertation	7980
*For Graduate Status students only.	
*These courses may be assigned variable credit. Some may be repeated upon approval.	

## ABBREVIATIONS IN COURSE DESCRIPTIONS

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

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

C.I. denotes that registration is contingent upon the CONSENT OF THE INSTRUCTOR.

## HOURS CODE

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

Example:

**ECI 5215C Hydraulic Engineering** **EN 3(2,3)**  
 ECI 5215C is offered by the College of Engineering (EN), carries 3 hours of credit, but requires 5 contact hours which consist of 2 hours in class and 3 hours laboratory or field work.

1972  
1978  
1980  
1980

Thesis -- Specialist  
Doctoral Research  
Doctoral Special Topics Seminar  
Doctoral Dissertation  
For Graduate Status students only

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

### ABBREVIATIONS IN COURSE DESCRIPTIONS

PR denotes a PREREQUISITE course which must be earned prior to enrollment in the listed course.  
CR denotes a COREQUISITE course which must be taken concurrently with or prior to the listed course.  
C.I. denotes that registration is contingent upon the CONSENT OF THE INSTRUCTOR.

### HOURS CODE

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

ECI 52120 Hydraulic Engineering  
ECI 52120 is offered by the College of Engineering (EM) carries 3 hours of credit, but requires 2 contact hours which consist of 2 hours in class and 3 hours laboratory or field work.

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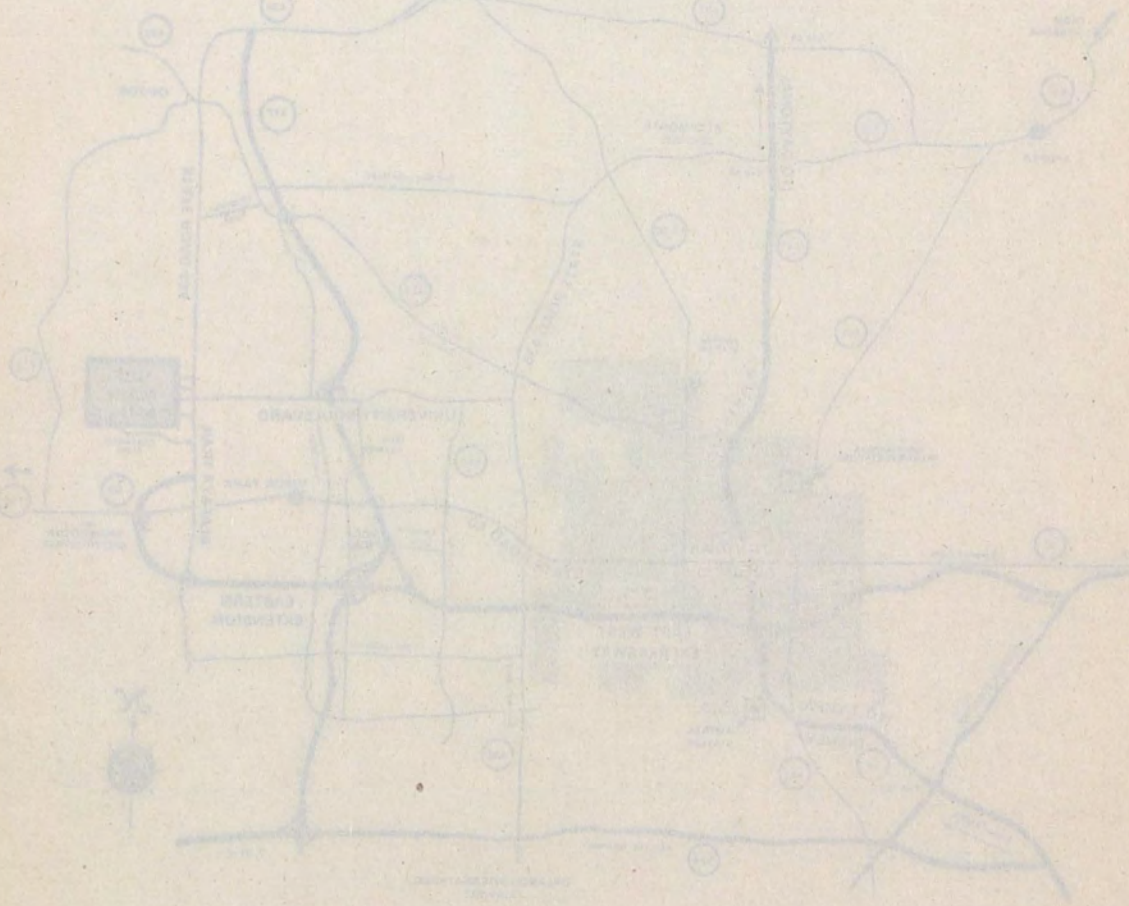
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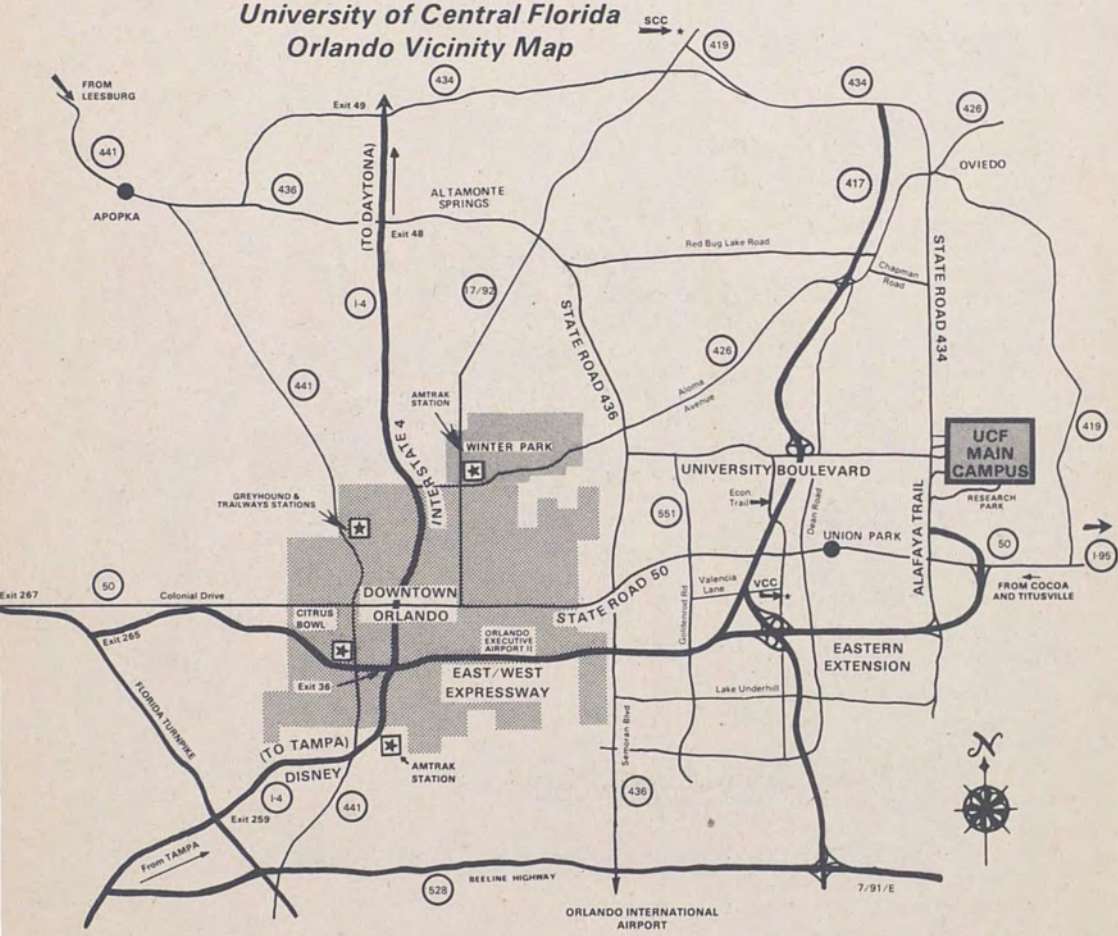




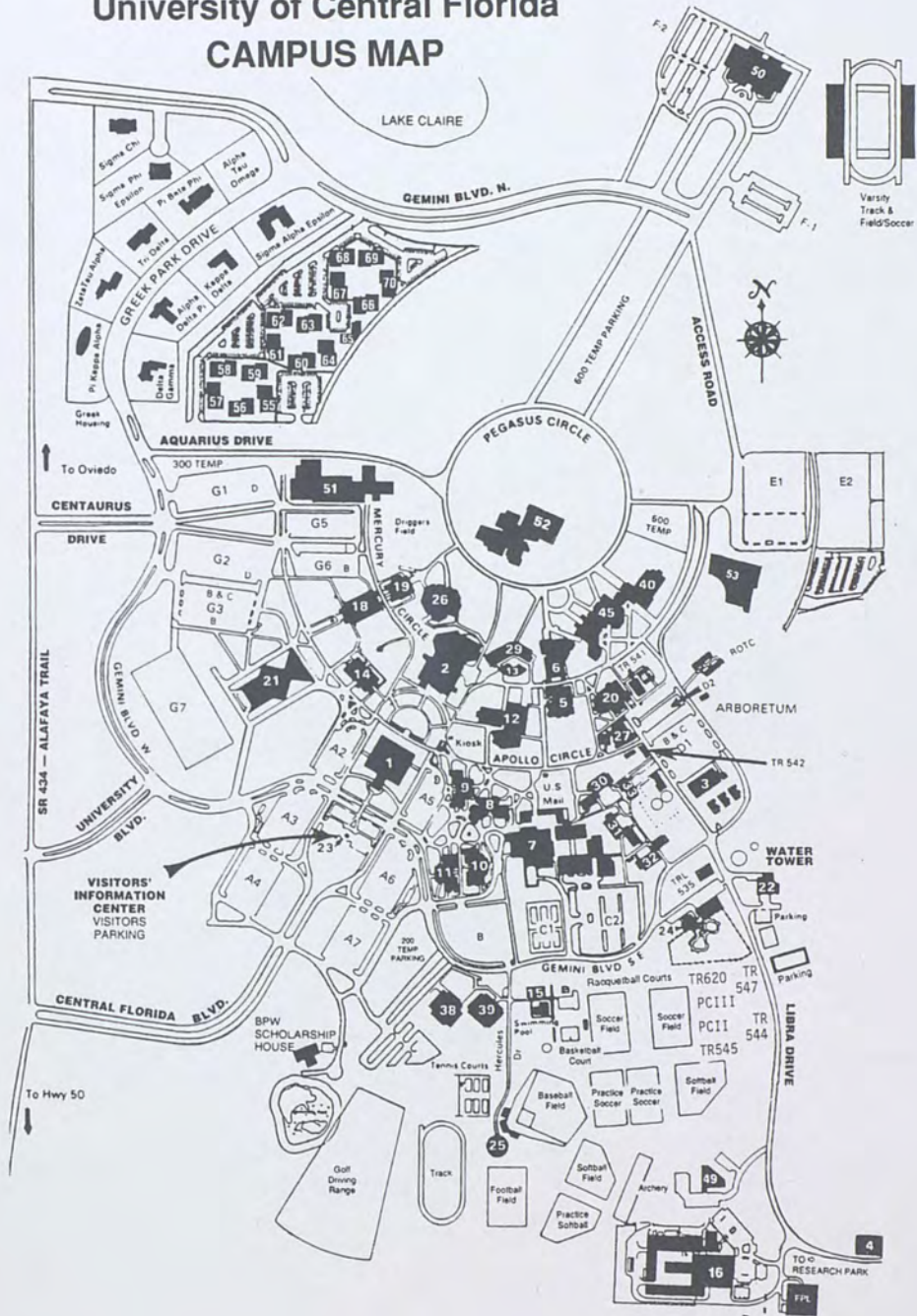
University of Central Florida  
Orlando Vicinity Map



# University of Central Florida Orlando Vicinity Map



# University of Central Florida CAMPUS MAP



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Orlando, Florida 32816-0112

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