

**Graduate Council Program Review and Awards Committee**  
**April 30, 2010**  
**9:00 a.m., MH 395**

**AGENDA**

Welcome

Upcoming Meeting Dates

All meetings will be in Teaching Academy 420B at 10 am, unless otherwise specified.

Jan. 29

Feb. 12

Mar. 5

Mar. 12

Mar. 26

Apr. 9

Apr. 30

Review of minutes from April 9

Review of the PSM in Conservation Biology

Review of graduate faculty in Math and Nursing

Review of MAT programs with title and curriculum changes

Adjournment

**COMMITTEE MEMBERS**

Ahmad Elshennawy (CECS)

David Ratusnik (COHPA)

Debopam Chakrabarti (COM)

H.G. Parsa (RCHM)

Harry Weger (COS)

Karen Aroian (CON)

Lori Boardman (COM)

Michael Caputo (CBA)

Patrick LiKamWa (COP)

Paul Dombrowski (CAH, Chair of Committee)

Richard Gause (Libraries)

Stephen Sivo (CED)

Patricia Bishop (Ex Officio, College of Graduate Studies)

Max Poole (Liaison from College of Graduate Studies)

**Florida Board of Governors**

**Request to Offer a New Degree Program**

University of Central Florida  
University Submitting Proposal

Fall 2010  
Proposed Implementation Date

College of Sciences  
Name of College or School

Biology  
Name of Department(s)

Conservation Biology  
Academic Specialty or Field

PSM in Conservation Biology (26.1307)  
Complete Name of Degree  
(Include Proposed CIP Code)

**The submission of this proposal constitutes a commitment by the university that, if the proposal is approved, the necessary financial resources and the criteria for establishing new programs have been met prior to the initiation of the program.**

\_\_\_\_\_  
Date Approved by the University Board of Trustees      President      Date

\_\_\_\_\_  
Signature of Chair, Board of Trustees      Date      \_\_\_\_\_  
Provost and Executive Vice President      Date

Provide headcount (HC) and full-time equivalent (FTE) student estimates of majors for Years 1 through 5. HC and FTE estimates should be identical to those in Table 1. Indicate the program costs for the first and the fifth years of implementation as shown in the appropriate columns in Table 2. Calculate an Educational and General (E&G) cost per FTE for Years 1 and 5 (Total E&G divided by FTE).

Implementation Timeframe	Projected Student Enrollment (From Table 1B)		Projected Program Costs (From Table 2)		
	HC	FTE	Total E&G Funding	Contract & Grants Funding	E&G Cost per FTE
Year 1	10	5.63	\$66,645	0	\$11,848
Year 2	20	13.06			
Year 3	20	13.06			
Year 4	20	13.06			
Year 5	20	13.06			
Year 5	20	13.06			

## **INTRODUCTION**

### **I. Program Description and Relationship to System-Level Goals**

- A. Briefly describe within a few paragraphs the degree program under consideration, including (a) level; (b) emphases, including concentrations, tracks, or specializations; (c) total number of credit hours; and (d) overall purpose, including examples of employment or education opportunities that may be available to program graduates.**

We are proposing to create a new PSM in Conservation Biology. Specifically, this degree program will consist of 40 hours at the graduate level, including 16 hours of core courses in Conservation Biology; 14 hours of Professional Development including courses in communications, mathematics, philosophy, politics, psychology, public administration, and business management; and 10 credit hours of internship and research analysis. The coursework in Conservation Biology involves broad training through graduate-level core and research courses as a part of the student's graduate experience. All of the core courses address quantitative aspects of conservation biology, including data analysis, modeling of population dynamics and conservation genetics. These courses and the internship/research component that is the culminating experience for the degree program provide students with the focused and guided experience that will help them develop the analytic skills necessary to present research hypotheses, proposals, and data to meet their own research goals and those of current/future employers.

To secure funding for the students in this degree program, and to show our further commitment to developing an excellent program, we were selected through a competitive, internal UCF review process to be the only proposed program to be eligible to apply for funding support through a National Science Foundation (NSF) grant for development of this program as a Professional Science Master's Program (NSF 09-607). This proposal, submitted to NSF November 20, 2009, included a budget that will provide over \$25,000 of education support to each of 10 students for the first year of enrollment. The budget also includes monies for trips to professional meetings for the students.

Through collaborative efforts with business and organizations in the community, we developed this program to introduce professionals into the work force who have both the research and professional expertise to contribute effectively to current environmental and community conservation needs and who are trained to fill the needs of the front-line organizations that are involved in conservation. By introducing experts who synergize research expertise, critical thinking, and leadership in conservation biology, this program has the potential to transform both the professionals who work in the discipline as well as the industry of conservation biology. We designed this PSM program to create professionals who will bring "advanced, interdisciplinary, application-oriented scientific knowledge to their position" and who will have the ability to "readily contribute to the objectives, programs, and projects of employers in industry, government, and the nonprofit sector" (National Research Council, 2008).

There is high demand throughout the United States and in Florida in particular, for professionals who have a specialization in the field of conservation biology. This PSM in Conservation

Biology will provide trained and experienced professionals who will meet the modern practical and administrative challenges that face the ‘real world’ practitioners of conservation biology. State, local, and federal land management and regulatory agencies, private industry, and NGOs are just a few of the types of organizations that would benefit from students trained in this program as new employees. The program’s research cooperatives with organizations as diverse as Disney’s Animal Kingdom, the Nature Conservancy and the Orange County Environmental Protection Division points to the broad base of interest in the program as well as its need.

**B. Describe how the proposed program is consistent with the current State University System (SUS) Strategic Planning Goals. Identify which goals the program will directly support and which goals the program will indirectly support. (See the SUS Strategic Plan at <http://www.flbog.org/StrategicResources/> )**

This program supports the SUS Strategic Planning goal of meeting statewide professional and workforce needs in the economic development areas of 1) emerging technologies, 2) high-wage/high-demand, and 3) globalization. These goals will both directly and indirectly be met by the implementation of this degree program. In 2008, the Board of Governors revised these areas as follows: 1) emerging technologies simply includes all STEM areas as opposed to separating the technologies into six subcategories; 2) high-wage/high-demand was revised to “regional workforce demand”; 3) and globalization was clarified as an over-arching concept as opposed to specific industry or occupational areas.

As a STEM program, this Conservation Biology PSM degree will directly meet both local and regional industry needs for individuals who are professionally trained in the area of conservation and ecological impacts/development. Through consultation with our advisory board and examining state and local deficiencies, we identify a critical need, throughout the United States, and in Florida in particular, for professionals who have a specialization in the field of conservation biology. As the U.S. strives to regain a global leadership position in environmental science, this program will pull together government agencies and the private sector to assist in the training and ultimate employment of the next generation of environmental scientists. By providing interdisciplinary and professional training and education opportunities, the graduates of this program will have the skills and expertise to address current conservation issues that impact developing and established regions. The expertise will transcend local and regional needs and have the potential to affect understanding of conservation biology globally.

## **INSTITUTIONAL AND STATE LEVEL ACCOUNTABILITY**

### **II. Need and Demand**

**A. Need: Describe national, state, and/or local data that support the need for more people to be prepared in this program at this level. Reference national, state, and/or local plans or reports that support the need for this program and requests for the proposed program which have emanated from a perceived need by agencies or industries in your service area. Cite any specific need for research and service that the program would fulfill.**

Two hundred billion dollars is spent annually on environmental protection and conservation in

the United States and this figure will likely increase as the country responds to growing needs for clean water, clean air, renewable energy, and effective mitigation and adaptive responses to emerging human health issues, climate change, and sea level rise. In comparison, the U.S. biotechnology industry has annual revenues of approximately \$70 billion. Demand for individuals trained in the fields of energy, human and environmental health, agriculture, environmental science, and conservation biology will be driven by national and global needs for clean water, food and environmental sustainability.

Unfortunately, the National Advisory Council for Environmental Policy and Technology (NACEPT, an independent advisory committee to U.S. EPA), indicated in 2008 that the U.S. no longer holds a position of environmental technology dominance in the marketplace. To regain a global leadership position in environmental science, universities, government and the private sector need to work together to train and employ the next generation of environmental scientists and engineers in America.

Florida is a poster-state for vulnerability to these issues. Florida is a coastal state with natural and human-built systems that are functionally linked across a complex mosaic of land, freshwater, atmosphere, estuarine and ocean systems. The peninsula of Florida spans two climatic regimes: the temperate Carolinian Province and the tropical/subtropical Caribbean Province. Few states in the nation have greater biological diversity, are more dependent on the social and economic value of healthy natural resources, and are more vulnerable to the long-term impacts of population growth, climate change, sea level rise and failure to address sustainability in the built environment. The future health of Florida will be influenced by the sustainability of its natural and human resource assets, resiliency/adaptation to change, and ability to develop and apply new technologies to monitor, model, mitigate and adapt to existing and emerging threats. Climate change and sea level rise represent two great environmental challenges for Florida that will demand new cross-disciplinary approaches to student teaching and training.

Effective education and training of conservation biology professionals to address the challenges of the 21<sup>st</sup> century is essential. The unique environmental, economic and social dimensions of the Florida peninsula position the state as a valuable model to address complex environmental, conservation and sustainability science, and technology issues important to the nation and the world. With over 1.5 million acres in public conservation management, diverse water resources (freshwater, estuarine and marine) and exceptional biodiversity (all threatened by a rapidly growing and urbanizing human population) Florida is strongly positioned to train and employ the next generation of professional conservation biologists.

Florida is one of the top five states in the nation in terms of environmental/conservation employment. Florida's ocean and coastal economy is valued at over \$580 billion per year. Florida has a deep pool of marine and coastal education and research programs with an estimated 2,925 jobs, \$154 million in annual wages, and over 2000 students in marine degree programs. Over 50 universities and non-governmental organizations conduct marine research and education programs with estimated annual budgets exceeding \$270 million/year (data from 39 of 55 programs polled).

Florida's university system and numerous not-for-profit research institutes and laboratories

contribute greatly to the state's diverse environmental research and development environment. Many are known for their unique expertise and capabilities, while others thrive in the cross-disciplinary R&D environment that defines today's cutting-edge, cross-disciplinary environmental sciences.

**B. Demand: Describe data that support the assumption that students will enroll in the proposed program. Include descriptions of surveys or other communications with prospective students.**

Our PSM in Conservation Biology will, by association, parallel our Conservation Biology PhD program that focuses on two areas: 1) coastal systems and 2) urban ecology and the urban-rural interface. Furthermore, this Conservation Biology PSM program is currently approved as a track in the existing Biology MS degree.

Orlando is the #1 medium sized urban sprawl city in the US and although this problem is worldwide, the habitats around Orlando are particularly sensitive to human influences and serve as a natural laboratory for our MS students to undertake research.

On average, our current MS in Biology program receives approximately 50-60 applicants each year of which we accept approximately 60%. At present approximately 30% of these applicants apply to the non-thesis track of our MS in Biology. The majority of these non-thesis students have expressed an interest in enrolling in a separate conservation biology degree program that has a research and professional development focus. We will immediately serve these students by offering the conservation biology track of the MS degree.

Our acceptance process involves both an assessment of undergraduate GPA and the student's GRE score, as well as a scoring of at least 3 letters of recommendation, the student's statement of interest and objectives, a suite of academic indicators (such as having completed a senior thesis, authorship on publications, internships, involvement in scientific research projects, and/or presentations at major scientific meetings) and non-academic indicators (such as evidence of leadership, extracurricular activities, work or military experience, and/or volunteer activities). We feel that these factors give a better indication of an applicant's potential than merely looking at standardized scores. Of the students that we accept, 75% agree to come to our program. Admissions and enrollment numbers in our MS in Biology declined slightly after 2003 when our new Conservation Biology PhD program started accepting students. We anticipate a return to historical MS enrollment levels with the creation of our new program.

**C. If similar programs (either private or public) exist in the state, identify the institution(s) and geographic location(s). Summarize the outcome(s) of any communication with such programs with regard to the potential impact on their enrollment and opportunities for possible collaboration (instruction and research). Provide data that support the need for an additional program.**

There are currently no similar programs offered in the State of Florida. We currently have a Certificate in Conservation Biology that could act to attract some students into the proposed PSM in Conservation Biology. Our focus on environmental biology is largely rooted in Central Florida; hence, the closest competing programs would be Florida Institute of Technology (marine biology), University of South Florida (biology), and the University of Florida (wildlife and conservation).

The fact that Stetson University and Rollins College respectively have relatively limited graduate programs in Biology is our biggest advantage. No competitor exists within the metropolitan Orlando area nor is any likely to emerge. Modern Life Science programs are expensive propositions rarely undertaken de novo by small regional private institutions. The fact that Disney World and Sea World are heavily invested in our conservation biology efforts, and rely upon and support UCF biology students with jobs, is a great competitive advantage for the UCF biology program.

The specific needs and interest in our proposed degree derive from several sources. Primarily, there is an industry need in Florida for professionals who have a specialization in the field of conservation biology. Engagement of our Advisory Board in developing the program will allow us to tailor the curriculum to meet the needs of the stakeholders. Drawing from our experiences with our already successful MS in Biology and Ph.D. in Conservation Biology, the PSM in Conservation Biology will provide individuals who will be able to meet the modern practical and administrative challenges that face the 'real world' practitioners of conservation biology. The program's research cooperatives with a diverse collective of organizations points to the broad base of interest in the program as well as its need.

In 2007, the Biology MS program underwent an academic program review, and the external evaluator identified that the non-thesis track of the current Biology M.S. program would greatly benefit from being developed into a Professional Science Masters (PSM) program. The current MS program already has a strong professional development component and has successfully produced teachers, consultants, and state/federally employed biologists. Of the 111 students who graduated from our program during the period 2001-2008, we have data for 109 individuals. For those for which we have data, 66% (n=72) are employed in the field as biology teachers (high school or community college), biological consultants, or state or federal agency biologists; 25% (n=27) went on to undertake a PhD; 3% went on to either veterinary (n=2) or medical school (n=1); and 6% (n=7) are no longer in the field. Fully "94% of graduates were either employed in the field or went on to Ph.D. or professional programs" (program evaluation, 2008) and the addition of this enhanced PSM in Conservation Biology is well suited to meet the needs of key constituencies in Florida and beyond.

- D. Use Table 1 (A for undergraduate and B for graduate) to categorize projected student headcount (HC) and Full Time Equivalents (FTE) according to primary sources. Generally undergraduate FTE will be calculated as 40 credit hours per year and graduate FTE will be calculated as 32 credit hours per year. Describe the rationale underlying enrollment projections. If, initially, students within the institution are expected to change majors to enroll in the proposed program, describe the shifts from disciplines that will likely occur.**

We based our enrollment projections on our recent history of applicants to the non-thesis track of our existing MS in Biology. Many of these applicants, and others who decided not to apply to UCF, have expressed an interest in entering a PSM in Conservation Biology. There may initially be a shift of a small number of students from the non-thesis track of our MS in Biology to this new degree program.

In year one, we will admit (or transfer from the non-thesis track) 10 students to this program. From this initial year, we will continue to admit 10 students per year. Because this is designed to be a full-time, two-year program, our annual headcount will hold at 20 enrolled students.



**TABLE 1-B**  
**PROJECTED HEADCOUNT FROM POTENTIAL SOURCES**  
**(Professional Science Masters Program in Conservation Biology)**

SOURCE OF STUDENTS (Non-duplicated headcount in any given year)*	YEAR 1		YEAR 2		YEAR 3		YEAR 4		YEAR 5	
	HC	FTE	HC	FTE	HC	FTE	HC	FTE	HC	FTE
Individuals drawn from agencies/ industries in your service area (e.g., older returning students)	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
Students who transfer from other graduate programs within the university**	2	1.13	2	1.38	0	0.00	0	0.00	0	0.00
Individuals who have recently graduated from preceding degree programs at this university	2	1.13	4	2.50	4	2.50	4	2.50	4	2.50
Individuals who graduated from preceding degree programs at other Florida public institutions	2	1.13	4	2.50	4	2.50	4	2.50	4	2.50
Individuals who graduated from preceding degree programs at non-public Florida institutions	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
Additional in-state residents***	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
Additional out-of-state residents***	3	1.69	8	4.88	10	6.25	10	6.25	10	6.25
Additional foreign residents***	1	0.56	2	1.81	2	1.81	2	1.81	2	1.81
Other (Explain)***	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
<b>Totals</b>	<b>10</b>	<b>5.63</b>	<b>20</b>	<b>13.06</b>	<b>20</b>	<b>13.06</b>	<b>20</b>	<b>13.06</b>	<b>20</b>	<b>13.06</b>

\*List projected yearly cumulative ENROLLMENTS instead of admissions.

\*\*If numbers appear in this category, they should go DOWN in later years

\*\*\*Do not include individuals counted in any PRIOR category in a given COLUMN

**E. Indicate what steps will be taken to achieve a diverse student body in this program, and identify any minority groups that will be favorably or unfavorably impacted. The university's Equal Opportunity Officer should read this section and then sign and date in the area below.**

Our program will provide advancement and development opportunities to a diverse population of students. Using the current MS in Biology program as an indicator, the majority of students in this program will be female. The proportion of female students in the program has increased from 64% in 2001 to 74% in 2007, mirroring trends at other institutions. In terms of ethnicity, our program is under-represented by minorities with approximately 90% of our in-program students being white. The MS program draws its students largely from Florida (approximately 88%) with a small proportion of out-of-state students (approximately 10%) and a few international students (2%).

Because of the wealth of biodiversity found in the tropics, by its nature this conservation biology professional master's program should be attractive to Black and Hispanic students with ties to Central American and the Caribbean Basin. Florida Linkage agreements that are currently in place between UCF and multiple Caribbean and Central and South American countries will enhance this diversity. While programs in conservation and environmental biology do not normally attract and retain many U.S. African American students, this program may find some success here with the focus on the interface of urban and natural ecosystems.

We plan to continue and expand our current recruiting efforts, taking advantage of our Advisory Board to promote and recommend this program to their diverse staff. Members of the department faculty and the college staff will take advantage of opportunities at invited speeches, conferences, and presentations to share information about this program. For example, in March, the college was invited to speak at the 25<sup>th</sup> annual Minorities in Agricultural, Natural Resources, and Related Sciences (MANRRS) conference and job fair and shared information about this professional master's opportunity with the potential graduate students who participated in that conference. Additionally, existing program faculty have affiliations and relationships with Historically Black Colleges and Universities (HBCU) and Minority Institutions (MIs) that can be used to recruit undergraduates from biology and environmental science program. Through these and other outreach programs, we will be able to promote this degree to women and minorities of Black and Hispanic descent.

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Equal Opportunity Officer

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Date

### III. Budget

- A. Use Table 2 to display projected costs and associated funding sources for Year 1 and Year 5 of program operation. Use Table 3 to show how existing Education & General funds will be shifted to support the new program in Year 1. In narrative form, summarize the contents of both tables, identifying the source of both current and new resources to be devoted to the proposed program. (Data for Year 1 and Year 5 reflect snapshots in time rather than cumulative costs.)**

There will be minimal additional costs incurred with the approval of this new degree program. As you can see in Table 2, for our five year budget, the cost per FTE will be the highest in year one (at \$11,848) with the remaining years calculating at \$5,102 per year. Existing biology faculty will comprise the majority of the research and instructional faculty, with only one additional faculty member (that has been hired) and one support personnel requested to provide the maximum level of support needed to run this program. As exemplified in Table 3, only \$35,405 of existing, recurring funds are reallocated to this program. This does not represent new course preparation, but rather additional enrollments into existing courses already offered as a part of the Conservation Biology PhD and Biology MS programs.

- B. If other programs will be impacted by a reallocation of resources for the proposed program, identify the program and provide a justification for reallocating resources. Specifically address the potential negative impacts that implementation of the proposed program will have on related undergraduate programs (i.e., shift in faculty effort, reallocation of instructional resources, reduced enrollment rates, greater use of adjunct faculty and teaching assistants). Explain what steps will be taken to mitigate any such impacts. Also, discuss the potential positive impacts that the proposed program might have on related undergraduate programs (i.e., increased undergraduate research opportunities, improved quality of instruction associated with cutting-edge research, improved labs and library resources).**

Other programs will not be impacted by the reallocation of resources for the proposed program. The faculty efforts will not increase other than additional student enrollment into already existing and offered courses.

- C. Describe other potential impacts on related programs or departments (e.g., increased need for general education or common prerequisite courses, or increased need for required or elective courses outside of the proposed major).**

Since a number of courses from outside of our department are suggested inclusions in the curriculum, those departments will likely see a small increase in the number of students enrolled in their classes. All of these involved departments are supportive of our proposed degree program and the inclusion of our students in their classes. (Please refer to Appendix I to reference the letters of support from these departments.)

**TABLE 2**  
**PROJECTED COSTS AND FUNDING SOURCES**

Instruction & Research Costs (non-cumulative)	Year 1					Subtotal E&G and C&G	Year 5				Subtotal E&G and C&G
	Funding Source						Funding Source				
	Reallocated Base * (E&G)	Enrollment Growth (E&G)	Other New Recurring (E&G)	New Non-Recurring (E&G)	Contracts & Grants (C&G)		Continuing Base** (E&G)	New Enrollment Growth (E&G)	Other*** (E&G)	Contracts & Grants (C&G)	
Faculty Salaries and Benefits	\$35,405	\$0	\$0	\$0	\$0	\$35,405	\$35,405	\$0	\$0	\$0	\$35,405
A&P Salaries and Benefits	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
USPS Salaries and Benefits	\$0	\$31,240	\$0	\$0	\$0	\$31,240	\$0	\$31,240	\$0	\$0	\$31,240
Other Personnel Services	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Assistantships and Fellowships	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Library	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Expenses	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Operating Capital Outlay	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Special Categories	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
<b>Total Costs</b>	\$35,405	\$31,240	\$0	\$0	\$0	\$66,645	\$35,405	\$31,240	\$0	\$0	\$66,645

\*Identify reallocation sources in Table 3.

\*\*Includes recurring E&G funded costs ("reallocated base", "enrollment growth", and "other new recurring") from Years 1-4 that continue into Year 5.

\*\*\*Identify if non-recurring.

**Faculty and Staff Summary**

Total Positions (person-years)	Year 1	Year 5
Faculty	0.21	0.21
A&P	0	0
USPS	1	1

**Calculated Cost per Student FTE**

	Year 1	Year 5
Total E&G Funding	\$66,645	\$66,645
Annual Student FTE	5.63	13.06
E&G Cost per FTE	\$11,848	\$5,102

**TABLE 3  
ANTICIPATED REALLOCATION OF EDUCATION AND GENERAL FUNDS**

Program and/or E&G account from which current funds will be reallocated during Year 1	Base before reallocation	Amount to be reallocated	Base after reallocation
Acct No 2403 0001 Department of Biology		\$35,405	-\$35,405
<b>Totals</b>	\$0	\$35,405	-\$35,405

**D. Describe what steps have been taken to obtain information regarding resources (financial and in-kind) available outside the institution (businesses, industrial organizations, governmental entities, etc.). Describe the external resources that appear to be available to support the proposed program.**

Through a competitive internal review process, UCF selected our program as the only proposed program to be eligible to apply for funding support through the NSF 09-607 – “Science Master’s Program”. This proposal, submitted to NSF in fall 2009, included a budget that would pay each student enrolled in the program \$15K per year as a stipend, as well as covering \$10,500 per year in “costs of education.” The budget also includes monies for trips to professional meetings for the students.

Over the past seven years, a number of very significant advances have been made by the Biology Department in building partnerships that offer a greater range of internship and research opportunities, many of which include research support to our graduate students. Our collaborative missions are very important as UCF is becoming one of the leading metropolitan research universities, and one of America's leading partnership universities to significantly improve the chances of UCF reaching Research I status. Initiatives exist with Disney's Animal Kingdom, Hubbs-SeaWorld Research Institute, the UCF Departments of Chemistry, Molecular Biology and Microbiology, Florida Chapter of the Nature Conservancy for cooperative programs in conservation and ecological sciences at the Disney Wilderness Preserve (DWP), NASA Kennedy Space Center (KSC), the Environmental Protection Agency Tampa Bay Region Ecosystem Project, the St. Johns and South Florida Water Management Districts, the Cooperative Ecosystem Study Units network, the National Ecological Observatory Network (NEON) and specifically a key member of the Southeastern Ecological Observatory Network (SEEON), and the Dynamac Corporation.

Collectively these partnerships will allow our graduate students to be engaged in research activities, not only with our own excellent faculty, but also with leading researchers affiliated with these other institutions. Our MS in Biology students already routinely engage in research collaborations, internships, and on-site learning experiences through courses at these facilities.

We have also approached each of the individuals who have committed to being members of our external Advisory Board (see below and Appendix II) for the development of paid internships.

Atchison, Jim	President & COO, Busch Entertainment Corporation
Britt, Doug	President & COO, Dynamac Corporation
Cunniff, Lori	Mgr, Orange County Environmental Protection Division
Danter, Jeff	President, The Nature Conservancy Florida Chapter
DeFreese, Duane, Ph.D	VP, Science, Aquafiber Technologies Corp.
Dennis, Michael, Ph.D.	President, Breedlove, Dennis and Associates
Garner, Lesley, Ph.D.	Chief Education Programs, NASA’s Kennedy Space Center
Hinkle, C. Ross, Ph.D.	Professor & Chair, Department of Biology, UCF
Laurien, Phil	Exec. Dir., East Central FL Regional Planning Council
Ogden, Jackie, Ph.D.	VP, Animal Programs, Walt Disney World
Sumner, David, Ph.D.	Senior Hydrologist, Florida Water Science Center, USGS
Siegel, Rich, Ph.D.	Chair, Department of Biology, Towson University

**IV. Projected Benefit of the Program to the University, Local Community, and State**

Use information from Table 1, Table 2, and the supporting narrative for “Need and Demand” to prepare a concise statement that describes the projected benefit to the university, local community, and the state if the program is implemented. The projected benefits can be both quantitative and qualitative in nature, but there needs to be a clear distinction made between the two in the narrative.

There is a critical need, throughout the United States, and in Florida in particular, for professionals who have a specialization in the field of conservation biology. This PSM in Conservation Biology will provide trained and experienced professionals who will meet the modern practical and administrative challenges that face the ‘real world’ practitioners of conservation biology and will set UCF at the forefront of training this next generation of conservation biologists. Given the difficult economic times, and the limited budgetary impact this program will have on the Department of Biology and the College of Sciences, UCF is uniquely positioned with a current faculty that has the research expertise and practical experience to train these new students.

With this degree program, the qualitative benefits to the local community and the state will be to introduce professionals into the work force who have both the research and professional expertise to make effective contributions to current environmental and community conservation needs and who are trained to fill the needs of the front-line organizations that are involved in conservation. Each year, the 10 students who complete this program will introduce experts into the field who are capable of synergizing research expertise, thinking critically, and providing leadership in conservation biology. This program has the potential to transform both the professionals who work in the discipline as well as the industry of conservation biology. We designed this PSM program to create professionals who will bring “advanced, interdisciplinary, application-oriented scientific knowledge to their position” and who will have the ability to “readily contribute to the objectives, programs, and projects of employers in industry, government, and the nonprofit sector” (National Research Council, 2008).

**V. Access and Articulation – Bachelor’s Degrees Only**

**A. If the total number of credit hours to earn a degree exceeds 120, provide a justification for an exception to the policy of a 120 maximum and submit a request to the BOG for an exception along with notification of the program’s approval. (See criteria in BOG Regulation 6C-8.014)**

N/A

**B. List program prerequisites and provide assurance that they are the same as the approved common prerequisites for other such degree programs within the SUS (see Common Prerequisite Manual <http://www.facts.org>). The courses in the Common Prerequisite Counseling Manual are intended to be those that are required of both native and transfer students prior to entrance to the major program, not simply lower-level courses that are required prior to graduation. The common prerequisites and substitute courses are**

mandatory for all institution programs listed, and must be approved by the Articulation Coordinating Committee (ACC). This requirement includes those programs designated as “limited access.”

If the proposed prerequisites they are not listed in the Manual, provide a rationale for a request for exception to the policy of common prerequisites. NOTE: Typically, all lower-division courses required for admission into the major will be considered prerequisites. The curriculum can require lower-division courses that are not prerequisites for admission into the major, as long as those courses are built into the curriculum for the upper-level 60 credit hours. If there are already common prerequisites for other degree programs with the same proposed CIP, every effort must be made to utilize the previously approved prerequisites instead of recommending an additional “track” of prerequisites for that CIP. Additional tracks may not be approved by the ACC, thereby holding up the full approval of the degree program. Programs will not be entered into the State University System Inventory until any exceptions to the approved common prerequisites are approved by the ACC.

N/A

- C. If the university intends to seek formal Limited Access status for the proposed program, provide a rationale that includes an analysis of diversity issues with respect to such a designation. Explain how the university will ensure that community college transfer students are not disadvantaged by the Limited Access status. NOTE: The policy and criteria for Limited Access are identified in BOG Regulation 6C-8.013. Submit the Limited Access Program Request form along with this document.

N/A

- D. If the proposed program is an AS-to-BS capstone, ensure that it adheres to the guidelines approved by the Articulation Coordinating Committee for such programs, as set forth in Rule 6A-10.024 (see Statewide Articulation Manual <http://www.facts.org>). List the prerequisites, if any, including the specific AS degrees which may transfer into the program.

N/A

## **INSTITUTIONAL READINESS**

### **VI. Related Institutional Mission and Strength**

- A. Describe how the goals of the proposed program relate to the institutional mission statement as contained in the SUS Strategic Plan and the University Strategic Plan.

As stated earlier, this program supports the SUS Strategic Planning goal of meeting statewide professional and workforce needs in the economic development areas of emerging technologies, high-wage/high-demand, and globalization. As a STEM program, this Conservation Biology PSM degree will meet both local and regional industry needs for individuals who are professionally trained in the area of conservation and ecological impacts/development. Though



consultation with our advisory board and examining state and local deficiencies, we identify a critical need, throughout the United States, and in Florida in particular, for professionals who have a specialization in the field of conservation biology. Further, the professional training aspect of this program will generate business-savvy individuals who have the potential to assist with environmental challenges here in the states as well as on other continents.

With respect to the current University Strategic Plan, this program seeks to contribute to the promotion of the university as a leader in the central Florida city-state by meeting the local environmental and conservation needs of industry and economic developers. Further, this program has a strong interdisciplinary focus, which we specifically designed to address complex problems by providing a strong academic basis that enhances the research ability, critical thinking, and professional development of the students who complete the program. Finally, as exemplified through the program's Advisory Board, this degree program has developed partnerships with numerous organizations, corporations, non-profit agencies, governmental agencies, and universities to diversify the student's experience and establish a foundation for continued efforts between the university and the research and industrial community.

**B. Describe how the proposed program specifically relates to existing institutional strengths, such as programs of emphasis, other academic programs, and/or institutes and centers.**

The Department of Biology of the University of Central Florida has a long history of research into the ecology of Central Florida and in recent years has developed a focus on Conservation Biology. The primary mission of our proposed PSM in Conservation Biology is to provide high-quality training that prepares our graduates to understand and provide solutions to society's conservation challenges. We are committed to teaching relevant skills, providing expertise to meet workforce needs, and preparing our graduates for careers in the public and private sectors. Following the successes of our MS in Biology and, more recently, our PhD in Conservation Biology, the Department of Biology is dedicated to continuing the advancement of conservation biology through active and diverse research programs. This proposed PSM program will provide greater opportunities for student professionals, and provide trained experts for business and industry that work in the area of conservation biology. Faculty research has received national and international recognition, and our graduate students engage in research projects that are solid contributions to the discipline.

Conservation Biology is broadly defined and has many subdisciplines and specializations. Our PSM in Conservation Biology will interface traditional biological sciences with economics, law, urban and rural planning, politics, business management, and communication. The goal of our program is to produce biologists capable of working within the broader arena of environmental politics, law, and economics, and to communicate issues of conservation biology to policy makers, the general public, and industry. Students will obtain practical experience through internships in industry, non-governmental organizations and/or government agencies to apply the cutting-edge principles learned in the classroom to problem solving in the real world.

The Department of Biology is not currently associated with any existing UCF Centers or Institutes, however, UCF has assembled a regional team to propose an NSF Coastal Sustainability

Science and Technology Innovation Center (CSSTIC) focused on coastal adaptation to climate change. This NSF proposal, if funded, will position UCF, and specifically the Department of Biology, as the lead institution for the CSSTIC to provide a centralized, integrative and entrepreneurial framework to bring together scientists, educators, industry leaders and communication experts representing academic institutions, government organizations, non-government organizations, private/public consortia, and corporations as the intellectual foundation and initial network node to create, sustain and grow the CSSTIC. The CSSTIC will focus on coupled natural and human systems across three regional ecosystems of the Florida peninsula: Land/Freshwater, Atmosphere/CO<sub>2</sub> and Coastal/Ocean. The center will conduct interdisciplinary research to develop scientific theories of coupled natural-social system interaction effects, test hypotheses, develop new technologies, and cultivate knowledge-transfer to address six complex, large-scale and over-lapping sustainability science themes: 1. Understand coupled natural-human ecosystem processes and services in a complex, high biodiversity, human-dominated coastal landscape; 2. Understand individual and multiple natural and human ecosystem stressors and their impacts on environmental and human sustainability and health; 3. Develop new and innovative approaches to mapping, monitoring, modeling and forecasting coupled systems; 4. Develop engineering and technology solutions for assessment, mitigation and adaptation.; and 5. Understand the human dimensions of sustainability and 6. Work with communities at risk to translate knowledge into responsible strategies, actions and behaviors.

The CSSTIC will attract and retain high-quality graduate students by communicating a compelling vision, providing high-quality real-world educational experiences, integrating research and education with CSSTIC partners, linking students with “Sustainability Science and Technology Mentors”, and elevating the CSSTIC’s commitment to student success as a core institutional value. A national campaign will be initiated to attract and retain high quality graduate and undergraduate students with a strategic focus on students from underrepresented groups and people with disabilities. Excellence, innovation, diversity leadership, teamwork and effective knowledge transfer will be core values infused into and across all levels of the CSSTIC.

- C. Provide a narrative of the planning process leading up to submission of this proposal. Include a chronology (table) of activities, listing both university personnel directly involved and external individuals who participated in planning. Provide a timetable of events necessary for the implementation of the proposed program.**

Our Graduate Committee has been considering developing a new MS program for the past 2 years. Our 2008 Department Self-Study focused this process to develop a Conservation Biology MS program. NSF (solicitation 09-607) energized these plans with the summer 2009 publication of an RFP announcement for developing Science Master’s Programs (SMP). After meeting with Dr. Bishop, the Graduate Coordinator and Department Chair structured a basic curriculum and assembled the External Advisory Board (see III D) to provide input on program development and to support external intern and research opportunities. Dr. Teresa Dorman, COS, was actively engaged in helping critique the curriculum and develop the NSF proposal. The preliminary curriculum was further refined through a series of meetings with the Graduate Committee and full Biology faculty resulting in a plan that was then submitted to NSF as a Letter of Intent on October 5, 2009. Conversations then took place with the Department Heads/Deans of the

Department of Political Science, Department of Mathematics, Department of Philosophy, Department of Psychology, Nicholson School of Communication, College of Business Administration, and Department of Public Administration to confirm that they would allow Biology students to register in some of their classes. In all cases, the response was positive, and these letters and statements of support are found in Appendix I.

### Planning Process

Date	Participants	Planning Activity
August 2009	Graduate Coordinator/Department Chair	Identification of External Advisory Committee
August 2009	Graduate Coordinator/College of Sciences Assistant Dean	Preparing NSF Letter of Intent to be considered by UCF ORC and subsequent approval and submission to NSF
August 2009	Graduate Coordinator	Discussion with other involved departments
August-September 2009	Graduate Committee/Dept of Biology faculty	Development of curriculum
October 2009	Graduate Committee	Approval of new curriculum
October - November 2009	Graduate Coordinator/College of Sciences Assistant Dean	Wrote proposal for new degree plan; Submitted proposal for track within existing Biology MS
November 2009	Graham Worthy, Teresa Dorman, Reed Noss	Submitted NSF proposal to the NSF 09-607 RFP – “Science Master’s Program”.
November 2009 – January 2010	Graham Worthy	Recruiting students for initial class in new MS/track in Conservation Biology
March 2010	Departmental faculty	Approved proposal
April 2010	College of Science Graduate Committee	Approved proposal
April 2010	University Graduate Council	Requesting proposal approval
July 2010	BOT Educational Programs Committee review	Requesting proposal approval

### Events Leading to Implementation

Date	Implementation Activity
August 2010	Once approved, Start teaching new program to first class of 10.
August 2011	Second class will begin. Total enrollment will reach 20.
August 2012	First class will graduate

## VII. Program Quality Indicators - Reviews and Accreditation

**Identify program reviews, accreditation visits, or internal reviews for any university degree programs related to the proposed program, especially any within the same academic unit. List all recommendations and summarize the institution's progress in implementing the recommendations.**

This MS degree program recently underwent the 7-year review process conducted by the College

of Graduate Studies. Additionally, as a part of the Institutional Effectiveness process, this program is evaluated yearly at the university level to ensure that annual goals and outcomes are met. As well, if the degree program is funded by the proposed NSF grant, a summative evaluation and report will be conducted as a part of this award. As is the case with any new degree program, during the first several years, formative evaluations will take place to formalize the intern process and streamline the students' progression through the degree program. The University of Central Florida is accredited by the Southern Association of Colleges and Schools (SACS), and as such, the faculty of the program meet all credentialing to provide instruction to graduate students. UCF underwent SACS accreditation review and reaffirmation in 2006 and is well poised for the next review.

### **Programmatic Peer Institutions:**

The University programs generally used in our peer analyses are Department of Biology, University of Michigan; Biological Sciences, University of Pittsburgh; Biology Department, UCLA; Department of Biology, Georgia Tech; and the Biology Department, University of Texas in Austin. Relative to these peers, the UCF Biology graduate program is comparable in size to that of UCLA, UT - Austin, and Georgia Tech. The UCF Biology graduate program is about twice the size of the U. Pittsburgh program, but about 2/3 the size of the combined U. Michigan programs. However, the UCF graduate program is notably different from all of its peers because our M.S. students comprise 66% of the graduate program, whereas all other programs have fewer M.S. students (only 6% of graduate students are M.S. in peer programs). Therefore, Ph.D. students were included when comparing the UCF graduate program to peer programs.

During the most recent program review (2009) for the Biology Department, our BS and MS programs were evaluated. The PhD program has not been in existence long enough to warrant a review. The recommendations for the BS program were:

- Consider applying for NSF - Course, Curriculum and Laboratory Improvement funding

Our department has previously unsuccessfully applied for an NSF-CCLI grant but has discussed resubmitting it in the near future.

- Examine possibility of providing laboratory experiences via simulation

An area noted as a weakness was the small number of upper-division courses that include laboratories. We are currently limited in the number of GTA positions we can hire due to budgetary constraints but are slowly increasing the number of upper division lab courses.

- Adopt differential faculty teaching-load model and increase the number of faculty members and/or review faculty workload.

We hired one new faculty member who will start in July 2010 and hope to have additional hires over the next few years.

Strengths of our BS program included our partnerships with private and public organizations, our

commitment to high quality teaching, and strong student accomplishments.

The recommendations for the MS program were:

- To look for new partnerships with additional programs to broaden course offerings

The Biology department, in putting forward the PSM proposal, is incorporating a number of courses from other disciplines as noted in Appendix 1. The Department of Political Science, Department of Philosophy, Department of Psychology, Nicholson School of Communication, Department of Public Administration, and the College of Business Administration have all agreed to participate in the PSM as well as the existing Ph.D. in Conservation Biology

- To look for additional external funding.

While the reviewer noted that we should continue to search for additional research support, he also noted that one of our strengths was our strong research funding and partnerships. Biology had 18.5, 20, 18, and 16 tenured and tenure earning faculty who collectively received \$1.5M, \$2.5M, \$2.8M, and \$2.1M in new research funding in 2006, 2007, 2008 and 2009 respectively. All faculty members received some funding equating to a doubling of funding per FTE from \$80K to \$156K between 2006 and 2008.

- To continue to move the balance between Master's and Doctoral candidates to favor a higher ratio of doctoral to master's students.

We are slowly expanding our relatively young PhD program (started in 2004) as new faculty are hired. We are also being selective in our admission of high quality Ph.D. students while continuing to maintain a productive and successful MS program. Over time, the balance will favor doctoral students but we intend to maintain a vibrant MS program as well. One of our strengths was our high job placement in the field and in doctoral programs of our MS graduates.

- To redefine the non-thesis master's track into a professional science master's degree

The primary recommendation for strengthening our graduate program was the development of the degree program that this proposal addresses. This proposal functionally redefines the non-thesis track of our MS in Biology, expands the breadth of courses available to our students, and will aid in expanding our external partnerships and potential funding sources.

## **VIII. Curriculum**

- A. Describe the specific expected student learning outcomes associated with the proposed program. If a bachelor's degree program, include a web link to the Academic Learning Compact or include the document itself as an appendix.**

We will outline the student learning outcomes associated with this degree program in the department's institutional effectiveness plan as follows:

**Outcome 1:** Students will demonstrate a foundation of knowledge in the field of conservation biology necessary for related employment or future education.

**Measure 1.1:** After their first academic year, all students will be required to take an oral examination given by a committee of biologists. Performances will be communicated to the Graduate Committee to identify core concepts that are and are not well-understood.

**Measure 1.2:** Before graduation all students will be required publicly present and defend a research report, based on their internship, to a committee of biologists and their peers.

**Outcome 2:** Students will acquire the basic skills to do research and innovative work in the field of conservation biology and present it to their peers.

**Measure 2.1:** 50% of students will contribute to a presentation about their internship research at a professional society meeting prior to graduation.

**Measure 2.2:** 50% of students will contribute to a publication based on their internship work in a refereed journal within two years of graduation.

**Outcome 3:** 90% of graduates will obtain employment in a conservation biology related field or enter a Ph.D. or Professional Program within one year of graduation.

**Measure 3.1:** Graduates will be tracked by departmental survey with statistics maintained concerning success rates of those seeking employment.

**Measure 3.2:** The acceptance rate of graduates who apply to Ph.D. or Professional Schools to which they applied will be tracked.

**B. Describe the admission standards and graduation requirements for the program.**

Students in this program will be required to demonstrate a foundation of knowledge in the field of biology necessary for related employment or future education. Applicants do not need to have an undergraduate degree in a biological science, but we expect them to have 18 hours of biological sciences, including ecology and genetics. Courses in organic chemistry, calculus, and statistics are also recommended. After acceptance, the student must remedy any minor course deficiency by enrolling in the appropriate course at the first opportunity or upon advisement of the graduate program coordinator.

In addition to the general UCF graduate application requirements, applicants to this program must provide:

- One official transcript (in a sealed envelope) from each college/university attended.
- Official, competitive GRE score taken within the last five years. On average applicants to our MS program score 1250 on the GRE.
- Three letters of recommendation
- Résumé
- A written statement of experience and research, area of interest, and immediate and long-range goals.
- A score of at least 230 (computer-based test or paper-based equivalent) on the Test of English as a Foreign Language (TOEFL) is required for applicants from countries where

English is not the official language or applicants with degrees from a non-U.S. accredited institution.

Our acceptance process involves an assessment of undergraduate GPA and the student's GRE score, as well as evaluation on a range of multiple admission credentials: a graduate admission committee scores letters of recommendation and the statement of interest and objectives. Additionally, the committee evaluates numerous academic indicators (such as having completed a senior thesis, authorship on publications, internships, involvement in scientific research projects, and/or presentations at major scientific meetings) and non-academic indicators (such as evidence of leadership, extracurricular activities, work or military experience, and/or volunteer activities). We feel that these factors give a better indication of potential than merely looking at standardized scores.

Before graduation, all students will participate in an internship, take an oral examination, and present a final research report. During their internship, students will play an active role in implementing active adaptive management - including monitoring components - on public and private lands. This, in conjunction with solid training in critical thinking, experimental design, field ecology, and organismal biology, will produce practitioners capable of conducting more rigorous management experiments, and thereby yield more defensible answers to management questions. Our Advisory Board membership ensures that our students will find solid internships that will in turn lead to employment in the field. A committee of faculty biologists will oversee the oral examination and will evaluate students on their knowledge of key core concepts in conservation biology. Finally, the faculty committee will evaluate the students' understanding, writing, and analytical skills by means of a written research report and departmental presentation based on their internship experience and completed in their final semester.

The required professional development component of the program involves structured and mentored biology courses that will develop the students' presentation skills and provide them with the tools to write effective proposals and develop professional curriculum vitae. The professional development aspect of this program is enhanced through a choice of several courses offered by other disciplines, including the university's School of Communication (interpersonal support in the workplace); the Department of Public Administration (ethics and values in public administration, urban planning, land use and planning law, grant administration, nonprofit organizations); the College of Business (basic business management, negotiations, human resources management); the Department of Psychology (organizational psychology); and the Department of Political Science (environmental politics, global environmental politics).

This interdisciplinary selection of professional courses will provide skills that will be enhanced through internship experiences offered by partnering industries and businesses such as The Nature Conservancy, Dynamac Corporation, NASA's Kennedy Space Center, Orange County Environmental Protection Agency, East Central Florida Regional Planning Council, USGS Florida Water Science Center, Busch Entertainment Corporation (SeaWorld), Walt Disney World, and various environmental consulting firms. Several of the members of our advisory board have also indicated support of intern experience at their respective organizations. Students will obtain practical experience through these internships in industry, non-governmental

organizations, or government agencies to apply the cutting edge principles learned in the classroom to problem solving in conservation biology.

**C. Describe the curricular framework for the proposed program, including number of credit hours and composition of required core courses, restricted electives, unrestricted electives, thesis requirements, and dissertation requirements. Identify the total numbers of semester credit hours for the degree.**

This degree program will consist of 40 hours at the graduate level, including 16 hours of core courses in conservation biology; 14 hours of professional development - including courses in communications, mathematics, philosophy, politics, psychology, public administration, and business management; and 10 credit hours of internship and research analysis. Students admitted to this program will normally enroll into 18 hours (fall/spring) during the first year, and 22 hours (fall/spring/summer) the second year. We designed this program to be completed in two years. The proposed catalog copy is found in Appendix VII.

The core coursework and the internship/research component that is the culminating experience for the degree program provide students with the focused and guided experience that will help them develop the analytic skills necessary to present research hypotheses, proposals, and data to meet their own research goals and those of current/future employers.

**D. Provide a sequenced course of study for all majors, concentrations, or areas of emphasis within the proposed program.**

The following provides a sample Program of Study for the PSM in Conservation Biology:

**1st Year**

<p><b>Fall (9):</b> PCB 5045 Con. Biology (4) PCB 6095 Prof Dev I (1) Group A Elective (4)</p> <p><b>Program of Study filed</b></p>	<p><b>Spring (9):</b> PCB 6556 Con. Genetics (3) or PCB 6480C Quant. Con. Bio. (4) Group A Elective (4) PCB 6096 Prof Dev II (1)</p>	<p><b>Summer (0):</b></p>
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**2nd Year**

<p><b>Fall (9):</b> Group B Elective (3) Group B Elective (3) Group B Elective (3)</p>	<p><b>Spring (9):</b> PCB 6946 Internship Hours (6) Group B Elective (3)</p> <p><b>Oral Comprehensive Exam</b></p>	<p><b>Summer (4):</b> PCB 6946 Internship Hours (2) BSC 6909 Research Report (2)</p> <p><b>Research Report Filed</b></p>
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**Curriculum:**

**Required Courses—30 Credit Hours**



### **Core—16 Credit Hours**

Students should take two of the following courses.

- PCB 5045 Conservation Biology (4 credit hours)
- PCB 6556 Conservation Genetics (3 credit hours)
- PCB 6480C Quantitative Conservation Biology (4 credit hours)

Students should take one course from each of the following subject areas.

#### General Biology

- ENY 5006C Entomology (4 credit hours)
- PAZ 5235 Zoo and Aquarium Biology Management (3 credit hours)
- PCB 6365 Environmental Physiology (3 credit hours)
- PCB 6727 Comparative Animal Physiology (3 credit hours)
- ZOO 6520 Behavioral Ecology (3 credit hours)
- ZOO 5456C Ichthyology (4 credit hours)
- ZOO 5463C Herpetology (4 credit hours)
- ZOO 5475C Field Ornithology (3 credit hours)
- ZOO 5486 Mammalogy (4 credit hours)

#### Ecology

- BOT 6623C Plant Ecology (4 credit hours)
- BSC 5332 Invasion Biology (3 credit hours)
- PCB 5435C Marine Conservation Biology (4 credit hours)
- PCB 6035C Wetland Ecology (4 credit hours)
- PCB 6046C Advanced Ecology (5 credit hours)
- PCB 6048C Restoration Ecology (4 credit hours)
- PCB 6328C Landscape Ecology (4 credit hours)
- PCB 6466 Methods in Experimental Ecology (3 credit hours)

#### Evolutionary Biology, Applied Mathematics, and Genetics

- BSC 5821 Biogeography (4 credit hours)
- MAP 5117 Mathematical Modeling (3 credit hours)
- MAP 6938 Mathematical Biology (4 credit hours)
- PCB 6675C Evolutionary Biology (4 credit hours)
- PCB 6677 Molecular Evolution (3 credit hours)

### **Professional Development—14 Credit Hours**

Students should take the following two required courses.

- PCB 6095 Professional Development in Biology I (1 credit hour)
- PCB 6096 Professional Development in Biology II (1 credit hour)

Students also take 12 credit hours of courses selected from the list below or comparable courses as approved by the graduate program director.

- COM 6047 Interpersonal Support in the Workplace (3 credit hours)
- EDS 6100 Leadership (3 credit hours)
- INR 6352 Global Environmental Politics (3 credit hours)
- GEB 5516 Technological Entrepreneurship (3 credit hours)
- GEB 6115 Entrepreneurship (3 credit hours)

GEB 6116 Business Plan Preparation (3 credit hours)  
MAN 6244 Organizational Behavior (1.5 credit hours)  
MAN 6448 Conflict Resolution and Negotiation (3 credit hours)  
MAN 6286 Strategic Innovation (3 credit hours)  
MAN 6305 Human Resources Management (3 credit hours)  
PAD 5041 Ethics and Values in Public Administration (3 credit hours)  
PAD 5336 Introduction to Urban Planning (3 credit hours)  
PAD 5338 Land Use and Planning Law (3 credit hours)  
PAD 5850 Grant and Contract Management (3 credit hours)  
PAD 6142 Nonprofit Organizations (3 credit hours)  
PAD 6353 Environmental Program Management Research (3 credit hours)  
PAD 6397 Managing Emergencies and Crises (3 credit hours)  
PHM 5035 Environmental Philosophy (3 credit hours)  
PUP 6201 Urban Environmental Policy (3 credit hours)  
PUP 6208 Environmental Politics (3 credit hours)  
PUP 6247 Continuing Issues in Environmental Politics (3 credit hours)

### **Internship and Research Report—10 Credit Hours**

PCB 6946 Internship in Conservation Biology (8 credit hours total)  
BSC 6909 Research Report (2 credit hours)

Upon the approval of the Graduate Program Coordinator, a maximum of six hours of directed research (6918) or independent study (6908) may be used to meet degree requirements.

### **Independent Learning**

The internship program and the research report serves as the independent learning experience for this program.

### **Culminating Experience**

Before graduation, all students will participate in an internship, take an oral examination, and present a final research report. If a student fails the oral examination or the final research report, a minimum of four weeks must pass before re-examination. A student may take the comprehensive exam and/or the final research report a maximum of two times. During their internship, students will play an active role in implementing active adaptive management - including monitoring components - on public and private lands.

A committee of faculty biologists will oversee the oral examination and will evaluate the students on their knowledge of key core concepts in conservation biology. Finally, the faculty committee will evaluate the students' understanding, writing, and analytical skills by means of a written research report and departmental presentation based on their internship experience and completed in their final semester.

**E. Provide a one- or two-sentence description of each required or elective course.**

### **Biology Department Courses:**

BOT 6623C Plant Ecology 4 (3, 3) The study of the abiotic and biotic processes that control

- the distribution of terrestrial flora at local, landscape, and global scales.
- BSC 5332 Invasion Biology **3** (3, 0) The three stages of biological invasion (introduction, establishment and spread) as well as impacts on native species and ecosystems.
- BSC 5821 Biogeography **4** (4, 0) Study of geographic variation in nature, ranging from past to present and from genes to ecosystems.
- ENY 5006C Entomology **4** (2, 6) Morphology, physiology, ontogeny, behavior, ecology and population biology of insects.
- PAZ 5235 Zoo and Aquarium Biology Management **3** (3, 0) Conservation, propagation and exhibition of wild animals in captivity.
- PCB 5045 Conservation Biology **4** (3, 2) Scientific basis of conservation; conservation of ecosystems, populations, exploited species, and endangered species.
- PCB 5435C Marine Conservation Biology **4** (4, 0) Survey of experimental methods used in the study of marine communities in central and southern Florida, combining field manipulation and readings from primary literature.
- PCB 6035C Wetland Ecology **4** (3, 3) Advanced study of ecological structure, function, and diversity of wetlands. Lectures, discussions, and field-based labs, including management, laws, and restoration.
- PCB 6046C Advanced Ecology **5** (3, 4) Population and community ecology with emphasis on growth, regulation, species interactions, succession, and community classification.
- PCB 6048C Restoration Ecology **4** (2, 4) Survey of the general ecological principles that guide restoration ecology: the process of assisting the recovery of degraded, damaged or destroyed ecosystems.
- PCB 6095 Professional Development in Biology I **1** (1, 0) Methods in experimental design, research, and the ethics of animal research.
- PCB 6096 Professional Development in Biology II **1** (1, 0) Preparation and presentation of research grants, scientific presentations, and scientific papers.
- PCB 6328C Landscape Ecology **4** (3, 2) Influence of spatial heterogeneity on ecological processes. Emphasizes quantitative methods (e.g., GIS, remote sensing and modeling) to characterize landscape patterns and dynamics.
- PCB 6365 Environmental Physiology **3** (3, 0) The effects of major environmental factors on the physiology of plants and animals.
- PCB 6466 Methods in Experimental Ecology **3** (3, 0) An introduction to methods of population ecology. Experimental design, statistics, experimental variables and treatments and measurements of organisms and the environment.
- PCB 6480C Quantitative Conservation Biology **4** (3, 2) Current methods of data analysis and modeling to evaluate biological population dynamics.
- PCB 6556 Conservation Genetics **3** (3, 0) Applications of genetic models to the understanding and conservation of animal and plant populations.
- PCB 6675C Evolutionary Biology **4** (3, 2) Review of modern concepts and theories in evolutionary biology with emphasis on readings in the primary literature.
- PCB 6677 Molecular Evolution **3** (3, 0) Provides an overview of molecular methods currently used to analyze diversity within and among species.
- PCB 6727 Comparative Animal Physiology **3** (3, 0) Comparison of structural and functional adaptations of animal organ systems. Emphasis upon maximization

- of fitness under given environmental conditions
- ZOO 5456C Ichthyology **4** (2, 6) Introduction to the biology of the fishes, their classification, evolution, and life histories.
- ZOO 5463C Herpetology **4** (2, 6) Introduction to the biology of the amphibians and reptiles, their classification, evolution, and life histories.
- ZOO 5475C Field Ornithology **3** (0, 6) Introduction to the identification, taxonomy, natural history, and biology of birds, with emphasis on survey techniques and systematics.
- ZOO 5486 Mammalogy **4** (4, 0) Introduction to the biology of mammals, their classification, evolution, and life histories.
- ZOO 6520 Behavioral Ecology **3** (3, 0) Introduction to the field of Behavioral Ecology, which studies evolution of animal behavior in the wild.

**Non-Biology Courses:**

- COM 6047 Interpersonal Support in the Workplace **3** (3, 0) Interpersonal theories relevant to understanding marginalization and building supportive relationships in the workplace.
- EDS 6100 Leadership **3** (3, 0) Analysis of the interactive process within and between groups, emphasizing the formation and functioning of groups; development of skills essential for effective leadership
- INP 6317 Organizational Psychology and Motivation (3, 0) Review of theories, research and application of psychological principles to organizational settings and human motivation
- INR 6352 Global Environmental Politics **3** (3, 0) Unique environmental struggles and issues on the international and global levels.
- MAN 5021 Management Foundations 1.5(1.5, 0). Theory and practice of managing organizations to include planning, organizational theory, human behavior, and control.
- MAN 6244 Organizational Behavior 1.5(1.5, 0). Study of behavior of individuals, groups, and the interactions between them. Students will be exposed to the theories behind the "people" skills for effective management.
- MAN 6299 Creative and Innovative Management 3(3, 0). This course examines the emerging theories and practices related to creative and innovative management. It combines the creativity of new concepts, new ideas, new directions, and the like with their innovative implementation in a management context.
- MAN 6305 Human Resources Management 3(3, 0). Course is designed as an overview of human resources practices, techniques and strategies.
- MAN 6446 Applied Negotiations in Management 1.5(1.5, 0). The study and application of negotiation theories and processes to human resource management practices and other management activities in work organizations.
- MAP 5117 Mathematical Modeling **3**(3, 0) Introduction to modeling in industrial and scientific applications; techniques for studying statistical and deterministic models.
- MAP 6938 Mathematical Biology **4** (4, 0) A survey of mathematical methods that can be applied to study biological models that involve single populations, interacting

- populations, structured populations, epidemics, genetics, and decision-making.
- PAD 5041 Ethics and Values in Public Administration **3** (3, 0) Examination of ethics in the public sector. Public concerns, past patterns, and individual/social aspects of ethical behavior are explored.
- PAD 5336 Introduction to Urban Planning **3** (3, 0) Issues of urbanization, regional development, land use and comprehensive planning, environmental planning, and social planning
- PAD 5338 Land Use and Planning Law **3** (3, 0) Review of national and local aspects of the legal underpinnings of urban planning aspects such as zoning, growth management, and environmental regulation.
- PAD 5850 Grant and Contract Management **3** (3, 0) Study of government or public nonprofit agency grant and contract administration and management responding to funding assistance solicitations and grant and contract preparation, evaluation, and presentation.
- PAD 6142 Nonprofit Organizations **3** (3, 0) Synthesis of best practices and research literature in nonprofit organization management. Instruction method is simulation where students act as nonprofit organization Board Members developing policies and procedures.
- PAD 6353 Environmental Program Management Research **3** (3, 0) Research of environmental programs, problems, issues, and policies to prepare persons working for or entering government service for environmental program staff or management responsibilities.
- PAD 6397 Managing Emergencies and Crises **3** (3, 0) Analyzes and integrates the basic crisis management steps: hazard mitigation, disaster preparedness, disaster response, and recovery --building analytical and practical skills necessary to perform effectively in homeland security/emergency management-related positions.
- PHM 5035 Environmental Philosophy **3** (3, 0) This course will provide an in-depth examination of the major contemporary positions in environmental philosophy, including deep ecology, ecofeminism, and social ecology.
- PUP 6201 Urban Environmental Policy **3** (3, 0) Covers the relationship between public policy, ecology, and the urban political landscape by tracing the trajectory of its development and prospects for sustainable cities.
- PUP 6208 Environmental Politics **3** (3, 0) Examines the political ideas and practices which have shaped environmental politics and practices in the U.S.
- PUP 6247 Contemporary Issues in Environmental Politics **3** (3, 0) A detailed examination of recent developments in one or more areas of environmental politics. Topics may include land and water regulation and pollution control.

**F. For degree programs in the science and technology disciplines, discuss how industry-driven competencies were identified and incorporated into the curriculum and identify if any industry advisory council exists to provide input for curriculum development and student assessment.**

**External Advisory Committee:**

We formed an External Advisory Committee to assist in the development of curriculum, placement of students in internships, and raising monies to support our in-program students as well as to attract new students into the program. The members of this board are identified in Appendix II.

We developed the curriculum for this program using the basic criteria for a Professional Science Masters degree in consultation with the faculty of the Department of Biology and the members of our external Advisory Board. A Professional Science Master's (PSM) is defined as a graduate degree that typically consists of two years of academic training in an emerging or interdisciplinary area of science, mathematics, or technology. The PSM also contains a professional component that may include internships and "cross-training" in business, management, and communications. To use the term PSM, a program must be certified with the Council of Graduate Schools (CGS) PSM Program

The Professional Science Master's (PSM) degree is a unique professional degree grounded in science and/or mathematics and designed to prepare students for a variety of career options in business, government, or non-profit organizations. The degree combines advanced coursework in science and/or math with an appropriate array of professional skill-development activities to produce graduates highly valued by employers and fully prepared to progress toward leadership roles.

In order to be recognized as a PSM, the following criteria are important:

- A majority of program course work in graduate-level science and/or mathematics courses in one or more disciplines. An interdisciplinary curriculum is highly desirable.
- A professional skills component (often called the "plus" component of a "science-plus degree") that may consist of a variety of relevant courses and activities developed in consultation with prospective employers. Examples include business basics, legal and regulatory issues, finance and marketing, communication and teamwork, and are often developed in collaboration with appropriate academic units outside the sciences or taught by adjunct faculty from the targeted employment sector. In addition to courses and workshops, professional skills are usually enhanced by internships and problem-based projects sponsored by employers. The professional component should result in a portfolio of experiences recognized by and involving the client employers.
- Program quality assurance should be provided using the faculty-based mechanisms normally used by the institution for graduate programs in order to ensure institutional integration and sustainability. It is understood that the professional nature of the program may lead to substantial participation by non-academic practicing professionals, for example as adjunct faculty course instructors or student internship mentors.
- An active and engaged employer advisory board. Examples of board and/or individual-member functions include providing advice on the program curriculum, assisting with internships and placement, assisting with project-identification, and/or interacting individually with students.
- A commitment to report enrollment and degrees annually and an attempt to track the employment history of every graduate in order to help assess program outcomes and success.

- Agreement to use the name “Professional Science Master’s” and the PSM logo on Websites and advertising brochures. In turn the program will be listed on CGS national PSM websites and data bases, and will be included in CGS PSM promotional activities.

**G. For all programs, list the specialized accreditation agencies and learned societies that would be concerned with the proposed program. Will the university seek accreditation for the program if it is available? If not, why? Provide a brief timeline for seeking accreditation, if appropriate.**

As of November 24 2009, the proposed PSM in Conservation Biology was certified with the Council of Graduate Schools as an approved PSM Program (Appendix III). CGS lists affiliated programs on the [www.sciencemasters.com](http://www.sciencemasters.com) website. These programs may use the official PSM logo on their website and other marketing materials and have access to the PSM promotional materials and activities provided by the Council of Graduate Schools (CGS). We will also encourage our students to apply for certification with the Ecological Society of America.

**H. For doctoral programs, list the accreditation agencies and learned societies that would be concerned with corresponding bachelor’s or master’s programs associated with the proposed program. Are the programs accredited? If not, why?**

N/A

**I. Briefly describe the anticipated delivery system for the proposed program (e.g., traditional delivery on main campus; traditional delivery at branch campuses or centers; or nontraditional delivery such as distance or distributed learning, self-paced instruction, or external degree programs). If the proposed delivery system will require specialized services or greater than normal financial support, include projected costs in Table 2. Provide a narrative describing the feasibility of delivering the proposed program through collaboration with other universities, both public and private. Cite specific queries made of other institutions with respect to shared courses, distance/distributed learning technologies, and joint-use facilities for research or internships.**

The department will deliver this program primarily by a traditional delivery on the main UCF campus with internships undertaken in the local region. Internship experiences will be offered by partnering with industries and businesses, non-profit organization, for-profit companies, and government agencies such as The Nature Conservancy, Dynamac Corporation, Aquafiber Technologies Corp., NASA’s Kennedy Space Center, Orange County Environmental Protection Agency, East Central Florida Regional Planning Council, St. John’s River Water Management District, USGS Florida Water Science Center, Busch Entertainment Corporation (SeaWorld), Walt Disney World’s Environmental Programs, and various environmental consulting firms located in Central Florida. Alternatively, students could undertake their internship working with faculty in a UCF department research lab.

## **IX. Faculty Participation**

- A. Use Table 4 to identify existing and anticipated ranked (not visiting or adjunct) faculty who will participate in the proposed program through Year 5. Include (a) faculty code associated with the source of funding for the position; (b) name; (c) highest degree held; (d) academic discipline or specialization; (e) contract status (tenure, tenure-earning, or multi-year annual [MYA]); (f) contract length in months; and (g) percent of annual effort that will be directed toward the proposed program (instruction, advising, supervising internships and practica, and supervising thesis or dissertation hours).

### **Program Administration**

The Graduate Program Coordinator will administer the PSM in Conservation Biology program and will be responsible for the overall maintenance and development of the graduate program for the Department of Biology, including acting as Chair of the Graduate Committee. The Graduate Committee's responsibilities include overseeing the admission of students into the programs, coordinating the curriculum and determining an appropriate program of study for graduate students, supervising all non-thesis graduate students, developing mechanisms for measuring and evaluating the program for Institutional Effectiveness, and representing the department in matters relating to our graduate programs.

A Graduate Program Administrator, who is responsible for implementing and assisting the graduate programs in the department and who will oversee the internship program, will assist the Coordinator. Their duties include coordination of classes, registering graduate students, changing and updating the graduate student manual, and the university graduate catalog, and updating of audits using programs of study that are agreed upon by the student and their faculty advisors to meet graduation requirements.

### **Role of the Graduate Committee**

The Biology Graduate Committee provides administrative oversight of the Graduate programs of the Department of Biology. This committee is comprised of a Chair (Program Coordinator) and five additional members. Additionally, the Associate Chair of Biology serves on this Committee as a non-voting ex-officio member. Committee members are elected by enfranchised Department of Biology faculty members and will include both tenure-track and tenured Graduate Program Faculty, with a minimum of three tenured members. Committee members will serve three-year terms arranged so that at least one new member will be elected each year. The Biology Graduate Committee serves as the admissions committee; approves all programs of study for students enrolled in the program; recommends inclusion of new courses among program electives; hears and decides student appeals; and handles other academic issues as they arise.

- B. Use Table 2 to display the costs and associated funding resources for existing and anticipated ranked faculty (as identified in Table 2). Costs for visiting and adjunct faculty should be included in the category of Other Personnel Services (OPS). Provide a narrative summarizing projected costs and funding sources.

The new PSM in Conservation Biology will ultimately require one new faculty member to facilitate the regular teaching of additional course offerings required for this new program, as well as one additional staff person to oversee the management of the required internships. This



new faculty member has been hired – Hojun Song – and will arrive in the Department in August 2010.

**C. Provide the number of master's theses and/or doctoral dissertations directed, and the number and type of professional publications for each existing faculty member (do not include information for visiting or adjunct faculty).**

Faculty Name	Theses	Dissertations	Professional Publications
Crampton, William	1	1	52 papers, 9 book chapters, 1 book
Fauth, John	6	0	30 papers, 2 book chapters
Fedoraka, Ken	3	0	12 papers, 1 book chapter
Hinkle, Ross	3	2	47 papers, 1 book chapter
Hoffman, Eric	4	1	26 papers
Jenkins, David	29	3	24 papers, 2 book chapters
Noss, Reed	6	9	72 papers, 60 book chapters, 6 books
Parkinson, Christopher	6	1	26 papers
Quintana-Ascencio, Pedro	1	1	20 papers, 1 book chapter
Song, Hojun	0	0	21 papers, 1 book chapter
Von Holle, Betsy	1	1	19 papers, 2 book chapters
Walters, Linda	17	1	45 papers, 1 book chapter
Weishampel, John	18	1	29 papers, 18 book chapters
Worthy, Graham	15	13	67 papers, 5 book chapters, 1 book

**D. Provide evidence that the academic unit(s) associated with this new degree have been productive in teaching, research, and service. Such evidence may include trends over time for average course load, FTE productivity, student HC in major or service courses, degrees granted, external funding attracted, as well as qualitative indicators of excellence.**

During the period 2006-2008, Biology had 18.5, 20, 18, and 16 tenured and tenure earning faculty who collectively received \$1.5M, \$2.5M, \$2.8M, and \$2.1M in new research funding in 2006, 2007, 2008, and 2009 respectively. All faculty members received some funding equating to a doubling of funding per FTE from \$80K to \$156K per year between 2006 and 2008. During that time, the Biology faculty produced 202 refereed journal articles, 21 refereed book chapters, 44 conference proceedings and 48 other publications. The faculty also participated in a total of 124 invited presentations, 186 refereed conference presentations, and 85 other presentations, while their research was cited 5362 times. Undergraduate researchers, active in Biology research labs, increased from 50 to 128 over the same time period. During this 3-year period, total undergraduate SCH increased from 20,361 to 27,191, with graduate SCH averaging approximately 1100. Total SCH per faculty FTE increased from 953 to 1281.5. During this 3-year period, the department awarded a total of 520 BS degrees, 57 MS degrees and the program's first 4 PhD degrees.

**TABLE 4**  
**ANTICIPATED FACULTY PARTICIPATION**

Faculty Code	Faculty Name or "New Hire" Highest Degree Held Academic Discipline or Speciality	Rank	Contract Status	Initial Date for Participation in the Program	Mos. Contract Year 1	FTE Year 1	% Effort for Prg. Year 1	PY Year 1	Mos. Contract Year 5	FTE Year 5	% Effort for Prg. Year 5	PY Year 5
A	Crampton, William PhD Ecology and conservation biology	Assistant Professor	TE	2011	9	0.75	3%	0.02	9	0.75	3%	0.02
A	Fauth, John PhD Ecology and environmental health	Associate Professor	T	2011	12	1.00	3%	0.03	12	1.00	3%	0.03
A	Fedorka, Kenneth PhD Evolution of mating systems	Assistant Professor	TE	2011	9	0.75	3%	0.02	9	0.75	3%	0.02
A	Hinkle, C. Ross PhD Landscape ecology	Professor and Chair	T	2011	9	0.75	3%	0.02	9	0.75	3%	0.02
A	Hofman, Eric PhD Evolutionary genetics	Assistant Professor	TE	2011	9	0.75	3%	0.02	9	0.75	3%	0.02
A	Jenkins, David PhD Wetlands ecology	Associate Professor	T	2011	9	0.75	3%	0.02	9	0.75	3%	0.02
A	Noss, Reed PhD Conservation biology	Professor	T	2011	9	0.75	3%	0.02	9	0.75	3%	0.02
A	Parkinson, Christopher PhD Evolutionary genetics	Associate Professor	T	2011	9	0.75	3%	0.02	9	0.75	3%	0.02
A	Quintana-Ascencio, Pedro PhD Plant ecology	Associate Professor	T	2011	9	0.75	3%	0.02	9	0.75	0%	0.00
A	Song, Hojun PhD Insect systematics	Assistant Professor	TE	2012	9	0.75	0%	0.00	9	0.75	3%	0.02
A	Von Holle, Betsy PhD Landscape ecology	Assistant Professor	TE	2011	9	0.75	3%	0.02	9	0.75	0%	0.00

A	Walters, Linda PhD Marine biology	Professor	T	2012	9	0.75	0%	0.00	9	0.75	0%	0.00
A	Weishampel, John PhD Landscape ecology	Professor	T	2012	9	0.75	0%	0.00	9	0.75	0%	0.00
A	Worthy, Graham PhD Physiological ecology	Professor	T	2012	9	0.75	0%	0.00	9	0.75	3%	0.02
	<b>Total Person-Years (PY)</b>							0.21				0.21

Faculty CODE	Source of Funding	PY Workload by Budget Classification	
		Year 1	Year 5
<b>A</b>	Existing faculty on a regular line Current Education & General Revenue	<b>0.21</b>	<b>0.21</b>
<b>B</b>	New faculty to be hired on a vacant line Current Education & General Revenue		
<b>C</b>	New faculty to be hired on a new line New Education & General Revenue	<b>0.00</b>	<b>0.00</b>
<b>D</b>	Existing faculty hired on contracts/grants Contracts/Grants		
<b>E</b>	New faculty to be hired on contracts/grants Contracts/Grants		
<b>Overall Totals for</b>		<b>Year 1 0.21</b>	<b>Year 5 0.21</b>

**X. Non-Faculty Resources**

- A. Describe library resources currently available to implement and/or sustain the proposed program through Year 5. Provide the total number of volumes and serials available in this discipline and related fields. List major journals that are available to the university's students. Include a signed statement from the Library Director that this subsection and subsection B have been reviewed and approved for all doctoral level proposals.**

We already have a diverse set of library resources that have been collected over the past five years during the development of our Ph.D. in Conservation Biology that have relevance to this new MS program. A listing of all relevant library holdings is included in Appendix IV and V.

- B. Describe additional library resources that are needed to implement and/or sustain the program through Year 5. Include projected costs of additional library resources in Table 3.**

No additional resources are needed.

*For signature, and letter of support, please see Appendix VI.*

\_\_\_\_\_  
Library Director

\_\_\_\_\_  
Date

- C. Describe classroom, teaching laboratory, research laboratory, office, and other types of space that are necessary and currently available to implement the proposed program through Year 5.**

All class and teaching laboratory space that will be required for this program are already available and in use.

- D. Describe additional classroom, teaching laboratory, research laboratory, office, and other space needed to implement and/or maintain the proposed program through Year 5. Include any projected Instruction and Research (I&R) costs of additional space in Table 2. Do not include costs for new construction because that information should be provided in response to X (J) below.**

None needed.

- E. Describe specialized equipment that is currently available to implement the proposed program through Year 5. Focus primarily on instructional and research requirements.**

No specialized equipment is needed.

- F. Describe additional specialized equipment that will be needed to implement and/or sustain the proposed program through Year 5. Include projected costs of additional equipment in Table 2.**

None needed.

**G. Describe any additional special categories of resources needed to implement the program through Year 5 (access to proprietary research facilities, specialized services, extended travel, etc.). Include projected costs of special resources in Table 2.**

None needed.

**H. Describe fellowships, scholarships, and graduate assistantships to be allocated to the proposed program through Year 5. Include the projected costs in Table 2.**

It is common for students in PSM programs to cover all costs of their education. In general, the salaries of PSM-trained students are quite high upon graduation, with 76% earning more than \$50,000 per year and nearly 20% who earn more than \$100,000 per year (NPSMA alumni survey, 2009).

Students will compete for standard UCF Provost Fellowships upon application to the program. This limited opportunity award is ultimately the decision of the Graduate College's Fellowship Committee. However, Provost fellowships are being phased out. We will also continually explore additional fellowship and financial assistance opportunities; however, at this time, there is no standard fellowship or scholarship opportunity available to master's students. We are also pursuing funding for student assistantships and educational support through an NSF grant. If this grant is funded, it will provide \$25,500 to each of 10 students during their first year for each of the first two years of the program (totaling \$255K/yr) as well as fund up to \$1,000 of travel costs for individual students to attend professional meetings (totaling \$10K/yr).

Research assistantship opportunities are available to students who are paired up with current faculty who have research funding, and we will select these students based on a match of research interests and experience. These assistantship positions will be recurring, based on continued grant funding, and will average \$10K per student per academic year in stipend support as well as tuition waivers.

**I. Describe currently available sites for internship and practicum experiences, if appropriate to the program. Describe plans to seek additional sites in Years 1 through 5.**

Through efforts and commitments made by the members of our external Advisory Board internship experiences will be offered by partnering industries and businesses. A number of these internships will be paid. Examples of industries and businesses that will offer these internships include: The Nature Conservancy, Dynamac Corporation, NASA's Kennedy Space Center, Orange County Environmental Protection Agency, East Central Florida Regional Planning Council, USGS Florida Water Science Center, Busch Entertainment Corporation (SeaWorld), Walt Disney World's Environmental Programs, and various environmental consulting firms located in Central Florida. As additional partnerships are explored and solidified, we will add new internship sites.

**J. If a new capital expenditure for instructional or research space is required, indicate where this item appears on the university's fixed capital outlay priority list. Table 2 includes only**

**Instruction and Research (I&R) costs. If non-I&R costs, such as indirect costs affecting libraries and student services, are expected to increase as a result of the program, describe and estimate those expenses in narrative form below. It is expected that high enrollment programs in particular would necessitate increased costs in non-I&R activities.**

None needed.

**Appendix I**  
**Letters of Departmental Support**

**1. College of Business Administration:**

From: Jaishankar Ganesh <jganesh@bus.ucf.edu>  
To: Graham Worthy <gworthy@mail.ucf.edu>  
Cc: Foard Jones <fjones@bus.ucf.edu>, Judy Ryder <jryder@bus.ucf.edu>

Date: Fri, Nov 6, 2009 at 3:51 PM

Hi Graham:

It was nice meeting you yesterday. The Management department chair (copied here), who also happens to be the interim Associate Dean for the graduate programs is very pleased to support the Professional Science Masters in Conservation Biology, and would like to offer the following courses to the students of your program:

Fall: MAN 6245 Organizational Behavior, MAN 6286 Strategic Innovation, MAN 6305 Human Resource Management, GEB 6115 Entrepreneurship

Spring: MAN 6448 Conflict Resolution, GEB 6116 Business Plan Preparation, GEB 5516 Technological Entrepreneurship

Also, if the students have problems enrolling in one or more of these classes, they can contact Ms. Judy Ryder (jryder@bus.ucf.edu), our admissions director, who will be able to help them get enrolled.

Good Luck with the program.

Jai

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Jaishankar Ganesh  
Associate Dean  
Administration and Executive Education  
College of Business Administration  
University of Central Florida  
407-823-5094

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## **2. Department of Political Science:**

From: Graham Worthy <gworthy@mail.ucf.edu>  
To: Peter Jacques [pjacques@mail.ucf.edu](mailto:pjacques@mail.ucf.edu), jknuckey@mail.ucf.edu

Date: Fri, Oct 30, 2009 at 1:25 PM

Hi

I'm just following up on our previous correspondence regarding us including INR 6405 in our Professional Sciences MS in Conservation Biology. Could I get an email or memo from you stating that you support the inclusion?

Thanks, Graham

---

Graham A.J. Worthy, Ph.D.

Graham:

Yes, I have no problem with that. I'll copy Peter Jacques - the faculty member who teaches these classes too.

Regards,  
Jonathan.

Dr. Jonathan Knuckey  
Associate Professor  
Graduate Program Director  
Department of Political Science  
University of Central Florida  
Orlando  
FL 32816



### **3. Department of Philosophy:**

Graham Worthy wrote:

Hi

I am the graduate program coordinator for Biology and we are currently going through the process of developing a Professional Sciences MS in Conservation Biology. We would like to list PHM 5035 as one of our recommended courses and was wondering if you could tell me if it is regularly offered and if you could handle an additional 5-10 students in it.

Cheers, Graham

---

Graham A.J. Worthy, Ph.D.

From: Bruce Janz <janzb@mail.ucf.edu>

Sent at 9:48 PM (GMT-04:00). Current time there: 12:18 PM.

To: Graham Worthy <gworthy@mail.ucf.edu>

Graham: I've checked around, and I think it shouldn't be a problem for PHM 5035 to be listed in your program as a recommended course. As I think I mentioned, we have been offering it lately as a 4000/5000 course. It was offered in Spring 08, 09, and will be in Spring 10 as well. We haven't yet put together the schedule for 10-11, but I expect we'll run it regularly, barring the loss of personnel. So I think it should be safe to list, and we'd welcome knowledgeable bio students. The usual instructor for that course is Dr. Ronnie Hawkins, a philosopher who also has an M.D., and we have someone else who also works in environmental philosophy as well, Dr. Jane Compton. If you have any specific questions about the course (for instance, if students want to know what they're getting into), I'm sure Dr. Hawkins would be able to answer them.

Let me know if you have any other questions, and thanks for initiating this connection. We're always interested in finding ways to work with other departments for mutual benefit.

Bruce

#### **4. Department of Public Administration:**

From: Graham Worthy <gworthy@mail.ucf.edu>  
Sent at 1:50 PM (GMT-04:00). Current time there: 12:23 PM.  
To: Mary Ann Feldheim <mfeldhei@mail.ucf.edu>

Hi

We're in the final stages of putting together the white paper for the Prof.Sci. MS in Conservation biology we spoke of a few weeks ago and I was wondering if you could write an email or a memo stating that you would be supportive of some of our students taking the following courses?

As you recall we would probably be talking about 3 or 4 students in a given semester.

PAD 5041 Ethics and Values in Public Administration 3 (3, 0)  
PAD 5336 Introduction to Urban Planning 3 (3, 0)  
PAD 5338 Land Use and Planning Law 3 (3, 0)  
PAD 5850 Grant and Contract Management 3 (3, 0)  
PAD 6142 Nonprofit Organizations 3 (3, 0)  
PAD 6353 Environmental Program Management Research 3 (3, 0)  
PAD 6397 Managing Emergencies and Crises 3 (3, 0)

Cheers, Graham

---

Graham A.J. Worthy, Ph.D.

From: Mary Ann Feldheim <mfeldhei@mail.ucf.edu>  
Sent at 8:49 AM (GMT-04:00). Current time there: 10:08 AM. ☺  
To: Graham Worthy <gworthy.po20.ucf-mc@mail.ucf.edu>

Mon, Aug 24, 2009 at 8:49 AM

Hi Graham,

We are developing a new Masters of Urban and Regional Planning program, and I would like to meet with you to talk about cross-over courses for that also. Please let me know when you might be able to meet to discuss a potential collaboration.

Mary Ann

Mary Ann Feldheim, Ph.D.  
Chair and Associate Professor  
UCF - Department of Public Administration

## **5. Nicholson School of Communication:**

From: Graham Worthy <gworthy@mail.ucf.edu>  
Sent at 10:15 AM (GMT-04:00). Current time there: 2:26 PM.  
To: apryor@pegasus.cc.ucf.edu

Hi

I am the graduate program coordinator for Biology and we are currently going through the process of developing a Professional Sciences MS in Conservation Biology. We would like to list MMC 6612 as one of our recommended courses and was wondering if you could tell me if it is regularly offered and if you could handle an additional 5-10 students in it.

Cheers, Graham

---

Graham A.J. Worthy, Ph.D.

From: Burt Pryor <apryor@mail.ucf.edu>  
Sent at 2:37 PM (GMT-04:00). Current time there: 2:26 PM.  
To: Graham Worthy <gworthy@mail.ucf.edu>  
Cc Kirsten Seitz <kseitz@mail.ucf.edu>

Date: Thu, Aug 20, 2009 at 2:37 PM

Graham:

Thanks for checking with me on this. Because of faculty attrition and the hiring freeze, we currently have no graduate faculty to teach MMC 6612. It seems unlikely that we will be able to offer it until we are able to hire additional graduate faculty. We cap our graduate classes at 20 and control registration into our classes with permission numbers. We open enrollment to students from other programs shortly before each semester begins. While I am pretty certain we would never have 10 seats available for a class, we may have 4 or 5 seats in a couple of classes that would be of help to you with your professional track. I am thinking of our Health Communication class (COM 6025) and Interpersonal Support in the Workplace (COM 6047). If your students are interested in these or other Communication classes, the contact person to get on the wait list that we open after our students have registered is Kirsten Seitz, copied above. Kirsten is the Graduate Program Assistant.

Please call me if would more clarification.

Burt Pryor

## **6. Department of Psychology:**

To: Graham Worthy <gworthy@mail.ucf.edu>

Date: Thu, Apr 8, 2010 at 9:25 AM

Graham,

Sorry it took so long. I had a hard time getting my faculty to respond...the courses in our Masters in IO are most relevant as electives and the ones that are starred appear the most relevant of these.

\*INP 6317 Organizational Psychology and Motivation (3 credit hours)\*\*\*

\*INP 6605 Training and Performance Appraisal (3 credit hours)\*\*\*

\*INP 6080 Advance Practice in Industrial and Organizational Psychology (3 credit hours)

\*PSY 6216 Advanced Research Methodology I (4 credit hours)

\*PSY 6308 Psychological Testing I (4 credit hours)

\*PSY 6318 Applied Testing and Selection (3 credit hours)\*\*\*

\*INP 6072 Applied Research Methods in Industrial and Organizational Psychology (3 credit hours)

Bob.

Robert L. Dipboye, Ph. D.  
Professor and Chair  
Department of Psychology  
University of Central Florida  
P. O. Box 161390  
Orlando, FL 32816-1390  
Fax: 407-823-5862  
Phone: 407-823-3576

>>> Graham Worthy <gworthy@mail.ucf.edu> 3/25/2010 3:36 PM >>>

Hi Bob

Some time ago when we were discussing the new PSM in Con Bio you had suggested some classes that might be appropriate. Could you remind me and write a letter of support saying that we could register our students in those classes? We are looking at cohorts of 5-10 students.

Cheers, Graham

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Graham A.J. Worthy, Ph.D.

Provost's Distinguished Research Professor of Biology,  
Hubbs-Sea World Endowed Professor of Marine Mammalogy, and  
Director, Physiological Ecology and Bioenergetics Lab

**Appendix II**  
**External Advisory Committee**

An External Advisory Committee has been formed who will assist in the future development of the curriculum, placement of students in internships, and raising monies to support our in-program students as well as to attract new students into the program.

Atchison, Jim	President & COO, Busch Entertainment Corporation
Britt, Doug	President & COO, Dynamac Corporation
Cunniff, Lori	Manager, Orange County Environmental Protection Division
Danter, Jeff	President, The Nature Conservancy Florida Chapter
DeFreese, Duane, Ph.D	VP Science and Technology, Aquafiber Technologies Corp.
Dennis, Michael, Ph.D.	President, Breedlove, Dennis and Associates
Garner, Lesley, Ph.D.	Chief Education Programs, NASA's Kennedy Space Center
Hinkle, C. Ross, Ph.D.	Professor & Chair, Department of Biology, UCF
Laurien, Phil	Exec. Director, East Central Florida Regional Planning Council
Ogden, Jackie, Ph.D.	VP, Animal Programs, Walt Disney World
Sumner, David, Ph.D.	Senior Hydrologist, Florida Water Science Center, USGS
Siegel, Rich, Ph.D.	Chair, Department of Biology, Towson University
Wheeler, Ray, Ph.D.	Biological Sciences Office, NASA's Kennedy Space Center

## Appendix III

11/24/2009

Dear Dr. Worthy:

The Council of Graduate Schools PSM Team reviewed the application you submitted for PSM Affiliation and would like to welcome the Professional Science Master's program in Conservation Biology at University of Central Florida as the newest addition to the PSM community!

Sciencemasters.com Listing: Please download the official PSM logo from the sciencemasters.com website and add it to your program website. We will then add your program to the programs lists and the locations map on sciencemasters.com. Please reply to this message with the URL to your program website and an appropriate contact, including name, title, mailing, and email address. We encourage you to use the official PSM logo on all of your promotional materials.

Listserve: We have added your email address to the PSM listserve so you will receive PSM-related news and updates from CGS. If you have other colleagues who would also like to join the PSM listserve, please have them send an email to: [psm-subscribe@lists.cgsnet.org](mailto:psm-subscribe@lists.cgsnet.org).

Promotional Flyers: CGS has developed three promotional flyers on the PSM - one directed toward students, one for employers, and one for policy makers (e.g. legislators). Please let us know which of these flyers would be useful to you, and we can send you one complimentary packet (100 flyers) of each of those that you request. You can also download these flyers from the sciencemasters.com website and/or we can provide the Quark templates if you want to personalize the flyers to your program.

There are many more benefits of PSM affiliation and you can learn about them on sciencemasters.com under the Affiliation tab. Please contact us at [profmasters@cgs.nche.edu](mailto:profmasters@cgs.nche.edu) or 202-223-3791 if you have any questions or if we can be of assistance to your program.

We look forward to continuing our relationship with you as a member of the PSM community.

Best regards,  
Carol B. Lynch  
Program Director,  
Professional Master's Initiatives

Eleanor Babco  
Co-Director, Professional Masters Initiatives

Sally Francis  
Dean in Residence

Nancy Vincent  
Program Manager, Best Practices

Joshua Mahler  
Program and Operations Assistant

## **Appendix IV**

### **Currently Available Library Holdings**

TO: Barry Baker, Director of Libraries  
FROM: Peter Spyers-Duran  
DATE: December 13, 2001  
SUBJECT: Program Proposal for Ph.D. Conservation Biology

This memorandum is being submitted for your review and approval. As library resources are essential to any new degree program, an analysis of library holdings (monographs and periodicals) was conducted at the request of Dr. Walter Taylor of the Department of Biology to assist in preparing a program proposal for a new Conservation Biology Ph.D. degree program.

The data on the following pages compare the library holdings of the University of Central Florida (UCF), Arizona State University (ASU), University of Florida (UF), and University of Wisconsin Madison (UW) and are intended to provide an assessment of current and anticipated future resources for the program. These benchmark universities were selected at the recommendation of Dr. Taylor.

The proposed Biology program is multidisciplinary, encompassing the fields of ecology, environmental biology, biodiversity, endangered and threatened species, and natural resources. Related subject headings were identified and the UCF Library's holdings were compared with those of the above mentioned benchmark universities by searching the library catalog of each institution.

Monographs and periodicals are assigned the following Library of Congress Subject Headings:

- Ecology
- Endangered ecosystems
- Endangered fungi
- Endangered plants
- Endangered species
- Biological diversity
- Biological diversity conservation
- Natural Resources

Attachment A (Monographs) details the total number of books cataloged in relevant Library of Congress Subject Headings at UCF and at the benchmark universities. The average or mean number of monographs as calculated from the total number of monographs at ASU and UF equals 5307. In comparison, UCF has 4221 monographs, a difference of 1086 {5307 – 4221 = 1086}. According to YBP Library Services, the vendor from which UCF purchases the vast majority of its monographs, the average cost of an academic biology book in 2000/2001 is \$102.71. To purchase 1086 monographs at an average cost of \$102.71 would cost \$111,543.20 {(1086) (\$102.71) = \$111,543.20}.

Attachment A (Periodicals) indicates the number of journals currently subscribed to and cataloged in specific Library of Congress Subject Headings at UCF and at the benchmark universities..

Attachment B is a list of the journals not owned by UCF and subscribed to by two or more the benchmark universities. These journals are being considered for purchase. The estimated cost for current subscriptions

**ATTACHMENT A (Monographs)**

<b>SUBJECT HEADING</b>	<b>UCF</b>	<b>ASU</b>	<b>UF</b>	<b>UW</b>
Biological diversity	412	594	476	501
Ecology	1297	1155	1336	7937
Endangered ecosystems	15	0	16	16
Endangered fungi	0	0	0	0
Endangered plants	91	110	116	127
Endangered species	551	704	475	613
Natural resources	859	2165	1044	3614
Wildlife conservation	996	1386	1037	1411
<b>TOTAL</b>	<b>4221</b>	<b>6114</b>	<b>4500</b>	<b>14219</b>
<b>PERCENT</b>	<b>100%</b>	<b>145%</b>	<b>107%</b>	<b>337%</b>



**ATTACHMENT B (Periodicals)**

<b>SUBJECT HEADING</b>	<b>UCF</b>	<b>ASU</b>	<b>UF</b>	<b>UW</b>
Biological diversity	8	6	6	10
Ecology	40	28	45	104
Endangered ecosystems	0	0	0	0
Endangered fungi	0	0	0	0
Endangered plants	0	0	0	0
Endangered species	0	0	0	7
Natural resources	3	12	10	28
Wildlife conservation	6	10	20	35
<b>TOTAL</b>	<b>57</b>	<b>56</b>	<b>81</b>	<b>184</b>
<b>PERCENT</b>	<b>100%</b>	<b>98%</b>	<b>142%</b>	<b>323%</b>

<b>JOURNALS NOT OWNED BY UCF</b>	<b>ISSN</b>	<b>Subscription</b>	<b>5 YR BACKFILE</b>
African Wildlife	0002-0273	\$20	\$100
Agricultural and Resource Economics Review	1068-2805	\$15	\$75
Ambio a journal of the human environment	0044-7447	\$190	\$950
Animal Conservation	1367-9430	\$174	\$870
Australian Journal of Agricultural & Resource...	1364-985X	\$234	\$1170
Defenders	0162-6337	\$20	\$100
The Ecologist	0261-3131	\$79	\$395
Endangered Species Update	1081-3705	\$28	\$140
Environmental Research	0013-9351	\$1535	\$7675
F E M S Microbiology Ecology	0168-6496	\$1105	\$5525
Journal of Agricultural & Resource Economics	1068-5502	\$40	\$200
Journal of Chemical Ecology	0098-0331	\$1337	\$6685
Journal of Ecology	0022-0477	\$605	\$3025
Natural History Research	0915-9444	cost per issue varies	cost per issue varies
Natural Resources Journal	0028-0739	\$40	\$200
Oryx journal of fauna and flora international	0030-6053	\$355	\$1775
Renewable Resources Journal	0738-6532	\$39	\$195
Revue d'Ecologie: La Terre et la Vie revue...	0249-7395	\$65	\$325
South Carolina Wildlife	0038-3198	\$10	\$50
Texas Parks & Wildlife Magazine	0040-4586	\$16	\$80
Tropical Ecology	0564-3295	\$9	\$45
Wildlife Conservation	1048-4949	\$18	\$90
Wildlife in North Carolina	0043-549X	\$8	\$40
Wildlife Society Bulletin	0091-7648	\$200	\$1000
<b>Total Cost</b>		<b>\$6142</b>	<b>\$30710</b>

## Appendix V

### Library Holdings: Conservation Biology Related Periodical Subscriptions

<b>Number of current conservation biology related periodical subscriptions =</b>	<b>345</b>
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Journal title	ISSN
Acta biotheoretica	0001-5342
Acta oecologica	1146-609X
Advances in environmental research	1093-0191
Aerobiologia	0393-5965
Africa research bulletin. Political, social, and cultural series	0001-9844
African journal of ecology	0141-6707
Agricultural wastes	0141-4607
Agriculture and environment	0304-1131
Agriculture, ecosystems & environment	0167-8809
Agro-ecosystems	0304-3746
Agroforestry systems	0167-4366
Agronomy Journal	0002-1962
Ambio	0044-7447
American Fern Journal	0002-8444
Analytical and bioanalytical chemistry	1618-2642
Animal conservation	1367-9430
Annales geophysicae (1988)	0992-7689
Annals of Applied Biology	0003-4746
Annals of nuclear science and engineering	0302-2927
Annals of the Entomological Society of America	0013-8746
Annals of the ICRP	0146-6453
Annals of the Missouri Botanical Garden	0026-6493
Annual review of ecology and systematics	0066-4162
Annual Review of Ecology, Evolution, and Systematics	1543-592X
Annual Review of Entomology	0066-4170
Annual review of environment and resources	1543-5938
Annual review of genomics and human genetics	1527-8204
Antonie van Leeuwenhoek	0003-6072

Journal title	ISSN
Applied catalysis. B, Environmental	0926-3373
Applied microbiology and biotechnology	0175-7598
Applied Vegetation Science	1402-2001
Aquacultural engineering	0144-8609
Aquarium sciences and conservation	1357-5325
Aquatic ecology	1386-2588
Archives of microbiology	0302-8933
Archives of nature conservation and landscape research	0003-9306
Area	0004-0894
Arq : Architectural Research Quarterly	1359-1355
Basic and applied ecology	1439-1791
Basin research	0950-091X
Behavioral ecology and sociobiology	0340-5443
Biochemical systematics and ecology	0305-1978
Biochimica et biophysica acta, ER. Reviews on bioenergetics	0304-4173
Biodiversity and conservation	0960-3115
Biological conservation	0006-3207
Biological journal of the Linnean Society	0024-4066
Biological wastes	0269-7483
Biology & philosophy	0169-3867
Biology and fertility of soils	0178-2762
Biology bulletin of the Russian Academy of Sciences	1062-3590
Biomass	0144-4565
Biomass & bioenergy	0961-9534
Biomedical and environmental sciences	0895-3988
Bioscience	0006-3568
Biotropica	0006-3606
Bird conservation international	0959-2709
BMC ecology	1472-6785

Journal title	ISSN
Boreas	0300-9483
Botanica Helvetica	0253-1453
Building and environment	0360-1323
Bulletin OEPP	0250-8052
Bulletin of Earthquake Engineering	1570-761X
Bulletin of environmental contamination and toxicology	0007-4861
Carcinogenesis	0143-3334
Castanea	0008-7475
Cephalalgia	0333-1024
Chelonian conservation and biology	1943-3956
Chemistry and ecology	1029-0370
Chemosphere. Global change science	1465-9972
Cladistics	0748-3007
Clean products and processes	1435-2974
Clean Technologies and Environmental Policy	1618-954X
Climate dynamics	0930-7575
Climate Policy	1469-3062
Climatic Change	0165-0009
Coastal engineering	0378-3839
Comptes rendus. Géoscience	1631-0713
Conservation & recycling	0361-3658
Conservation genetics	1566-0621
Coral reefs	0722-4028
Corporate environmental strategy	1066-7938
Crop Science	0011-183X
Cryptogamie. Algologie	0181-1568
Cryptogamie. Bryologie	1290-0796
Cultural Geographies	1474-4740
Deep-sea research. Part II, Topical studies in oceanography	0967-0645
Development and change	0012-155X
Die Naturwissenschaften	0028-1042
Diversity & distributions	1366-9516
Doklady. Biological sciences	0012-4966
Dynamics of atmospheres and oceans	0377-0265
Earth-science reviews	0012-8252
Ecography	1600-0587
Ecohealth	1612-9202

Journal title	ISSN
Ecological applications	1051-0761
Ecological complexity	1476-945X
Ecological economics	0921-8009
Ecological engineering	0925-8574
Ecological indicators	1470-160X
Ecological informatics	1574-9541
Ecological management & restoration	1442-7001
Ecological modeling	0304-3800
Ecological Monographs	0012-9615
Ecological research	0912-3814
Ecology	0012-9658
Ecology letters	1461-023X
Ecology of freshwater fish	0906-6691
Écoscience	1195-6860
Ecosystems	1432-9840
Ecotoxicology and environmental safety	0147-6513
Edentata	1413-4411
Entomologia experimentalis et applicata	0013-8703
Environment and behavior	0013-9165
Environment and Development Economics	1355-770X
Environment and urbanization	0956-2478
Environmental and ecological statistics	1352-8505
Environmental biology of fishes	0378-1909
Environmental chemistry letters	1610-3653
Environmental Conservation	0376-8929
Environmental engineering and policy	1433-6618
Environmental Entomology	0046-225X
Environmental fluid mechanics	1567-7419
Environmental hazards	1747-7891
Environmental impact assessment review	0195-9255
Environmental microbiology	1462-2912
Environmental Modeling & Assessment	1420-2026
Environmental modeling & software	1364-8152
Environmental monitoring and assessment	0167-6369

Journal title	ISSN
Environmental pollution	0269-7491
Environmental pollution	0013-9327
Environmental pollution. Series A, Ecological and biological	0143-1471
Environmental pollution. Series B, Chemical and physical	0143-148X
Environmental Practice	1466-0466
Environmental research	0013-9351
Environmental science and pollution research international	0944-1344
Environmental software	0266-9838
Environmental toxicology	1520-4081
Environmentalist	0251-1088
European journal of applied physiology and occupational physiology	0301-5548
European journal of forest research	1612-4669
European journal of pharmacology. Environmental toxicology and pharmacology section	0926-6917
European Journal of Protistology	0932-4739
European journal of soil biology	1164-5563
European journal of soil science	1351-0754
Evolution	0014-3820
Evolutionary ecology	0269-7653
Evolutionary ecology research	1522-0613
Facies	0172-9179
Fisheries management and ecology	0969-997X
Flora	0367-2530
Forest policy and economics	1389-9341
Forstwissenschaftliches Centralblatt	0015-8003
Functional ecology	1365-2435
Geobiology	1472-4677
Geologische Rundschau	0016-7835
Global and planetary change	0921-8181
Global change & human health	1389-5702
Global change biology	1354-1013
Global ecology and	1466-822X

Journal title	ISSN
Global Environmental Change	0959-3780
Global environmental change. Part B, Environmental hazards	1464-2867
Gondwana research	1342-937X
Ground Water	0017-467X
Health Education Research	0268-1153
Human Ecology; New York	0300-7839
Hydrogeology journal	1431-2174
Integrated assessment	1389-5176
Integrated Environmental Assessment and Management	1551-3777
International archives of occupational and environmental health	0340-0131
International Environmental Agreements : Politics, Law and Economics	1567-9764
International journal of applied earth observation and geoinformation	0303-2434
International journal of environmental analytical chemistry	1029-0397
International journal of heritage studies	1470-3610
International journal of hydrogen energy	0360-3199
International journal of plant sciences	1058-5893
International journal of salt lake research	1037-0544
International journal of systematic and evolutionary microbiology	1466-5026
International journal of systematic bacteriology	0020-7713
Journal for nature conservation	1617-1381
Journal of African earth sciences (and the Middle East)	0899-5362
Journal of Agricultural and Environmental Ethics	1187-7863
Journal of agricultural economics	0021-857X
Journal of agronomy and crop	0931-2250

science	
Journal title	ISSN
Journal of analytical chemistry	1061-9348
Journal of Applied Biobehavioral Research	1071-2089
Journal of applied electrochemistry	0021-891X
Journal of applied ichthyology	0175-8659
Journal of aquatic ecosystem stress and recovery	1386-1980
Journal of arid environments	0140-1963
Journal of avian biology	0908-8857
Journal of Coastal Research	0749-0208
Journal of contaminant hydrology	0169-7722
Journal of ecology	0022-0477
Journal of Economic Entomology	0022-0493
Journal of environmental economics and management	0095-0696
Journal of Environmental Law	0952-8873
Journal of environmental management	0301-4797
Journal of environmental psychology	0272-4944
Journal of Environmental Quality	0047-2425
Journal of environmental radioactivity	0265-931X
Journal of Environmental Sciences	1001-0742
Journal of ethology	0289-0771
Journal of evolutionary biology	1010-061X
Journal of Field Ornithology	0273-8570
Journal of Forest Economics	1104-6899
Journal of forest research	1341-6979
Journal of Geographical Systems	1435-5930
Journal of hazardous materials	0304-3894
Journal of industrial ecology	1088-1980
Journal of industrial textiles	1528-0837
Journal of insect conservation	1366-638X
Journal of Insect Science	1536-2442
Journal of law and society	0263-323X
Journal of Manufacturing Processes	1526-6125
Journal of Material Cycles and	1438-4957

Waste Management	
Journal title	ISSN
Journal of operations management	0272-6963
Journal of ornithology	0021-8375
Journal of Orthoptera Research	1082-6467
Journal of phycology	0022-3646
Journal of Public Health	1741-3842
Journal of regional science	0022-4146
Journal of the Marine Biological Association of the United Kingdom	0025-3154
Journal of the North American Benthological Society	0887-3593
Journal of Tropical Ecology	0266-4674
Journal of volcanology and geothermal research	0377-0273
Journal of wind engineering and industrial aerodynamics	0167-6105
Land Use Policy	0264-8377
Landscape and ecological engineering	1860-1871
Landscape and urban planning	0169-2046
Landscape ecology	0921-2973
Landscape planning	0304-3924
Landslides	1612-510X
Lethaia	0024-1164
Limnologica	0075-9511
Limnology	1439-8621
Mammal review	0305-1838
Mammalian Biology	1616-5047
Mammalian Species	0076-3519
Mangroves and salt marshes	1386-3509
Marine Biology	0025-3162
Marine ecology	0173-9565
Mathematical modeling	0270-0255
Meteorological applications	1350-4827
Microbial ecology	0095-3628
Microbiology	0026-2617
Mitigation and adaptation strategies for global change	1381-2386
Mutation research - Genetic toxicology and environmental mutagenesis	1383-5718
Mutation research. Environmental mutagenesis and related subjects	0165-1161

National wildlife world edition	0028-0402
<b>Journal title</b>	<b>ISSN</b>
Natural hazards	0921-030X
Natural resources forum	0165-0203
Natural resources research	1520-7439
Nature	0028-0836
Nature Biotechnology	1087-0156
Nature Reviews. Cancer	1474-175X
Neotropical primates	1413-4705
New Zealand journal of agricultural research	0028-8233
New Zealand journal of geology and geophysics	0028-8306
Northeastern Naturalist	1092-6194
Nuclear and chemical waste management	0191-815X
Nuclear engineering and design/fusion	0167-899X
Nuclear instruments	0369-643X
Nutrient cycling in agroecosystems	1385-1314
Ocean & shoreline management	0951-8312
Ocean Dynamics	1616-7341
Ocean engineering	0029-8018
Ocean management	0302-184X
Oecologia	0029-8549
Oikos	0030-1299
Organisms, diversity, & evolution	1439-6092
Organization & Environment	1086-0266
Origins of life and evolution of the biosphere	0169-6149
Pacific Science	0030-8870
Palaios	0883-1351
Perspectives in plant ecology, evolution and systematics	1433-8319
Photochemistry and Photobiology	0031-8655
Phytochemistry	0031-9422
Planetary and space science	0032-0633
Plant ecology	1385-0237
Plant species biology	0913-557X
Planta	0032-0935
Polar biology	0722-4060
Policy, politics and nursing practice	1527-1544

Population and Environment	0199-0039
<b>Journal title</b>	<b>ISSN</b>
Population Ecology	1438-3896
Primates	0032-8332
Proceedings of the Academy of Natural Sciences of Philadelphia	0097-3157
Progress in Natural Science	1002-0071
Rangeland ecology & management	1550-7424
Refocus	1471-0846
Regional environmental change natural and social aspects	1436-3798
Regional science and urban economics	0166-0462
Renewable & sustainable energy reviews	1364-0321
Researches on population ecology	0034-5466
Resource and energy economics	0928-7655
Resource recovery and conservation	0304-3967
Resources and conservation	0166-3097
Resources and energy	0165-0572
Resources, conservation, and recycling	0921-3449
Restoration ecology	1061-2971
Review of palaeobotany and palynology	0034-6667
Reviews in environmental science and bio-technology	1569-1705
Revue de micropaléontologie	0035-1598
Revue générale de thermique	0035-3159
Russian journal of ecology	1067-4136
Russian journal of marine biology	1063-0740
Science, technology & human values	0162-2439
Singapore journal of tropical geography	0129-7619
Soil use and management	0266-0032
Systematics and biodiversity	1478-0933
Terra nova	0954-4879
The Annals of Regional Science	0570-1864
The Ibis	0019-1019
The international journal of life	0948-3349

cycle assessment	
<b>Journal title</b>	<b>ISSN</b>
The Journal of applied ecology	0021-8901
The journal of environment & development	1070-4965
The journal of experimental biology	0022-0949
The Journal of molluscan studies	0260-1230
The Journal of Parasitology	0022-3395
The journal of the Torrey Botanical Society	1095-5674
The Polar Record	0032-2474
The review of policy research	1541-132X
The Southwestern Naturalist	0038-4909
The Wilson Bulletin	0043-5643
Theoretical population biology	0040-5809
Trends in ecology & evolution	0169-5347
Turtle and tortoise newsletter	1526-3096
Urban ecology	0304-4009
Urban ecosystems	1083-8155
Waste management & research	0734-242X
Water quality and ecosystems modeling	1388-266X
Water resources	0097-8078
Water, air, & soil pollution. Focus	1567-7230
Weed Biology and Management	1444-6162
Weed research	0043-1737
Weed Science	0043-1745
Wetland Science and Practice	0732-9393
Wetlands	0277-5212
Wetlands ecology and management	0923-4861
Whole earth	1097-5268
Wildlife biology	0909-6396
Wildlife Monographs	0084-0173
Wildlife Society Bulletin	0091-7648
World Development	0305-750X
Zoologica scripta	0300-3256



**Appendix VI**  
**Letter of Library Support**

To: Dr. Graham A.J. Worthy  
Graduate Program Coordinator – Department of Biology  
Provost's Distinguished Research Professor of Biology,  
Hubbs-Sea World Endowed Professor of Marine Mammalogy, and  
Director, Physiological Ecology and Bioenergetics Lab

**From: Michael A. Arthur**  
Head of Acquisitions & Collection Services

Date: November 9, 2009

Subject: Program Proposal for Master of Science in Conservation Biology

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Please find attached the information you requested regarding the adequacy of the UCF Library's resources to support a proposed Master of Science in Conservation Biology degree program. Attachments include a spreadsheet of the library's current conservation biology related journal, monograph, and database holdings, as well as a copy of the 2001 comparative analysis report developed by the library as requested for the new degree program proposal for the Ph.D. in Conservation Biology.

The analysis was completed by Peter Spyers-Duran, Librarian, during November 2009 and builds upon the December 2001 report. The November 2009 analysis determined that the library has a collection of 7,078 monographs related to conservation biology—of which 1,969 were added since 2001. The library subscribes to 345 conservation biology related journals and the leading biological sciences abstracting databases: 1) Biological Abstracts; 2) Biological Sciences.

In summary, the UCF Library's substantial conservation biology related journal, monograph, and database holdings would support the teaching and research for the proposed M.S. in Conservation Biology as they already support the Ph.D. in Conservation Biology degree program.

Please let me know if you have any questions.

*Michael A. Arthur*

cc: Peter Spyers-Duran, Librarian  
Barry Baker, Director of Libraries

## **Appendix VII**

### **2010-11 Graduate Catalog Copy**

#### **Description:**

The Professional Science Master's (PSM) in Conservation Biology provides students with high-quality training in evaluating, understanding, and providing solutions to society's conservation challenges. The program will teach relevant skills, provide expertise to meet STEM workforce needs, while preparing graduates for careers in the public and private sectors.

The PSM in Conservation Biology will interface traditional biological sciences with business, communications, law, politics, urban and regional planning, and environmental engineering. The goal of the program is to produce biologists capable of working within the broader arena of environmental politics, law, and economics, to communicate issues of conservation biology to diverse audiences; and to recommend solutions to policy makers, the general public, and industry. Through collaborative efforts with business and organizations in the community, this program will introduce professionals into the STEM workforce who have both the research and professional expertise to meet current conservation needs.

The degree program will consist of 40 hours of graduate level instruction, which includes a core of coursework in Conservation Biology and provides an overview of the core disciplines within this interdisciplinary field. A required professional development component involves structured and mentored biology courses that will help students develop presentation skills and provide them with the tools to write effective proposals and enhance their professional abilities. An interdisciplinary selection of professional courses will be enhanced through internship experiences offered by partnering industries, government agencies, and organizations. Students will obtain practical experience through these internships in business, non-governmental organizations, or government agencies, applying cutting edge principles learned in the classroom to problem solving in applied conservation biology.

By producing experts who are able to synergize research expertise, critical thinking, and leadership in conservation biology, this program has the potential to transform both the professionals who work in the discipline as well as the industry of conservation biology. This PSM program is designed to create professionals who will bring "advanced, ... interdisciplinary, application-oriented scientific knowledge to their position" and who have the ability to "readily contribute to the objectives, programs, and projects of employers in industry, government, and the nonprofit sector" (NRC, 2008).

#### **Curriculum:**

The Conservation Biology Professional Science Master's track consists of 40 credit hours, including 16 credit hours of core courses in conservation biology, 14 credit hours of professional development (including courses in communications, mathematics, philosophy, politics, psychology, public administration, and business management), and 10 credit hours of internship and research analysis. Students in this program will normally enroll in 18 credit hours (fall/spring) in the first year and 22 credit hours (fall/spring/summer) in the second year. The program is designed to be completed in two years.

With graduate program director approval, a maximum of 6 credit hours of directed research (6918) or independent study (6908) may be used to meet degree requirements.

### **Required Courses—30 Credit Hours**

#### **Core—16 Credit Hours**

Students should take two of the following courses.

- PCB 5045 Conservation Biology (4 credit hours)
- PCB 6556 Conservation Genetics (3 credit hours)
- PCB 6480C Quantitative Conservation Biology (4 credit hours)

Students should take one course from each of the following subject areas.

#### General Biology

- ENY 5006C Entomology (4 credit hours)
- PAZ 5235 Zoo and Aquarium Biology Management (3 credit hours)
- PCB 6365 Environmental Physiology (3 credit hours)
- PCB 6727 Comparative Animal Physiology (3 credit hours)
- ZOO 6520 Behavioral Ecology (3 credit hours)
- ZOO 5456C Ichthyology (4 credit hours)
- ZOO 5463C Herpetology (4 credit hours)
- ZOO 5475C Field Ornithology (3 credit hours)
- ZOO 5486 Mammalogy (4 credit hours)

#### Ecology

- BOT 6623C Plant Ecology (4 credit hours)
- BSC 5332 Invasion Biology (3 credit hours)
- PCB 5435C Marine Conservation Biology (4 credit hours)
- PCB 6035C Wetland Ecology (4 credit hours)
- PCB 6046C Advanced Ecology (5 credit hours)
- PCB 6048C Restoration Ecology (4 credit hours)
- PCB 6328C Landscape Ecology (4 credit hours)
- PCB 6466 Methods in Experimental Ecology (3 credit hours)

#### Evolutionary Biology, Applied Mathematics, and Genetics

- BSC 5821 Biogeography (4 credit hours)
- MAP 5117 Mathematical Modeling (3 credit hours)
- MAP 6938 Mathematical Biology (4 credit hours)
- PCB 6675C Evolutionary Biology (4 credit hours)
- PCB 6677 Molecular Evolution (3 credit hours)
- Professional Development—14 Credit Hours
- Students should take the following two required courses.
- PCB 6095 Professional Development in Biology I (1 credit hour)
- PCB 6096 Professional Development in Biology II (1 credit hour)

Students also take 12 credit hours of courses selected from the list below or comparable courses as approved by the graduate program director.

- COM 6047 Interpersonal Support in the Workplace (3 credit hours)
- EDS 6100 Leadership (3 credit hours)
- INR 6352 Global Environmental Politics (3 credit hours)
- GEB 5516 Technological Entrepreneurship (3 credit hours)
- GEB 6115 Entrepreneurship (3 credit hours)
- GEB 6116 Business Plan Preparation (3 credit hours)
- MAN 6244 Organizational Behavior (1.5 credit hours)
- MAN 6448 Conflict Resolution and Negotiation (3 credit hours)
- MAN 6286 Strategic Innovation (3 credit hours)
- MAN 6305 Human Resources Management (3 credit hours)
- PAD 5041 Ethics and Values in Public Administration (3 credit hours)
- PAD 5336 Introduction to Urban Planning (3 credit hours)
- PAD 5338 Land Use and Planning Law (3 credit hours)
- PAD 5850 Grant and Contract Management (3 credit hours)
- PAD 6142 Nonprofit Organizations (3 credit hours)
- PAD 6353 Environmental Program Management Research (3 credit hours)
- PAD 6397 Managing Emergencies and Crises (3 credit hours)
- PHM 5035 Environmental Philosophy (3 credit hours)
- PUP 6201 Urban Environmental Policy (3 credit hours)
- PUP 6208 Environmental Politics (3 credit hours)
- PUP 6247 Continuing Issues in Environmental Politics (3 credit hours)

### **Internship and Research Report—10 Credit Hours**

- PCB 6946 Internship in Conservation Biology (8 credit hours total)
- BSC 6909 Research Report (2 credit hours)

### **Culminating Experience:**

All students will participate in an internship, take an oral examination, and present a final research report. If a student fails the oral examination or the final research report, a minimum of four weeks must pass before re-examination. The comprehensive exam and/or the final research report may be taken a maximum of two times. During their internship, students will play an active role in implementing active adaptive management, including monitoring components, on public and private lands.

A committee of biologists will oversee the oral examination, during which the students will be evaluated on their knowledge of key core concepts in conservation biology. Finally, their understanding, writing, and analytical skills will be evaluated by means of a written research report and departmental presentation that is based on their internship experience and completed in their final semester.

### **Independent Learning:**

The internship program and the research report serve as the independent learning experiences for this program.

**Analysis Summary for New Degree Authorization  
PSM in Conservation Biology**

	<b>Criteria</b>	<b>Proposal Response to Criteria</b>
1.	The goals of the program are aligned with the university's mission and relate to specific institutional strengths.	Met with Strength ____ Met ____ Met with Weakness ____ Unmet ____
2.	If there have been program reviews or accreditation activities in the discipline or related disciplines pertinent to the proposed program, the proposal provides evidence that progress has been made in implementing the recommendations from those reviews.	Met with Strength ____ Met ____ Met with Weakness ____ Unmet ____
3.	The proposal describes an appropriate and sequenced course of study. Admissions and graduation criteria are clearly specified and appropriate. The course of study and credit hours required may be satisfied within a reasonable time to degree. In cases in which accreditation is available for existing bachelor's or master's level programs, evidence is provided that the programs are accredited or a rationale is provided as to the lack of accreditation.	Met with Strength ____ Met ____ Met with Weakness ____ Unmet ____
4.	Evidence is provided that a critical mass of faculty members is available to initiate the program based on estimated enrollments, and that, if appropriate, there is a commitment to hire additional faculty members in later years, based on estimated enrollments. For doctoral programs, evidence is provided that the faculty members in aggregate have the necessary experience and research activity to sustain a doctoral program.	Met with Strength ____ Met ____ Met with Weakness ____ Unmet ____
5.	Evidence is provided that the necessary library volumes and serials; classroom, teaching laboratory, research laboratory, office, and any other type of physical space; equipment; appropriate fellowships, scholarships, and graduate assistantships; and appropriate clinical and internship sites are sufficient to initiate the program.	Met with Strength ____ Met ____ Met with Weakness ____ Unmet ____

	<b>Criteria</b>	<b>Proposal Response to Criteria</b>
6.	Evidence is provided that there is a need for more people to be educated in this program at this level. For all degree programs, if the program duplicates other degree programs in Florida, a convincing rationale for doing so is provided. The proposal contains realistic estimates of headcount and FTE students who will major in the proposed program and indicates steps to be taken to achieve a diverse student body.	Met with Strength ____ Met ____ Met with Weakness ____ Unmet ____
7.	The proposal provides a complete and realistic budget for the program, which reflects the text of the proposal, is comparable to the budgets of similar programs, and provides evidence that, in the event that resources within the institution are redirected to support the new program, such a redirection will not have a negative impact on undergraduate education. The proposal demonstrates a judicious use of resources and provides a convincing argument that the output of the program justifies the investment.	Met with Strength ____ Met ____ Met with Weakness ____ Unmet ____
8.	The proposal provides evidence that the academic unit(s) associated with this new degree have been productive in teaching, research, and service.	Met with Strength ____ Met ____ Met with Weakness ____ Unmet ____



## Program Recommendation Form

This form is to be used to revise, add, suspend, or delete degree programs, tracks, or certificate programs.

College/Unit(s) Submitting Proposal: Education Proposed Effective Term/Year: Fall 2010

Unit(s) Housing Program: Department of Teaching and Learning Principles, College of Education

Name of Program and/or track: Master of Arts, Art Education

**Brief Statement of Program Change:** (for suspensions or deletions of degree programs, tracks or certificates, please attach on a separate sheet the rationale for this action, including statement of how this action impacts faculty teaching in and students enrolled in the program, track or certificate. Please note the units that have been consulted if duplication of programs or conflict of interest with other units has occurred.)

Please check one: this action affects a:  Program  Track  Certificate

Please check one: this action is a(n):  Addition  Inactivation  Revision  
 Temporary Suspension of Admissions: Length of Suspension \_\_\_\_\_

**Temporary suspension of admissions:** the program will be removed from the online application. A notation will be entered in the graduate catalog indicating the length of the suspension of admissions. Currently enrolled students will not experience any issues with continued enrollment.

**Inactivation:** Admissions will be suspended for new students and the program will be removed from the online application. Students active in the program are eligible to complete the program under the appropriate criteria and an appropriate teach-out plan is required. The program will be removed from the catalog as of the approved term.

### For program, track, or certificate additions or revisions:

1. Will students be moved from an existing program or track into this new program or track?  Yes  No  
If yes, state the name of the program or track where students are currently enrolled: \_\_\_\_\_

2. Are you changing the name of an existing program or track?  Yes  No  
If yes, provide the new name of the program or track: Master of Arts in Teaching, ArtEducation

Provide the name of the current program or track: Master of Arts in Art Education

When is the name change effective? Fall 2010

Please Note: A name change will be effective on all diplomas on the effective date of change. This may affect students currently enrolled or those newly admitted.

3. Are you requesting a CIP Code change?  Yes  No  
If yes, old CIP \_\_\_\_\_ new CIP \_\_\_\_\_

4. A "marked up" catalog copy MUST be included showing the changes for the existing description.

### For program, track, and certificate inactivation:

1. Are students currently enrolled in the program?  Yes  No

2. If yes, attach a "teach out" plan for all current students specifying how they can finish the program or where students will be placed if being moved to another program. The "teach out" plan should specify when courses will be offered to enable students to finish.

3. Please specify the intended time period of inactivation \_\_\_\_\_

**RECOMMENDATIONS**

Yes  No  
Department Chair: Michael C. Lynn Date: 4/19/10

Yes  No  
College Curriculum Committee Chair: [Signature] Date: 4/23/10

Yes  No  
College Dean or Unit Head: [Signature] Date: 4/19/10

Yes  No  
Chair, UPCC or GSC: \_\_\_\_\_ Date: \_\_\_\_\_

Yes  No  
Dean, Undergraduate Studies or Graduate Studies: \_\_\_\_\_ Date: \_\_\_\_\_

Approval:  
Provost and Executive Vice President: \_\_\_\_\_ Date: \_\_\_\_\_

**Distribution: After approval is received from the Provost, distribution will be to:**

- |  |   |   |
|--|---|---|
| <input type="checkbox"/> Department(s) | <input type="checkbox"/> Associate Registrar    | <input type="checkbox"/> Faculty Senate                     |
| <input type="checkbox"/> College       | <input type="checkbox"/> Institutional Research | <input type="checkbox"/> Information, Analysis & Assessment |
| <input type="checkbox"/> Registrar     | <input type="checkbox"/> Academic Services      |   |





At the graduate level, initial teacher certification programs have become to be known as Master of Arts in Teaching (MAT) programs. The name change requested here will align the current MA program in Art Education with the convention recognized by the state of Florida and will be consistent with other state universities including Florida Atlantic University, Florida International University, Florida State University, University of Florida, University of South Florida, and University of West Florida.

The curriculum change requested is to delete an Art Education Elective which is currently taken only by Art Education MA students and replace it with two seminars, ESE 6XXX – Introductory Seminar in Secondary Education (1 credit hour) and ESE 6XXX – Capstone Seminar in Secondary Education (2 credit hours) which will be taken by all MAT students regardless of subject matter area. The Introductory Seminar will be taken in the first semester and the Capstone Seminar will be taken in the last semester of the program.

# PROGRAM DESCRIPTION

The College of Education offers a Master of Arts in Teaching, Art Education. The program is planned to provide the art-oriented person with a degree that includes certification.

[Read More](#) ▼▲

## CURRICULUM

The MAT in Art Education requires a minimum of 37 credit hours beyond the bachelor's degree, including ~~15~~16 credit hours of core courses, ~~16~~15 credit hours of specialization, and six credit hours of internship.

### Total Credit Hours Required:

37 Credit Hours Minimum beyond the Bachelor's Degree

The MAT requires a portfolio of both reflective practice/analysis of professional development and demonstration of attainment of the pre professional level of performance for all twelve of the Florida Educator Accomplished Practices. Multiple artifacts and reflective analysis are required for each of the accomplished practices. In addition, all portfolios require a final reflective analysis of students' overall learning and professional development as the capstone portfolio entry. All portfolio entries are critical components of learning since they are the primary means of accessing the professional development of students as reflective practitioners.

### Required Courses—31 Credit Hours

#### Core—~~15~~16 Credit Hours

- \*ESE 6XXX Introductory Seminar in Secondary Education (1 credit hour)
- EDF 6237 Principles of Learning and Introduction to Classroom Assessment (3 credit hours)
- \_\_\_\_\_
- \*EDG 6415 Principles of Instruction and Classroom Management (3 credit hours)
- \_\_\_\_\_
- EDF 6727 Critical Analysis of Social, Ethical, Legal, and Safety Issues Related to Education (3 credit hours)
- RED 5147 Developmental Reading (3 credit hours)
- TSL 5085 Teaching Language Minority Students in K-12 Classrooms (3 credit hours)
- \* Must be taken in first semester in program

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### **Specialization—16-15 Credit Hours**

- ARE 5359 Teaching Art K-12 (4 credit hours)
- ARE 6905 Research Trends in Art Education (3 credit hours)
- ~~ESE 6XXX Capstone Seminar in Secondary Education (2 credit hours)~~ ARE Elective Number One (with approval of adviser, 3 credit hours)
- ARE Elective Number One (with approval of adviser, 3 credit hours)
- ARE Elective Number Two (with approval of adviser, 3 credit hours)

### **Internship—6 Credit Hours**

- ARE 6946 Graduate Internship (6 credit hours)

Satisfactory completion of Graduate Internship (ARE 6946, 6 credit hours) requires the student to demonstrate proficiency in all 12 Florida Educator Accomplished Practices at the pre-professional level in accordance with State Board of Education Rule 6A-5.065.

### **Additional Program Requirements**

- Complete a portfolio according to program guidelines. This portfolio requires demonstration of professional growth, reflection, and proficiency in the 12 Florida Educator Accomplished Practices.
- Pass all required sections of the Florida Teacher Certification Examination.
- Students are required to have 30 credit hours of art course work to meet certification requirements to teach art in grades K-12. Only six hours of independent study courses may be used to satisfy degree requirements. It is important to see an adviser if courses are difficult to schedule in content areas.

### **INDEPENDENT LEARNING**

The MAT requires a portfolio of both reflective practice/analysis of professional development and demonstration of attainment of the pre professional level of performance for all twelve of the Florida Educator Accomplished Practices. Multiple artifacts and reflective analysis are required for each of the accomplished practices. In addition, all portfolios require a final reflective analysis of students' overall learning and professional development as the capstone portfolio entry. All portfolio entries are critical components of learning since they are the primary means of accessing the professional development of students as reflective practitioners.

### **Application Requirements**

For information on general UCF graduate admissions requirements that apply to all prospective students, please visit the [Admissions](#) section of the Graduate Catalog. Applicants must [apply online](#). All requested materials must be submitted by the established deadline(s).

In addition to the general UCF graduate application requirements, applicants to this program must provide:

- One official transcript (in a sealed envelope) from each college/university attended.
- Applicants applying to this program who have attended a college/university outside the United States must provide a course-by-course credential evaluation with GPA calculation. Credential evaluations are accepted from World Education Services (WES) or Josef Silny and Associates, Inc. only.

This program does not require GRE for admission, but in accordance with Florida Statute 1004.4 and State Board of Education Rule 6A-5.066, admission to this graduate-level, state-approved initial teacher preparation program requires one of the following: 1) a composite verbal-quantitative GRE score of at least 1000, or 2) having previously passed all four parts of the College Level Academic Skills Test (CLAST), or 3) passing all four parts of the Florida Teacher Certification Examination/General Knowledge Test (FTCE/GKT). Applicants who do not meet this requirement via option 1 (GRE) or 2 (CLAST), must take and pass the FTCE/GKT for admission.

Students may not switch from an MAT program to a MEd program, or vice versa, without going through the university's application process. Courses used to gain initial state certification may not be transferred into a MEd program.

### Application Deadlines

<u>Art Education MAT</u>	<u>Fall Priority</u>	<u>Fall</u>	<u>Spring</u>	<u>Summer</u>
<b>Domestic Applicants</b>	Jan 15	Jul 15	Dec 1	Apr 15
<b>International Applicants</b>	Jan 15	Jan 15	Jul 1	Nov 1
<b>International Transfer Applicants</b>	Jan 15	Mar 1	Sep 1	Dec 15

## FINANCIALS

Graduate students may receive financial assistance through fellowships, assistantships, tuition support, or loans. For more information, see Student Finances, which describes the types of financial assistance available at UCF and provides general guidance in planning your graduate finances. The Financial Information section of the Graduate Catalog is another key resource.

### Fellowships

Fellowships are awarded based on academic merit to highly qualified students. They are paid to students through the Office of Student Financial Assistance, based on instructions provided by the College of Graduate Studies. Fellowships are given to support a student's graduate study and do not have a work obligation. For more information, see Fellowships, which includes descriptions of UCF fellowships and what you should do to be considered for a fellowship.



### Program Recommendation Form

This form is to be used to revise, add, suspend, or delete degree programs, tracks, or certificate programs.

College/Unit(s) Submitting Proposal: Education Proposed Effective Term/Year: Fall 2010

Unit(s) Housing Program: Department of Teaching and Learning Principles, College of Education

Name of Program and/or track: Master of Arts, Mathematics Education

Brief Statement of Program Change: (for suspensions or deletions of degree programs, tracks or certificates, please attach on a separate sheet the rationale for this action, including statement of how this action impacts faculty teaching in and students enrolled in the program, track or certificate. Please note the units that have been consulted if duplication of programs or conflict of interest with other units has occurred.)

Please check one: this action affects a:  Program  Track  Certificate

Please check one: this action is a(n):  Addition  Inactivation  Revision  
 Temporary Suspension of Admissions: Length of Suspension \_\_\_\_\_

Temporary suspension of admissions: the program will be removed from the online application. A notation will be entered in the graduate catalog indicating the length of the suspension of admissions. Currently enrolled students will not experience any issues with continued enrollment.

Inactivation: Admissions will be suspended for new students and the program will be removed from the online application. Students active in the program are eligible to complete the program under the appropriate criteria and an appropriate teach-out plan is required. The program will be removed from the catalog as of the approved term.

#### For program, track, or certificate additions or revisions:

1. Will students be moved from an existing program or track into this new program or track?  Yes  No  
If yes, state the name of the program or track where students are currently enrolled: \_\_\_\_\_

2. Are you changing the name of an existing program or track?  Yes  No  
If yes, provide the new name of the program or track: Master of Arts in Teaching, Mathematics Education

Provide the name of the current program or track: Master of Arts in Mathematics Education

When is the name change effective? Fall 2010

Please Note: A name change will be effective on all diplomas on the effective date of change. This may affect students currently enrolled or those newly admitted.

3. Are you requesting a CIP Code change?  Yes  No  
If yes, old CIP \_\_\_\_\_ new CIP \_\_\_\_\_

4. A "marked up" catalog copy MUST be included showing the changes for the existing description.

#### For program, track, and certificate inactivation:

1. Are students currently enrolled in the program?  Yes  No

2. If yes, attach a "teach out" plan for all current students specifying how they can finish the program or where students will be placed if being moved to another program. The "teach out" plan should specify when courses will be offered to enable students to finish.

3. Please specify the intended time period of inactivation \_\_\_\_\_

**RECOMMENDATIONS**

Yes  No

Department Chair: Michael C. Lyon

Date: 4/19/10

Yes  No

College Curriculum Committee Chair: Dr. Rosemary Taylor

Date: 4/23/10

Yes  No

College Dean or Unit Head: Scott Hayes

Date: 4/19/10

Yes  No

Chair, UPCC or GSC: \_\_\_\_\_

Date: \_\_\_\_\_

Yes  No

Dean, Undergraduate Studies or Graduate Studies: \_\_\_\_\_

Date: \_\_\_\_\_

**Approval:**

Provost and Executive Vice President: \_\_\_\_\_

Date: \_\_\_\_\_

**Distribution: After approval is received from the Provost, distribution will be to:**

- |  |   |   |
|--|---|---|
| <input type="checkbox"/> Department(s) | <input type="checkbox"/> Associate Registrar    | <input type="checkbox"/> Faculty Senate                     |
| <input type="checkbox"/> College       | <input type="checkbox"/> Institutional Research | <input type="checkbox"/> Information, Analysis & Assessment |
| <input type="checkbox"/> Registrar     | <input type="checkbox"/> Academic Services      |   |



At the graduate level, initial teacher certification programs have become to be known as Master of Arts in Teaching (MAT) programs. The name change requested here will align the current MA program in Mathematics Education with the convention recognized by the state of Florida and will be consistent with other state universities including Florida Atlantic University, Florida International University, Florida State University, University of Florida, University of South Florida, and University of West Florida. This change will be applied to all tracks under the MA Mathematics Education program.

The curriculum change requested is to delete IDS 6933, Seminar in Teaching Mathematics and Science (3 credit hours) which is currently a capstone course taken only by Mathematics Education and Science Education MA students and replace it with two seminars, ESE 6XXX – Introductory Seminar in Secondary Education (1 credit hour) and ESE 6XXX – Capstone Seminar in Secondary Education (2 credit hours) which will be taken by all MAT students regardless of subject matter area. The Introductory Seminar will be taken in the first semester and the Capstone Seminar will be taken in the last semester of the program.

## PROGRAM DESCRIPTION

The Master of Arts in Teaching, ~~in~~ Mathematics Education program is for noneducation majors or previously certified teachers in another field and offers a program in secondary mathematics and a track in middle school mathematics.

[Read More](#) ▶

## CURRICULUM

~~Students in the~~ The Mathematics Education MAT program in secondary mathematics (grades 6-12) requires a minimum of 36 credit hours which includes 15 credit hours of core courses, 9 credit hours of specialization courses, 6 credit hours of methods and a capstone experience, and 6 credit hours of an internship. All students in this program must also complete a portfolio and pass all required sections of the Florida Teaching Certification Examination prior to graduation.

Students may also choose one available track. The Middle School Mathematics MAT (grades 5-9) program requires a minimum of 36 credit hours beyond the bachelor's degree, with ~~15-16~~ credit hours of core courses, ~~15-14~~ credit hours of specialization, and 6 credit hours of an internship. All students in this program must also complete a portfolio and pass all required sections of the Florida Teaching Certification Examination prior to graduation.

### Total Credit Hours Required:

36 Credit Hours Minimum beyond the Bachelor's Degree

The MAT program in secondary mathematics (grades 6-12) requires a portfolio of both reflective practice/analysis of professional development and demonstration of attainment of the pre-professional level of performance for all twelve of the Florida Educator Accomplished Practices. Multiple artifacts and reflective analyses are required for each of the accomplished practices. In addition, all portfolios require a final reflective analysis of students' overall learning and professional development as the capstone portfolio entry. All portfolio entries are critical components of learning since they are the primary means of accessing the professional development of students' as reflective practitioners.

### Required Courses—21 Credit Hours

#### Core—~~15-16~~ Credit Hours

- \*ESE 6XXX Introductory Seminar in Secondary Education (1 credit hour)
- \*EDG 6415 Principles of Instruction and Classroom Management (3 credit hours)
- EDF 6727 Critical Analysis of Social, Ethical, Legal, and Safety Issues Related to Education (3 credit hours)
- EDF 6237 Principles of Learning and Introduction to Classroom Assessment (3 credit hours)
- LAE 5337 Literacy Strategies for Middle and Secondary Teaching (3 credit hours)



- TSL 55285085 Teaching Language Minority Students in K-12 Classrooms (3 credit hours)

- \* Must be taken in first semester in program

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#### Methods—3 Credit Hours

- MAE 5336 Current Methods in Secondary School Mathematics (3 credit hours)

#### Capstone—3-2 Credit Hours \_\_\_\_\_

- ~~IDS 6933 Seminar in Teaching Mathematics and Science (3 credit hours)~~ ESE 6XXX Capstone Seminar in Secondary Education (2 credit hours)

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#### Co-requisite

- Students are required to have 30 credit hours of mathematics course work to meet certification requirements to teach mathematics in grades 6-12. These may be previously earned undergraduate or graduate mathematics credits or include graduate credits in mathematics approved for electives in the program. Only six hours of independent study courses may be used to satisfy degree requirements. It is important to see an adviser if courses are difficult to schedule in content areas.

#### DOE Certification

- All students must complete a portfolio according to program guidelines. This portfolio requires demonstration of professional growth, reflection, and proficiency in the 12 Florida Educator Accomplished Practices.
- Pass all applicable sections of the Florida Teacher Certification Examination.

#### Elective Courses—9 Credit Hours

The following courses are specialization courses for the degree. Course substitutions can be made with approval of adviser.

- Choose one course: MAE 6641, MAE 6899, or IDS 6939 (3 credit hours)
- Choose one course: MAE 6517, MAE 6656, or IDS 6915 (3 credit hours)
- Choose one course: MAE 6337 or MAE 6338 (3 credit hours)

#### Internship—6 Credit Hours

- MAE 6946 Graduate Internship (6 credit hours)

Satisfactory completion of the Graduate Internship requires the student to demonstrate proficiency in all 12 Florida Educator Accomplished Practices at the pre-professional level in accordance with State Board of Education Rule 6A-5.065.

## INDEPENDENT LEARNING

The MAT program requires a portfolio of both reflective practice/analysis of professional development and demonstration of attainment of the pre-professional level of performance for all twelve of the Florida Educator Accomplished Practices. Multiple artifacts and reflective analyses are required for each of the accomplished practices. In addition, all portfolios require a final reflective analysis of students' overall learning and professional development as the capstone portfolio entry. All portfolio entries are critical components of learning since they are the primary means of accessing the professional development of students' as reflective practitioners.

## Application Requirements

For information on general UCF graduate admissions requirements that apply to all prospective students, please visit the [Admissions](#) section of the Graduate Catalog. Applicants must [apply online](#). All requested materials must be submitted by the established [deadline\(s\)](#).

In addition to the [general UCF graduate application requirements](#), applicants to this program must provide:

- One official transcript (in a sealed envelope) from each college/university attended.
- Applicants applying to this program who have attended a college/university outside the United States must provide a course-by-course credential evaluation with GPA calculation. Credential evaluations are accepted from [World Education Services \(WES\)](#) or [Josef Silny and Associates, Inc.](#) only.

This program does not require GRE for admission, but in accordance with Florida Statute 1004.4 and State Board of Education Rule 6A-5.066, admission to this graduate-level, state-approved initial teacher preparation program requires one of the following: 1) a composite verbal-quantitative GRE score of at least 1000, or 2) having previously passed all four parts of the College Level Academic Skills Test (CLAST), or 3) passing all four parts of the Florida Teacher Certification Examination/General Knowledge Test (FTCE/GKT). Applicants who do not meet this requirement via option 1 (GRE) or 2 (CLAST), must take and pass the FTCE/GKT for admission.

Students may not switch from an MAT program to an MEd program, or vice versa, without going through the university's admission process.

## Application Deadlines

<b>Mathematics Education MAT</b>	<b>Fall Priority</b>	<b>Fall</b>	<b>Spring</b>	<b>Summer</b>
<b>Domestic Applicants</b>	Jan 15	Jul 15	Dec 1	Apr 15
<b>International Applicants</b>	Jan 15	Jan 15	Jul 1	Nov 1
<b>International Transfer Applicants</b>	Jan 15	Mar 1	Sep 1	Dec 15

## FINANCIALS

Graduate students may receive financial assistance through fellowships, assistantships, tuition support, or loans. For more information, see [Student Finances](#), which describes the types of financial assistance available at UCF and provides general guidance in planning your graduate finances. The [Financial Information](#) section of the Graduate Catalog is another key resource.

### Fellowships

Fellowships are awarded based on academic merit to highly qualified students. They are paid to students through the Office of Student Financial Assistance, based on instructions provided by the College of Graduate Studies. Fellowships are given to support a student's graduate study and do not have a work obligation. For more information, see [Fellowships](#), which includes descriptions of UCF fellowships and what you should do to be considered for a fellowship.

## TRACK DESCRIPTION

The Master of Arts in [Teaching, Mathematics Education](#) program is for noneducation majors or previously certified teachers in another field and offers a program in secondary mathematics and a track in middle school mathematics.

[Read More](#) ▾

## CURRICULUM

### Total Credit Hours Required:

36 Credit Hours Minimum beyond the Bachelor's Degree

The Mathematics Education [MAT](#) program requires a portfolio of both reflective practice/analysis of professional development and demonstration of attainment of the pre professional level of performance for all twelve of the Florida Educator Accomplished Practices. Multiple artifacts and reflective analysis are required for each of the accomplished practices. In addition, all portfolios require a final reflective analysis of students' overall learning and professional development as the capstone portfolio entry. All portfolio entries are critical components of learning since they are the primary means of accessing the professional development of students' as reflective practitioners.

### Required Courses—21 Credit Hours

#### Core—16 Credit Hours

- [\\*ESE 6XXX Introductory Seminar in Secondary Education \(1 credit hour\)](#)
- [\\*EDG 6415 Principles of Instruction and Classroom Management \(3 credit hours\)](#)

- EDF 6727 Critical Analysis of Social, Ethical, Legal, and Safety Issues Related to Education (3 credit hours)
- EDF 6237 Principles of Learning and Introduction to Classroom Assessment (3 credit hours)
- LAE 5337 Literacy Strategies for Middle and Secondary Teaching (3 credit hours)
- TSL 5085 Teaching Language Minority Students in K-12 Classrooms (3 credit hours)

\* Must be taken in first semester in program

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#### **Methods—3 Credit Hours**

- MAE 5327 Teaching Middle School Mathematics (3 credit hours)

#### **Capstone—2 Credit Hours**

- ESE 6XXX Capstone Seminar in Secondary Education (2 credit hours)
- IDS 6933 Seminar in Teaching Mathematics and Science (3 credit hours)

#### **Co-requisite**

- Students are required to have 18 credit hours of mathematics course work to meet certification requirements to teach mathematics in grades 5-9. Only six hours of independent study courses may be used to satisfy degree requirements. It is important to see an adviser if courses are difficult to schedule in content areas.

#### **DOE Certification**

- All students must complete a portfolio according to program guidelines. This portfolio requires demonstration of professional growth, reflection, and proficiency in the 12 Florida Educator Accomplished Practices.
- Pass all applicable sections of the Florida Teacher Certification Examination.

#### **Elective Courses—9 Credit Hours**

The electives provide a specialization area for the degree. One course should be selected from each group below although substitutions can be made with the approval of the adviser.

Choose one of the following courses.

- MAE 6641 Problem Solving and Critical Thinking Skills (3 credit hours)
- MAE 6899 Seminar in Teaching Mathematics (3 credit hours)
- IDS 6939 Reforming Curriculum in Mathematics and Science Education (3 credit hours)

Choose one of the following courses.

- MAE 6517 Diagnosis/Remediation of Difficulties in Mathematics for the Classroom Teacher (3 credit hours)
- MAE 6656 Using Technology in the Instruction of K-12 Mathematics (3 credit hours)
- IDS 6915 Classroom Management for Mathematics and Science Teachers (3 credit hours)

Choose one of the following courses.

- MAE 6337 Teaching Algebra in the Secondary School (3 credit hours)
- MAE 6338 Teaching Geometry in the Secondary School (3 credit hours)

### **Internship—6 Credit Hours**

- MAE 6946 Graduate Internship (6 credit hours)

Satisfactory completion of the Graduate Internship requires the student to demonstrate proficiency in all 12 Florida Educator Accomplished Practices at the pre-professional level in accordance with State Board of Education Rule 6A-5.065.

### **INDEPENDENT LEARNING**

The MAT program requires a portfolio of both reflective practice/analysis of professional development and demonstration of attainment of the pre professional level of performance for all twelve of the Florida Educator Accomplished Practices. Multiple artifacts and reflective analysis are required for each of the accomplished practices. In addition, all portfolios require a final reflective analysis of students' overall learning and professional development as the capstone portfolio entry. All portfolio entries are critical components of learning since they are the primary means of accessing the professional development of students' as reflective practitioners.

### **Application Requirements**

For information on general UCF graduate admissions requirements that apply to all prospective students, please visit the [Admissions](#) section of the Graduate Catalog. Applicants must [apply online](#). All requested materials must be submitted by the established deadline(s).

In addition to the [general UCF graduate application requirements](#), applicants to this program must provide:

- One official transcript (in a sealed envelope) from each college/university attended.
- Applicants applying to this program who have attended a college/university outside the United States must provide a course-by-course credential evaluation with GPA calculation. Credential evaluations are accepted from [World Education Services \(WES\)](#) or [Josef Silny and Associates, Inc.](#) only.

This program does not require GRE for admission, but in accordance with Florida Statute 1004.4 and State Board of Education Rule 6A-5.066, admission to this graduate-level, state-approved initial teacher preparation program requires one of the following: 1) a composite verbal-quantitative GRE score of at least 1000, or 2) having previously passed all four parts of the College Level Academic Skills Test (CLAST), or 3) passing all four parts of the Florida Teacher Certification Examination/General Knowledge Test (FTCE/GKT). Applicants who do not meet this requirement via option 1 (GRE) or 2 (CLAST), must take and pass the FTCE/GKT for admission.

Students may not switch from an MAT program to an MEd program, or vice versa, without going through the university's application process.

### Application Deadlines

All application materials must be submitted by the appropriate deadline listed below.

#### Middle School Mathematics MAT Fall Priority Fall Spring Summer

<b>Domestic Applicants</b>	Jan 15	Jul 15	Dec 1	Apr 15
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Late applications will be considered on a space-available basis.

<b>International Applicants</b>	Jan 15	Jan 15	Jul 1	Nov 1
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<b>International Transfer Applicants</b>	Jan 15	Mar 1	Sep 1	Dec 15
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## FINANCIALS

Graduate students may receive financial assistance through fellowships, assistantships, tuition support, or loans. For more information, see [Student Finances](#), which describes the types of financial assistance available at UCF and provides general guidance in planning your graduate finances. The [Financial Information](#) section of the Graduate Catalog is another key resource.

### Fellowships

Fellowships are awarded based on academic merit to highly qualified students. They are paid to students through the Office of Student Financial Assistance, based on instructions provided by the College of Graduate Studies. Fellowships are given to support a student's graduate study and do not have a work obligation. For more information, see [Fellowships](#), which includes descriptions of UCF fellowships and what you should do to be considered for a fellowship.



## Program Recommendation Form

This form is to be used to revise, add, suspend, or delete degree programs, tracks, or certificate programs.

College/Unit(s) Submitting Proposal: Education Proposed Effective Term/Year: Fall 2010

Unit(s) Housing Program: Department of Teaching and Learning Principles, College of Education

Name of Program and/or track: Master of Arts, Science Education

**Brief Statement of Program Change:** (for suspensions or deletions of degree programs, tracks or certificates, please attach on a separate sheet the rationale for this action, including statement of how this action impacts faculty teaching in and students enrolled in the program, track or certificate. Please note the units that have been consulted if duplication of programs or conflict of interest with other units has occurred.)

Please check one: this action affects a:  Program  Track  Certificate

Please check one: this action is a(n):  Addition  Inactivation  Revision  
 Temporary Suspension of Admissions: Length of Suspension \_\_\_\_\_

**Temporary suspension of admissions:** the program will be removed from the online application. A notation will be entered in the graduate catalog indicating the length of the suspension of admissions. Currently enrolled students will not experience any issues with continued enrollment.

**Inactivation:** Admissions will be suspended for new students and the program will be removed from the online application. Students active in the program are eligible to complete the program under the appropriate criteria and an appropriate teach-out plan is required. The program will be removed from the catalog as of the approved term.

### For program, track, or certificate additions or revisions:

1. Will students be moved from an existing program or track into this new program or track?  Yes  No  
If yes, state the name of the program or track where students are currently enrolled: \_\_\_\_\_

2. Are you changing the name of an existing program or track?  Yes  No  
If yes, provide the new name of the program or track: Master of Arts in Teaching, Science Education

Provide the name of the current program or track: Master of Arts in Science Education

When is the name change effective? Fall 2010

Please Note: A name change will be effective on all diplomas on the effective date of change. This may affect students currently enrolled or those newly admitted.

3. Are you requesting a CIP Code change?  Yes  No  
If yes, old CIP \_\_\_\_\_ new CIP \_\_\_\_\_

4. A "marked up" catalog copy MUST be included showing the changes for the existing description.

### For program, track, and certificate inactivation:

1. Are students currently enrolled in the program?  Yes  No

2. If yes, attach a "teach out" plan for all current students specifying how they can finish the program or where students will be placed if being moved to another program. The "teach out" plan should specify when courses will be offered to enable students to finish.

3. Please specify the intended time period of inactivation \_\_\_\_\_

**RECOMMENDATIONS**

Yes  No  
Department Chair: Michael C. Williams Date: 4/19/10

Yes  No  
College Curriculum Committee Chair: Rosemary Egan Date: 4/23/10

Yes  No  
College Dean or Unit Head: Scott Hays Date: 4/19/10

Yes  No  
Chair, UPCC or GSC: \_\_\_\_\_ Date: \_\_\_\_\_

Yes  No  
Dean, Undergraduate Studies or Graduate Studies: \_\_\_\_\_ Date: \_\_\_\_\_

Approval:  
Provost and Executive Vice President: \_\_\_\_\_ Date: \_\_\_\_\_

**Distribution: After approval is received from the Provost, distribution will be to:**

- |  |   |   |
|--|---|---|
| <input type="checkbox"/> Department(s) | <input type="checkbox"/> Associate Registrar    | <input type="checkbox"/> Faculty Senate                     |
| <input type="checkbox"/> College       | <input type="checkbox"/> Institutional Research | <input type="checkbox"/> Information, Analysis & Assessment |
| <input type="checkbox"/> Registrar     | <input type="checkbox"/> Academic Services      |   |





At the graduate level, initial teacher certification programs have become to be known as Master of Arts in Teaching (MAT) programs. The name change requested here will align the current MA program in Science Education with the convention recognized by the state of Florida and will be consistent with other state universities including Florida Atlantic University, Florida International University, Florida State University, University of Florida, University of South Florida, and University of West Florida. This change will be applied to all tracks under the MA Science Education program.

The curriculum change requested is to delete IDS 6933, Seminar in Teaching Mathematics and Science (3 credit hours) which is currently a capstone course taken only by Mathematics Education and Science Education MA students and replace it with two seminars, ESE 6XXX – Introductory Seminar in Secondary Education (1 credit hour) and ESE 6XXX – Capstone Seminar in Secondary Education (2 credit hours) which will be taken by all MAT students regardless of subject matter area. The Introductory Seminar will be taken in the first semester and the Capstone Seminar will be taken in the last semester of the program.

## PROGRAM DESCRIPTION

The Science Education MAT program was created to allow individuals not certified to teach secondary science (such as non education majors or previously certified teachers in another field) to become effective teachers of secondary science. The program offers tracks in biology, chemistry, physics, and middle school science, ~~and community college teaching~~.

[Read More ▼▲](#)

## CURRICULUM

Students in the Science Education MAT program must choose one of ~~five~~ four available tracks. The Biology (grades 6-12), Chemistry (grades 6-12), Middle School Science (grades 5-9), and the Physics (grades 6-12) tracks are composed of 36 credit hours beyond the bachelor's degree. Most include ~~15~~ 16 credit hours of core courses, ~~6~~ 5 credit hours of methods, 9 credit hours of electives in a specialization, and 6 credit hours of an internship. All students in one of the four tracks must also complete a portfolio and pass all required sections of the Florida Teacher Certification Examination prior to graduation.

### **Total Credit Hours Required:**

36 Credit Hours Minimum beyond the Bachelor's Degree

The MAT program requires a portfolio of both reflective practice/analysis of professional development and demonstration of attainment of the pre-professional level of performance for all twelve of the Florida Educator Accomplished Practices. Multiple artifacts and reflective analysis are required for each of the accomplished practices. In addition, all portfolios require a final reflective analysis of students' overall learning and professional development as the capstone portfolio entry. All portfolio entries are critical components of learning since they are the primary means of accessing the professional development of students as reflective practitioners.

## Application Requirements

For information on general UCF graduate admissions requirements that apply to all prospective students, please visit the [Admissions](#) section of the Graduate Catalog. Applicants must [apply online](#). All requested materials must be submitted by the established deadline(s).

## FINANCIALS

Graduate students may receive financial assistance through fellowships, assistantships, tuition support, or loans. For more information, see [Student Finances](#), which describes the types of financial assistance available at UCF and provides general guidance in planning your graduate finances. The [Financial Information](#) section of the Graduate Catalog is another key resource.

### **Fellowships**

Fellowships are awarded based on academic merit to highly qualified students. They are paid to students through the Office of Student Financial Assistance, based on instructions provided by the College of Graduate Studies. Fellowships are given to support a student's graduate study and do not have a work obligation. For more information, see [Fellowships](#), which includes descriptions of UCF fellowships and what you should do to be considered for a fellowship.

## TRACK DESCRIPTION

The Biology track in the Science Education MAT program was created to allow individuals not certified to teach secondary science (such as noneducation majors or previously certified teachers in another field) to become effective teachers of secondary science.

[Read More](#) ▼

## CURRICULUM

### Total Credit Hours Required:

36 Credit Hours Minimum beyond the Bachelor's Degree

### Required Courses—21 Credit Hours

#### Core—15-16 Credit Hours

- \*ESE 6XXX Introductory Seminar in Secondary Education (1 credit hour)
- \*EDG 6415 Principles of Instruction and Classroom Management (3 credit hours)
- EDF 6727 Critical Analysis of Social, Ethical, Legal, and Safety Issues Related to Education (3 credit hours)
- EDF 6237 Principles of Learning and Introduction to Classroom Assessment (3 credit hours)
- LAE 5337 Literacy Strategies for Middle and Secondary Teaching (3 credit hours)
- TSL 5085 Teaching Language Minority Students in K-12 Classrooms (3 credit hours)

- \* Must be taken in first semester in program

#### Methods—6-5 Credit Hours

- SCE 5337 Issues and Methods in Secondary School Science (3 credit hours)
- ESE 6XXX Capstone Seminar in Secondary Education (2 credit hours) ~~DS 6993 Seminar in Teaching Mathematics and Science (3 credit hours)~~

#### Co-requisites

Students are required to have 30 credit hours of co-requisite science course work to meet certification requirements to teach science in grades 6-12. These may be previously earned

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undergraduate or graduate science credits, or include graduate credits in science approved for electives in the program. Only six hours of independent study courses may be used to satisfy degree requirements. It is important to see an adviser if courses are difficult to schedule in content areas.

### **Elective Courses—9 Credit Hours**

The elective courses are chosen in accord with the student's area of specialization.

- Electives approved by adviser (9 credit hours)

### **Internship—6 Credit Hours**

- SCE 6946 Graduate Internship (6 credit hours)

### **Additional Program Requirements**

All students must complete a portfolio according to program guidelines. This portfolio requires demonstration of professional growth, reflection, and proficiency in the 12 Florida Educator Accomplished Practices. ~~Portfolio defense will be a part of IDS 6933.~~

Pass all required sections of the Florida Teacher Certification Examination prior to graduation.

### **INDEPENDENT LEARNING**

All students must complete a portfolio according to program guidelines. This portfolio requires demonstration of professional growth, reflection, and proficiency in the 12 Florida Educator Accomplished Practices. ~~Portfolio defense will be a part of IDS 6933.~~

### **Application Requirements**

For information on general UCF graduate admissions requirements that apply to all prospective students, please visit the [Admissions](#) section of the Graduate Catalog. Applicants must [apply online](#). All requested materials must be submitted by the established deadline(s).

In addition to the [general UCF graduate application requirements](#), applicants to this program must provide:

- One official transcript (in a sealed envelope) from each college/university attended.
- Applicants applying to this program who have attended a college/university outside the United States must provide a course-by-course credential evaluation with GPA calculation. Credential evaluations are accepted from [World Education Services \(WES\)](#) or [Josef Silny and Associates, Inc.](#) only.

This program does not require GRE for admission, but in accordance with Florida Statute 1004.4 and State Board of Education Rule 6A-5.066, admission to this graduate-level, state-approved initial teacher preparation program requires one of the following: 1) a composite verbal-quantitative GRE score of at least 1000, or 2) having previously passed all four parts of the College Level Academic Skills Test (CLAST), or 3) passing all four parts of the Florida Teacher Certification Examination/General Knowledge Test (FTCE/GKT). Applicants who do not meet this requirement via option 1 (GRE) or 2 (CLAST), must take and pass the FTCE/GKT for admission.

Students may not switch from an MAT program to a MEd program without going through the university's application process.

### Application Deadlines

All application materials must be submitted by the appropriate deadline listed below.

Biology	Fall	Priority	Fall	Spring	Summer
Domestic Applicants	Jan 15		Jul 15	Dec 1	Apr 15
International Applicants	Jan 15		Jan 15	Jul 1	Nov 1
International Transfer Applicants	Jan 15		Mar 1	Sep 1	Dec 15

## FINANCIALS

Graduate students may receive financial assistance through fellowships, assistantships, tuition support, or loans. For more information, see Student Finances, which describes the types of financial assistance available at UCF and provides general guidance in planning your graduate finances. The Financial Information section of the Graduate Catalog is another key resource.

### Fellowships

Fellowships are awarded based on academic merit to highly qualified students. They are paid to students through the Office of Student Financial Assistance, based on instructions provided by the College of Graduate Studies. Fellowships are given to support a student's graduate study and do not have a work obligation. For more information, see Fellowships, which includes descriptions of UCF fellowships and what you should do to be considered for a fellowship.

## TRACK DESCRIPTION

The Chemistry track in the Science Education MAT program was created to allow individuals not certified to teach secondary science (such as noneducation majors or previously certified teachers in another field) to become effective teachers of secondary science.

[Read More](#)

## CURRICULUM

### Total Credit Hours Required:

36 Credit Hours Minimum beyond the Bachelor's Degree

### Required Courses—21 Credit Hours

#### Core—15-16 Credit Hours

- \*ESE 6XXX Introductory Seminar in Secondary Education (1 credit hour)
- \*EDG 6415 Principles of Instruction and Classroom Management (3 credit hours)
- EDF 6727 Critical Analysis of Social, Ethical, Legal, and Safety Issues Related to Education (3 credit hours)
- EDF 6237 Principles of Learning and Introduction to Classroom Assessment (3 credit hours)
- LAE 5337 Literacy Strategies for Middle and Secondary Teaching (3 credit hours)
- TSL 5528 Teaching Language Minority Students in K-12 Classrooms (3 credit hours)
- \* Must be taken in first semester in program

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#### Methods—6-5 Credit Hours

- SCE 5337 Issues and Methods in Secondary School Science (3 credit hours)
- ESE 6XXX Capstone Seminar in Secondary Education (2 credit hours) ~~DS 6933 Seminar in Teaching Mathematics and Science (3 credit hours)~~

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#### Co-requisites

Students are required to have 30 credit hours of co-requisite science course work to meet certification requirements to teach science in grades 6-12. These may be previously earned undergraduate or graduate science credits, or include graduate credits in science approved for electives in the program. Only six hours of independent study courses may be used to satisfy degree requirements. It is important to see an adviser if courses are difficult to schedule in content areas.

### Elective Courses—9 Credit Hours

The elective courses are chosen in keeping with the student's area of specialization.

- Electives approved by adviser (9 credit hours)

### **Internship—6 Credit Hours**

- SCE 6946 Graduate Internship (6 credit hours)

### **Additional Program Requirements**

All students must complete a portfolio according to program guidelines. This portfolio requires demonstration of professional growth, reflection, and proficiency in the 12 Florida Educator Accomplished Practices. ~~Portfolio defense will be a part of IDS 6933.~~

Pass all required sections of the Florida Teacher Certification Examination prior to graduation.

### **INDEPENDENT LEARNING**

All students must complete a portfolio according to program guidelines. This portfolio requires demonstration of professional growth, reflection, and proficiency in the 12 Florida Educator Accomplished Practices. ~~Portfolio defense will be a part of IDS 6933.~~

### **Application Requirements**

For information on general UCF graduate admissions requirements that apply to all prospective students, please visit the [Admissions](#) section of the Graduate Catalog. Applicants must [apply online](#). All requested materials must be submitted by the established deadline(s).

In addition to the [general UCF graduate application requirements](#), applicants to this program must provide:

- One official transcript (in a sealed envelope) from each college/university attended.
- Applicants applying to this program who have attended a college/university outside the United States must provide a course-by-course credential evaluation with GPA calculation. Credential evaluations are accepted from [World Education Services \(WES\)](#) or [Josef Silny and Associates, Inc.](#) only.

This program does not require GRE for admission, but in accordance with Florida Statute 1004.4 and State Board of Education Rule 6A-5.066, admission to this graduate-level, state-approved initial teacher preparation program requires one of the following: 1) a composite verbal-quantitative GRE score of at least 1000, or 2) having previously passed all four parts of the College Level Academic Skills Test (CLAST), or 3) passing all four parts of the Florida Teacher Certification Examination/General Knowledge Test (FTCE/GKT). Applicants who do not meet this requirement via option 1 (GRE) or 2 (CLAST), must take and pass the FTCE/GKT for admission.

Students may not switch from an MAT program to a MEd program without going through the university's application process.

## Application Deadlines

All application materials must be submitted by the appropriate deadline listed below.

Chemistry	Fall Priority	Fall	Spring	Summer
Domestic Applicants	Jan 15	Jul 15	Dec 1	Apr 15
International Applicants	Jan 15	Jan 15	Jul 1	Nov 1
International Transfer Applicants	Jan 15	Mar 1	Sep 1	Dec 15

## FINANCIALS

Graduate students may receive financial assistance through fellowships, assistantships, tuition support, or loans. For more information, see [Student Finances](#), which describes the types of financial assistance available at UCF and provides general guidance in planning your graduate finances. The [Financial Information](#) section of the Graduate Catalog is another key resource.

### Fellowships

Fellowships are awarded based on academic merit to highly qualified students. They are paid to students through the Office of Student Financial Assistance, based on instructions provided by the College of Graduate Studies. Fellowships are given to support a student's graduate study and do not have a work obligation. For more information, see [Fellowships](#), which includes descriptions of UCF fellowships and what you should do to be considered for a fellowship

## TRACK DESCRIPTION

The Middle School Science track in the Science Education MAT program was created to allow individuals not certified to teach secondary science (such as noneducation majors or previously certified teachers in another field) to become effective teachers of secondary science.

[Read More](#)

## CURRICULUM

### Total Credit Hours Required:

36 Credit Hours Minimum beyond the Bachelor's Degree



## Required Courses—30 Credit Hours

### Core—15-16 Credit Hours

- \*ESE 6XXX Introductory Seminar in Secondary Education (1 credit hour)
- \*EDG 6415 Principles of Instruction and Classroom Management (3 credit hours)
- EDF 6727 Critical Analysis of Social, Ethical, Legal, and Safety Issues Related to Education (3 credit hours)
- EDF 6237 Principles of Learning and Introduction to Classroom Assessment (3 credit hours)
- LAE 5337 Literacy Strategies for Middle and Secondary Teaching (3 credit hours)
- TSL 5085 Teaching Language Minority Students in K-12 Classrooms (3 credit hours)

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- \* Must be taken in first semester in program

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### Specialization—15-14 Credit Hours

- SCE 5325 Teaching Middle School Science (3 credit hours)
- ESE 6XXX Capstone Seminar in Secondary Education (2 credit hours) ~~IDS 6933 Seminar in Teaching Mathematics and Science (3 credit hours)~~
- IDS 6915 Classroom Management Strategies (3 credit hours)
- ISC 6146 Environmental Education (3 credit hours)
- SCE 5836 Space Science for Educators (3 credit hours)

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OR

- an elective approved by adviser (3 credit hours)

### Co-requisites

Students are required to have 18 credit hours of science course work to meet certification requirements to teach science in grades 5-9. Only six hours of independent study courses may be used to satisfy degree requirements. It is important to see an adviser if courses are difficult to schedule in content areas.

### Internship—6 Credit Hours

- SCE 6946 Graduate Internship (6 credit hours)

### Additional Program Requirements

All students must complete a portfolio according to program guidelines. This portfolio requires demonstration of professional growth, reflection, and proficiency in the 12 Florida Educator Accomplished Practices. ~~Portfolio defense will be a part of IDS 6933.~~

Pass all required sections of the Florida Teacher Certification Examination prior to graduation.

## INDEPENDENT LEARNING

All students must complete a portfolio according to program guidelines. This portfolio requires demonstration of professional growth, reflection, and proficiency in the 12 Florida Educator Accomplished Practices. ~~Portfolio defense will be a part of IDS 6933.~~ An internship is also required.

## Application Requirements

For information on general UCF graduate admissions requirements that apply to all prospective students, please visit the [Admissions](#) section of the Graduate Catalog. Applicants must [apply online](#). All requested materials must be submitted by the established deadline(s).

In addition to the [general UCF graduate application requirements](#), applicants to this program must provide:

- One official transcript (in a sealed envelope) from each college/university attended.
- Applicants applying to this program who have attended a college/university outside the United States must provide a course-by-course credential evaluation with GPA calculation. Credential evaluations are accepted from [World Education Services \(WES\)](#) or [Josef Silny and Associates, Inc.](#) only.

This program does not require GRE for admission, but in accordance with Florida Statute 1004.4 and State Board of Education Rule 6A-5.066, admission to this graduate-level, state-approved initial teacher preparation program requires one of the following: 1) a composite verbal-quantitative GRE score of at least 1000, or 2) having previously passed all four parts of the College Level Academic Skills Test (CLAST), or 3) passing all four parts of the Florida Teacher Certification Examination/General Knowledge Test (FTCE/GKT). Applicants who do not meet this requirement via option 1 (GRE) or 2 (CLAST), must take and pass the FTCE/GKT for admission.

Students may not switch from an MAT program to a MEd program without going through the university's application process.

## Application Deadlines

**All application materials must be submitted by the appropriate deadline listed below.**

Middle School Science	Fall Priority	Fall	Spring	Summer
Domestic Applicants	Jan 15	Jul 15	Dec 1	Apr 15
International Applicants	Jan 15	Jan 15	Jul 1	Nov 1

## FINANCIALS

Graduate students may receive financial assistance through fellowships, assistantships, tuition support, or loans. For more information, see [Student Finances](#), which describes the types of financial assistance available at UCF and provides general guidance in planning your graduate finances. The [Financial Information](#) section of the Graduate Catalog is another key resource.

### Fellowships

Fellowships are awarded based on academic merit to highly qualified students. They are paid to students through the Office of Student Financial Assistance, based on instructions provided by the College of Graduate Studies. Fellowships are given to support a student's graduate study and do not have a work obligation. For more information, see [Fellowships](#), which includes descriptions of UCF fellowships and what you should do to be considered for a fellowship.

## TRACK DESCRIPTION

The Physics track in the Science Education MAT program was created to allow individuals not certified to teach secondary science (such as noneducation majors or previously certified teachers in another field) to become effective teachers of secondary science.

[Read More](#) ▼▲

## CURRICULUM

### Total Credit Hours Required:

36 Credit Hours Minimum beyond the Bachelor's Degree

### Required Courses—21 Credit Hours

#### Core—15-16 Credit Hours

- [\\*ESE 6XXX Introductory Seminar in Secondary Education \(1 credit hour\)](#)
- [\\*EDG 6415 Principles of Instruction and Classroom Management \(3 credit hours\)](#)
- EDF 6727 Critical Analysis of Social, Ethical, Legal, and Safety Issues Related to Education (3 credit hours)
- EDF 6237 Principles of Learning and Introduction to Classroom Assessment (3 credit hours)

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- LAE 5337 Literacy Strategies for Middle and Secondary Teaching (3 credit hours)
- TSL 5085 Teaching Language Minority Students in K-12 Classrooms (3 credit hours)

\* Must be taken in first semester in program

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#### Methods—6.5 Credit Hours

- SCE 5337 Issues and Methods in Secondary School Science (3 credit hours)
- ESE 6XXX Capstone Seminar in Secondary Education (2 credit hours) ~~IDS 6933 Seminar in Teaching Mathematics and Science (3 credit hours)~~

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#### Co-requisites

Students are required to have 30 credit hours of science course work to meet certification requirements to teach science in grades 6-12. Only six hours of independent study courses may be used to satisfy degree requirements. It is important to see an adviser if courses are difficult to schedule in content areas.

#### Elective Courses—9 Credit Hours

Students choose electives in keeping with their specialization.

- Electives approved by adviser (9 credit hours)

#### Internship—6 Credit Hours

- SCE 6946 Graduate Internship (6 credit hours)

#### Additional Program Requirements

All students must complete a portfolio according to program guidelines. This portfolio requires demonstration of professional growth, reflection, and proficiency in the 12 Florida Educator Accomplished Practices. ~~Portfolio defense will be a part of IDS 6933.~~

Pass all required sections of the Florida Teacher Certification Examination prior to graduation.

#### INDEPENDENT LEARNING

All students must complete a portfolio according to program guidelines. This portfolio requires demonstration of professional growth, reflection, and proficiency in the 12 Florida Educator Accomplished Practices. ~~Portfolio defense will be a part of IDS 6933.~~ An internship is also required.

## Application Requirements

For information on general UCF graduate admissions requirements that apply to all prospective students, please visit the [Admissions](#) section of the Graduate Catalog. Applicants must [apply online](#). All requested materials must be submitted by the established deadline(s).

In addition to the general [UCF graduate application requirements](#), applicants to this program must provide:

- One official transcript (in a sealed envelope) from each college/university attended.
- Applicants applying to this program who have attended a college/university outside the United States must provide a course-by-course credential evaluation with GPA calculation. Credential evaluations are accepted from [World Education Services \(WES\)](#) or [Josef Silny and Associates, Inc.](#) only.

This program does not require GRE for admission, but in accordance with Florida Statute 1004.4 and State Board of Education Rule 6A-5.066, admission to this graduate-level, state-approved initial teacher preparation program requires one of the following: 1) a composite verbal-quantitative GRE score of at least 1000, or 2) having previously passed all four parts of the College Level Academic Skills Test (CLAST), or 3) passing all four parts of the Florida Teacher Certification Examination/General Knowledge Test (FTCE/GKT). Applicants who do not meet this requirement via option 1 (GRE) or 2 (CLAST), must take and pass the FTCE/GKT for admission.

Students may not switch from an MAT program to a MEd program without going through the university's application process.

### Application Deadlines

All application materials must be submitted by the appropriate deadline listed below.

Physics	Fall Priority	Fall	Spring	Summer
Domestic Applicants	Jan 15	Jul 15	Dec 1	Apr 15
International Applicants	Jan 15	Jan 15	Jul 1	Nov 1
International Transfer Applicants	Jan 15	Mar 1	Sep 1	Dec 15

## FINANCIALS

Graduate students may receive financial assistance through fellowships, assistantships, tuition support, or loans. For more information, see [Student Finances](#), which describes the types of

financial assistance available at UCF and provides general guidance in planning your graduate finances. The Financial Information section of the Graduate Catalog is another key resource.

### **Fellowships**

Fellowships are awarded based on academic merit to highly qualified students. They are paid to students through the Office of Student Financial Assistance, based on instructions provided by the College of Graduate Studies. Fellowships are given to support a student's graduate study and do not have a work obligation. For more information, see Fellowships, which includes descriptions of UCF fellowships and what you should do to be considered for a fellowship.



## Program Recommendation Form

This form is to be used to revise, add, suspend, or delete degree programs, tracks, or certificate programs.

College/Unit(s) Submitting Proposal: Education Proposed Effective Term/Year: Fall 2010

Unit(s) Housing Program: Department of Teaching and Learning Principles, College of Education

Name of Program and/or track: Master of Arts, Social Science Education

**Brief Statement of Program Change:** (for suspensions or deletions of degree programs, tracks or certificates, please attach on a separate sheet the rationale for this action, including statement of how this action impacts faculty teaching in and students enrolled in the program, track or certificate. Please note the units that have been consulted if duplication of programs or conflict of interest with other units has occurred.)

Please check one: this action affects a:  Program  Track  Certificate

Please check one: this action is a(n):  Addition  Inactivation  Revision  
 Temporary Suspension of Admissions: Length of Suspension \_\_\_\_\_

**Temporary suspension of admissions:** the program will be removed from the online application. A notation will be entered in the graduate catalog indicating the length of the suspension of admissions. Currently enrolled students will not experience any issues with continued enrollment.

**Inactivation:** Admissions will be suspended for new students and the program will be removed from the online application. Students active in the program are eligible to complete the program under the appropriate criteria and an appropriate teach-out plan is required. The program will be removed from the catalog as of the approved term.

### For program, track, or certificate additions or revisions:

1. Will students be moved from an existing program or track into this new program or track?  Yes  No  
If yes, state the name of the program or track where students are currently enrolled: \_\_\_\_\_

2. Are you changing the name of an existing program or track?  Yes  No  
If yes, provide the new name of the program or track: Master of Arts in Teaching, Social Science Education

Provide the name of the current program or track: Master of Arts in Social Science Education

When is the name change effective? Fall 2010

Please Note: A name change will be effective on all diplomas on the effective date of change. This may affect students currently enrolled or those newly admitted.

3. Are you requesting a CIP Code change?  Yes  No  
If yes, old CIP \_\_\_\_\_ new CIP \_\_\_\_\_

4. A "marked up" catalog copy MUST be included showing the changes for the existing description.

### For program, track, and certificate inactivation:

- Are students currently enrolled in the program?  Yes  No
- If yes, attach a "teach out" plan for all current students specifying how they can finish the program or where students will be placed if being moved to another program. The "teach out" plan should specify when courses will be offered to enable students to finish.
- Please specify the intended time period of inactivation \_\_\_\_\_

**RECOMMENDATIONS**

Yes  No  
Department Chair: Michael C. Wynn Date: 4/19/10

Yes  No  
College Curriculum Committee Chair: Rosemary Taylor Date: 4/23/10

Yes  No  
College Dean or Unit Head: Mark Hays Date: 4/19/10

Yes  No  
Chair, UPCC or GSC: \_\_\_\_\_ Date: \_\_\_\_\_

Yes  No  
Dean, Undergraduate Studies or Graduate Studies: \_\_\_\_\_ Date: \_\_\_\_\_

Approval:  
Provost and Executive Vice President: \_\_\_\_\_ Date: \_\_\_\_\_

**Distribution: After approval is received from the Provost, distribution will be to:**

- |  |   |   |
|--|---|---|
| <input type="checkbox"/> Department(s) | <input type="checkbox"/> Associate Registrar    | <input type="checkbox"/> Faculty Senate                     |
| <input type="checkbox"/> College       | <input type="checkbox"/> Institutional Research | <input type="checkbox"/> Information, Analysis & Assessment |
| <input type="checkbox"/> Registrar     | <input type="checkbox"/> Academic Services      |   |





At the graduate level, initial teacher certification programs have become to be known as Master of Arts in Teaching (MAT) programs. The name change requested here will align the current MA program in Social Science Education with the convention recognized by the state of Florida and will be consistent with other state universities including Florida Atlantic University, Florida International University, Florida State University, University of Florida, University of South Florida, and University of West Florida.

The curriculum change requested is to add two seminars, ESE 6XXX – Introductory Seminar in Secondary Education (1 credit hour) and ESE 6XXX – Capstone Seminar in Secondary Education (2 credit hours) which will be taken by all MAT students regardless of subject matter area. The Introductory Seminar will be taken in the first semester and the Capstone Seminar will be taken in the last semester of the program. In addition, to keep most MAT programs consistent at 36 credit hours (Art is 37 and English is 39 due to ESOL), one Social Science Elective and one Social Science Content Elective are deleted.

## PROGRAM DESCRIPTION

The Master of Arts in Teaching in, Social Science Education program is designed for non-education majors or previously certified teachers in another field.

[Read More](#) ▶▶

## CURRICULUM

The Social Science Education MAT requires a minimum of ~~39~~36 credit hours beyond the bachelor's degree, including ~~18~~16 credit hours of required courses, ~~15~~14 credit hours of specialization, and 6 credit hours of an internship. Upon completion of the program, students must complete a portfolio according to program guidelines, pass a comprehensive examination, and pass all applicable sections of the Florida Teacher Certification Examination.

### Total Credit Hours Required:

~~39~~36 Credit Hours Minimum beyond the Bachelor's Degree

The MAT in Social Science Education program is designed for non-education majors or previously certified teachers in another field.

The program requires a portfolio of both reflective practice/analysis of professional development and demonstration of attainment of the pre professional level of performance for all twelve of the Florida Educator Accomplished Practices. Multiple artifacts and reflective analysis are required for each of the accomplished practices. In addition, all portfolios require a final reflective analysis of students' overall learning and professional development as the capstone portfolio entry. All portfolio entries are critical components of learning since they are the primary means of accessing the professional development of students as reflective practitioners. An internship is also required.

### Required Courses—~~18~~16 Credit Hours

- \*ESE 6XXX Introductory Seminar in Secondary Education (1 credit hour)
- \*EDG 6415 Principles of Instruction and Classroom Management (3 credit hours)
- EDF 6727 Critical Analysis of Social, Ethical, Legal, and Safety Issues Related to Education (3 credit hours)
- EDF 6237 Principles of Learning and Introduction to Classroom Assessment (3 credit hours)
- LAE 5337 Literacy Strategies for Middle and Secondary Teaching (3 credit hours)
- TSL 5085 Teaching Language Minority Students in K-12 Classrooms (3 credit hours)

\* Must be taken in first semester in program

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### **Methods – 3 credit hours**

- SSE 5790 Inquiry and Instructional Analysis in Social Science Education (3 credit hours)  
~~SSE 5790 Inquiry and Instructional Analysis in Social Science Education (3 credit hours)~~

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### **Capstone—2 Credit Hours**

- ESE 6XXX Capstone Seminar in Secondary Education (2 credit hours)

### **Elective Courses—15.9 Credit Hours**

These electives are chosen in the student's area of specialization, and all must be at the 5000 level and higher. Substitutions may be approved by your adviser

- SSE Electives (9.6 credit hours)
- Social science content electives in other programs and departments (6.3 credit hours), including, but not limited to, the following course prefixes: AFH, AMH, ASH, CPO, EUH, HIS, INR, LAH, or POS.

Students can see courses by prefix under the Catalog Menu button above and looking under "Courses"

### **Internship—6 Credit Hours**

- SSE 6946 Graduate Internship (6 credit hours)

### **Additional Program Requirements**

- Complete a portfolio according to program guidelines.
- Pass all applicable sections of the Florida Teacher Certification Examination.

### **INDEPENDENT LEARNING**

The program requires a portfolio of both reflective practice/analysis of professional development and demonstration of attainment of the pre professional level of performance for all twelve of the Florida Educator Accomplished Practices. Multiple artifacts and reflective analysis are required for each of the accomplished practices. In addition, all portfolios require a final reflective analysis of students' overall learning and professional development as the capstone portfolio entry. All portfolio entries are critical components of learning since they are the primary means of accessing the professional development of students as reflective practitioners. An internship is also required.

### **Application Requirements**

For information on general UCF graduate admissions requirements that apply to all prospective students, please visit the [Admissions](#) section of the Graduate Catalog. Applicants must [apply online](#). All requested materials must be submitted by the established deadline(s).

In addition to the [general UCF graduate application requirements](#), applicants to this program must provide:

- One official transcript (in a sealed envelope) from each college/university attended.
- Applicants applying to this program who have attended a college/university outside the United States must provide a course-by-course credential evaluation with GPA calculation. Credential evaluations are accepted from [World Education Services \(WES\)](#) or [Josef Silny and Associates, Inc.](#) only.

This program does not require GRE for admission, but in accordance with Florida Statute 1004.4 and State Board of Education Rule 6A-5.066, admission to this graduate-level, state-approved initial teacher preparation program requires one of the following: 1) a composite verbal-quantitative GRE score of at least 1000, **or** 2) having previously passed all four parts of the College Level Academic Skills Test (CLAST), **or** 3) passing all four parts of the Florida Teacher Certification Examination/General Knowledge Test (FTCE/GKT). Applicants who do not meet this requirement via option 1 (GRE) or 2 (CLAST), must take and pass the FTCE/GKT for admission.

| Students may not switch from an MAT program to an MEd program, or vice versa, without going through the university's application process.

### Application Deadlines

<b>Social Science Education MAT</b>	<b>Fall Priority</b>	<b>Fall</b>	<b>Spring</b>	<b>Summer</b>
<b>Domestic Applicants</b>	Jan 15	Jul 15	Dec 1	Apr 15
<b>International Applicants</b>	Jan 15	Jan 15	Jul 1	Nov 1
<b>International Transfer Applicants</b>	Jan 15	Mar 1	Sep 1	Dec 15

## FINANCIALS

Graduate students may receive financial assistance through fellowships, assistantships, tuition support, or loans. For more information, see [Student Finances](#), which describes the types of financial assistance available at UCF and provides general guidance in planning your graduate finances. The [Financial Information](#) section of the Graduate Catalog is another key resource.

### Fellowships

Fellowships are awarded based on academic merit to highly qualified students. They are paid to students through the Office of Student Financial Assistance, based on instructions provided by the College of Graduate Studies. Fellowships are given to support a student's graduate study and

do not have a work obligation. For more information, see [Fellowships](#), which includes descriptions of UCF fellowships and what you should do to be considered for a fellowship.



### Program Recommendation Form

This form is to be used to revise, add, suspend, or delete degree programs, tracks, or certificate programs.

College/Unit(s) Submitting Proposal: Education Proposed Effective Term/Year: Fall 2010

Unit(s) Housing Program: Department of Teaching and Learning Principles, College of Education

Name of Program and/or track: Master of Arts, English Language Arts with ESOL Endorsement

Brief Statement of Program Change: (for suspensions or deletions of degree programs, tracks or certificates, please attach on a separate sheet the rationale for this action, including statement of how this action impacts faculty teaching in and students enrolled in the program, track or certificate. Please note the units that have been consulted if duplication of programs or conflict of interest with other units has occurred.)

Please check one: this action affects a:  Program  Track  Certificate

Please check one: this action is a(n):  Addition  Inactivation  Revision  
 Temporary Suspension of Admissions: Length of Suspension \_\_\_\_\_

Temporary suspension of admissions: the program will be removed from the online application. A notation will be entered in the graduate catalog indicating the length of the suspension of admissions. Currently enrolled students will not experience any issues with continued enrollment.

Inactivation: Admissions will be suspended for new students and the program will be removed from the online application. Students active in the program are eligible to complete the program under the appropriate criteria and an appropriate teach-out plan is required. The program will be removed from the catalog as of the approved term.

#### For program, track, or certificate additions or revisions:

- Will students be moved from an existing program or track into this new program or track?  Yes  No  
If yes, state the name of the program or track where students are currently enrolled: \_\_\_\_\_
- Are you changing the name of an existing program or track?  Yes  No  
If yes, provide the new name of the program or track: Master of Arts in Teaching, English Language Arts with ESOL Endorsement  
Provide the name of the current program or track: Master of Arts in English Language Arts with ESOL Endorsement  
When is the name change effective? Fall 2010  
Please Note: A name change will be effective on all diplomas on the effective date of change. This may affect students currently enrolled or those newly admitted.
- Are you requesting a CIP Code change?  Yes  No  
If yes, old CIP \_\_\_\_\_ new CIP \_\_\_\_\_
- A "marked up" catalog copy MUST be included showing the changes for the existing description.

#### For program, track, and certificate inactivation:

- Are students currently enrolled in the program?  Yes  No
- If yes, attach a "teach out" plan for all current students specifying how they can finish the program or where students will be placed if being moved to another program. The "teach out" plan should specify when courses will be offered to enable students to finish.
- Please specify the intended time period of inactivation \_\_\_\_\_

**RECOMMENDATIONS**

Yes  No  
Department Chair: Michael C. Hyman Date: 4/19/10

Yes  No  
College Curriculum Committee Chair: [Signature] Date: 7/23/10

Yes  No  
College Dean or Unit Head: [Signature] Date: 4/19/10

Yes  No  
Chair, UPCC or GSC: \_\_\_\_\_ Date: \_\_\_\_\_

Yes  No  
Dean, Undergraduate Studies or Graduate Studies: \_\_\_\_\_ Date: \_\_\_\_\_

Approval:  
Provost and Executive Vice President: \_\_\_\_\_ Date: \_\_\_\_\_

**Distribution: After approval is received from the Provost, distribution will be to:**

- |  |   |   |
|--|---|---|
| <input type="checkbox"/> Department(s) | <input type="checkbox"/> Associate Registrar    | <input type="checkbox"/> Faculty Senate                     |
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| <input type="checkbox"/> Registrar     | <input type="checkbox"/> Academic Services      |   |



At the graduate level, initial teacher certification programs have become to be known as Master of Arts in Teaching (MAT) programs. The name change requested here will align the current MA program in English Language Arts with ESOL Endorsement with the convention recognized by the state of Florida and will be consistent with other state universities including Florida Atlantic University, Florida International University, Florida State University, University of Florida, University of South Florida, and University of West Florida.

The curriculum change requested is to add two seminars, ESE 6XXX – Introductory Seminar in Secondary Education (1 credit hour) and ESE 6XXX – Capstone Seminar in Secondary Education (2 credit hours) which will be taken by all MAT students regardless of subject matter area. The Introductory Seminar will be taken in the first semester and the Capstone Seminar will be taken in the last semester of the program. We are unable to remove a course from the program due to the ESOL Endorsement.



## PROGRAM DESCRIPTION

The Master of Arts in Teaching, in English Language Arts Education with ESOL Endorsement is a state-approved initial teacher preparation program for students seeking certification to teach English in grades 6-12, including students previously certified to teach in another field.

[Read More](#) ▼▲

## CURRICULUM

The English Language Arts Education with ESOL Endorsement MAT requires a minimum of 36-39 credit hours beyond the bachelor's degree, including 15-16 credit hours of core courses, 15-17 credit hours of specialization, and 6 credit hours of internship.

### Total Credit Hours Required:

36-39 Credit Hours Minimum beyond the Bachelor's Degree

The English Language Arts Education with ESOL Endorsement MAT requires a minimum of 36-39 credit hours beyond the bachelor's degree that includes ESOL endorsement and the option of adding Reading K-12 endorsement. The program is a secondary (grades 6-12) program for noneducation majors at the undergraduate level or teachers previously certified in another field.

The MAT program requires a portfolio of both reflective practice/analysis of professional development and demonstration of attainment of the pre-professional level of performance for all twelve of the Florida Educator Accomplished Practices. Multiple artifacts and reflective analyses are required for each of the accomplished practices. In addition, all portfolios require a final reflective analysis of students' overall learning and professional development as the capstone portfolio entry. All portfolio entries are critical components of learning since they are the primary means of accessing the professional development of students as reflective practitioners. In addition, an internship is required.

### Required Courses—30 Credit Hours

#### Core—15-16 Credit Hours

- \*ESE 6XXX Introductory Seminar in Secondary Education (1 credit hour)
- LAE 6637 Research in Teaching English (3 credit hours)
- \*EDG 6415 Principles of Instruction and Classroom Management (3 credit hours)
- EDF 6727 Critical Analysis of Social, Ethical, Legal, and Safety Issues Related to Education (3 credit hours)
- EDF 6237 Principles of Learning and Introduction to Classroom Assessment (3 credit hours)
- \*TSL 5085 Teaching Language Minority Students in K-12 Classrooms (3 credit hours)

\* Must be taken in first semester in program

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### Specialization—15 Credit Hours

- LAE 5338 Teaching Writing in Middle and High School (3 credit hours)
- LAE 5346 Methods of Teaching English Language Arts (3 credit hours)
- LAE 5465 Literature for Adolescents (3 credit hours)
- RED 5147 Developmental Reading (3 credit hours)
- TSL 6250 Applied Linguistics in ESOL (3 credit hours)

#### Capstone – 2 credit hours

- ESE 6XXX Capstone Seminar in Secondary Education (2 credit hours)

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### Internship—6 Credit Hours

- LAE 6946 Graduate Internship (6 credit hours)

Satisfactory completion of graduate internships requires the student to demonstrate proficiency in all 12 Florida Educator Accomplished Practices at the pre-professional level in accordance with State Board of Education Rule 6A-5.065.

### Additional Program Requirements

- Complete a portfolio according to program guidelines. This portfolio requires demonstration of professional growth, reflection, and proficiency in the 12 Florida Educator Accomplished Practices.
- Students are required to complete 30 credit hours of co-requisite undergraduate and graduate English course work to meet certification requirements to teach English, grades 6-12. These may be previously earned undergraduate or graduate English credits, or include graduate credits in English approved for electives in the program. Only six credit hours of independent study courses may be used to satisfy degree requirements. It is important to see an adviser if courses are difficult to schedule in content areas.
- Pass all applicable sections of the Florida Teacher Certification Examination.

### INDEPENDENT LEARNING

The MAT program requires a portfolio of both reflective practice/analysis of professional development and demonstration of attainment of the pre-professional level of performance for all twelve of the Florida Educator Accomplished Practices. Multiple artifacts and reflective analyses are required for each of the accomplished practices. In addition, all portfolios require a final reflective analysis of students' overall learning and professional development as the capstone portfolio entry. All portfolio entries are critical components of learning since they are the

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- Applicants applying to this program who have attended a college/university outside the United States must provide a course-by-course credential evaluation with GPA calculation. Credential evaluations are accepted from [World Education Services \(WES\)](#) or [Josef Silny and Associates, Inc.](#) only.

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Students may not switch from a MAT program to a MEd program, or vice versa, without going through the university's admission process.

## Application Deadlines

English Language Arts Education with ESOL Endorsement MAT	Fall Priority	Fall	Spring	Summer
<b>Domestic Applicants</b>	Jan 15	Jul 15	Dec 1	Apr 15
<b>International Applicants</b>	Jan 15	Jan 15	Jul 1	Nov 1
<b>International Transfer Applicants</b>	Jan 15	Mar 1	Sep 1	Dec 15

## FINANCIALS

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