

Graduate Curriculum Committee
April 23, 2009
10:30 a.m., MH 243

Agenda

1. Welcome and call to order
2. Suspension of the School Social Work graduate certificate, COHPA
3. Suspension of the Addictions graduate certificate, COHPA
4. Course revisions to the Social Work Administration graduate certificate, COHPA
5. Course revisions to the Entrepreneurship graduate certificate, CBA
6. Addition of a Mathematics graduate certificate, COS
7. Addition of a Modeling & Simulation Professional Master's track (online), CGS
8. Revisions to the Anthropology MA, COS
9. Course revisions to the Chemistry PhD program, COS
10. Courses and special topics
11. Adjournment

Members of the Graduate Curriculum Committee:

David Boote, COE
Deborah Breiter, RCHM
Raj Echambadi, CBA
Robert Ford, CBA
Naim Kapucu, COHPA
Ram Mohapatra, COS -- Chair
Tison Pugh, CAH
Martin Richardson, COP
Sergio Tafur, GSA
James Turkson, COM
Art Weeks, CECS
Diane Wink, CON
Patricia Bishop, GS
Max Poole, GS



Program Recommendation Form

College/Unit(s) Submitting Proposal: College of Health and Public Affairs

Proposed Effective Term/Year: Summer 2009

Unit(s) Housing Program: School of Social Work

Name of Program: School Social Work Certificate

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 Suspension Deletion Revision

RECOMMENDATIONS

Yes No

Department Chair: *[Signature]*

Date: 3/23/09

Yes No

College Curriculum Committee Chair: *[Signature]*

Date: 3/31/09

Yes No

College Dean or Unit Head: *[Signature]*

Date: 4/7/09

Yes No

Chair, UPCC or GSC:

Date:

Yes No

Dean, Undergraduate Studies or Graduate Studies:

Date:

Approval:

Provost:

Date:

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

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

_____ Department(s) _____ College _____ Registrar _____ Associate Registrar

_____ Institutional Research _____ Academic Services _____ Faculty Senate _____ Information, Analysis & Assessment





School of Social Work
Web site: <http://www.cohpa.ucf.edu/social/>

MEMORANDUM

To: Graduate Curriculum Committee

From: Estelli Ramos *ER*
M.S.W. Committee

Date: March 23, 2009

Subject: Suspension of School Social Work Certificate

The School of Social Work is requesting to suspend admission to the School Social Work graduate certificate effective summer 2009. Most of the students currently active in the program are expected to graduate and complete their certificates at the end of spring term. We anticipate that 2 students currently admitted to the certificate program will continue after spring 09. These are part-time students and the courses required for them to complete the certificates are being offered during the 09-10 academic year. By the end of spring 2010, all students admitted to the certificate will have completed the certificate.

The rationale for this request is an attempt to more effectively use limited resources available by focusing on the MSW program. The School of Social Work currently offers five certificate programs, each requiring separate electives, in addition to an extensive list of electives available for the MSW program. By temporarily suspending admission to the School Social Work certificate, the department can streamline the schedule of electives for 2010-11 (and future years if necessary) thereby dedicating faculty and resources as effectively as possible to meet the curriculum needs of the overall MSW student population. The School of Social Work expects to reinstate admission to the certificate when resources become available to support additional courses for this target population of students. Students and faculty in the MSW program should not be adversely impacted by this suspension since the high-demand electives for the MSW program will remain available.

College of Health & Public Affairs
P.O. Box 163358 • Orlando, FL 32816-3358 • (407) 823-2114 • FAX (407) 823-5697

An Equal Opportunity and Affirmative Action Institution



Program Recommendation Form

College/Unit(s) Submitting Proposal: College of Health and Public Affairs

Proposed Effective Term/Year: Summer 2009

Unit(s) Housing Program: School of Social Work

Name of Program: Addictions Certificate

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 Suspension Deletion Revision

RECOMMENDATIONS

Yes No

Department Chair:

Date:

3/23/09

Yes No

College Curriculum Committee Chair:

Date:

4/1/09

Yes No

College Dean or Unit Head:

Date:

4/3/09

Yes No

Chair, UPCC or GSC:

Date:

Yes No

Dean, Undergraduate Studies or Graduate Studies:

Date:

Approval:

Provost:

Date:

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School of Social Work
Web site: <http://www.cohpa.ucf.edu/social/>

MEMORANDUM

To: Graduate Curriculum Committee

From: Estelli Ramos *ER*
M.S.W. Program Coordinator

Date: March 23, 2009

Subject: Suspension of Addictions Graduate Certificate

The School of Social Work is requesting to suspend admission to the Addictions graduate certificate effective Summer 2009. Most of the students currently active in the program are expected to graduate and complete their certificates at the end of spring term. We anticipate that 2 students currently admitted to the certificate program will continue after spring 09. These are part-time students and the courses required for them to complete the certificates are being offered during the 09-10 academic year. By the end of spring 2010, all students admitted to the certificate will have completed the certificate.

The rationale for this request is an attempt to more effectively use limited resources available by focusing on the MSW program. The School of Social Work currently offers five certificate programs, each requiring separate electives, in addition to an extensive list of electives available for the MSW program. By temporarily suspending admission to the Addictions certificate, the department can streamline the schedule of electives for 2010-11 (and future years if necessary) thereby dedicating faculty and resources as effectively as possible to meet the curriculum needs of the overall MSW student population. The School of Social Work expects to reinstate admission to the certificate when resources become available to support additional courses for this target population of students. Students and faculty in the MSW program should not be adversely impacted by this suspension since the high-demand electives for the MSW program will remain available.

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An Equal Opportunity and Affirmative Action Institution



Program Recommendation Form

College/Unit(s) Submitting Proposal: College of Health and Public Affairs

Proposed Effective Term/Year: Summer 2009

Unit(s) Housing Program: School of Social Work

Name of Program: Social Work Administration

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 Suspension Deletion Revision

RECOMMENDATIONS

Yes No

Department Chair:

Date:

Yes No

College Curriculum Committee Chair:

Date:

Yes No

College Dean or Unit Head:

Date:

Yes No

Chair, UPCC or GSC:

Date:

Yes No

Dean, Undergraduate Studies or Graduate Studies:

Date:

Approval:

Provost:

Date:

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

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_____ Institutional Research _____ Academic Services _____ Faculty Senate _____ Information, Analysis & Assessment

Since this course is also required in the certificate, the total required hours in the certificate will increase from 11 credit hours to 12 credit hours.



UNIVERSITY OF CENTRAL FLORIDA
COLLEGE OF GRADUATE STUDIES

Program Recommendation Form

College/Unit(s) Submitting Proposal: College of Business Administration Proposed Effective Term/Year: Fall 2009

Unit(s) Housing Program: Management Department Name of Program: Entrepreneurship Certificate

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 Suspension Deletion Revision

RECOMMENDATIONS

Yes No [Signature] Department Chair: Date: March 3, 2009

Yes No [Signature] College Curriculum Committee Chair: Date: 4-14-09

Yes No [Signature] College Dean or Unit Head: Date: 4-3-09

Yes No _____ Chair, UPCC or GSC: Date: _____

Yes No _____ Dean, Undergraduate Studies or Graduate Studies: Date: _____

Approval: _____
Provost: _____ Date: _____

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

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

_____ Department(s) _____ College _____ Registrar _____ Associate Registrar

_____ Institutional Research _____ Academic Services _____ Faculty Senate _____ Information, Analysis & Assessment

Memorandum

To: University Policy & Curriculum Committee
From: Cameron Ford, Associate Professor, Management
Date: 02/12/2009
Re: Catalog Revision to Graduate Certificate in Entrepreneurship

1: Short rationale for the program change:

The rationale for this change is to provide students with an opportunity to learn about consulting career options. This change will also improve scheduling options available for this certificate.

2: Itemized description of this change:

Revise the Required Courses section to show the following change to the second listed required course: MAN 5867 Small Business Institute (3 credit hours) OR MAN 6286 Strategic Innovation (3 credit hours) [Note – MAN 5867 is undergoing a name change in the Course Action Request Form process to be called: "Small Business Consulting"]

3: Original catalog copy is attached. (Proposed changes follow in bold):

CURRICULUM (Current Description)

Total Hours Required—9 Credit Hours Minimum

Required Courses—9 Credit Hours

GEB 6115 Entrepreneurship	3 credit hours
MAN 6286 Strategic Innovation	3 credit hours
GEB 6116 Business Plan Formation	3 credit hours

CURRICULUM (Revision Proposal)

Total Hours Required—9 Credit Hours Minimum

Required Courses—9 Credit Hours

GEB 6115 Entrepreneurship	3 credit hours
MAN 5867 Small Business Consulting <u>or</u>	3 credit hours
MAN 6286 Strategic Innovation	3 credit hours
GEB 6116 Business Plan Formation	3 credit hours

- **Note: [This course is currently called "Small Business Institute", but is currently in the process of a name change in the "Course Action Request Form"].**



Program Recommendation Form

College/Unit(s) Submitting Proposal: College of Sciences

Proposed Effective Term/Year: Fall 2009

Unit(s) Housing Program: Department of Mathematics

Name of Program: Graduate Certificate in Mathematics

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 Suspension Deletion Revision

RECOMMENDATIONS

Yes No

Department Chair:

Richard DeLi

Date: 3/5/09

Yes No

College Curriculum Committee Chair:

Mark

Date: 4-8-09

Yes No

College Dean or Unit Head:

Mark

Date: 4-8-09

Yes No

Chair, UPCC or GSC:

Date:

Yes No

Dean, Undergraduate Studies or Graduate Studies:

Date:

Approval:

Provost:

Date:

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

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

Department(s) College Registrar Associate Registrar
 Institutional Research Academic Services Faculty Senate Information, Analysis & Assessment

Framework for an 18 credit hours Graduate Certificate in Mathematics program

Purpose: There is a continuing demand of graduate level mathematics courses from students in engineering and education whose final goal is to teach college mathematics in high school and community colleges. They need 18 credit hours of graduate level mathematics courses plus a Master degree from any field. Currently, due to the limitation of the offered courses and hours, most students choose their courses according to their available schedule and enroll in many of our Mathematics Ph.D. qualifying courses. As a consequence, many students find themselves poorly prepared for the level and pace of the courses. This definitely reduces the success rate among these students. In this proposal, we want to lay out a plan to offer either new or redesigned graduate courses, to deliver the courses more effectively by using the latest technology available to distant learning, and to help students choose the right level of courses through placement and mentoring.

Here are the important points:

1. Students apply for the program through the university's online system.
2. Admission is granted if the following minimum requirements are satisfied:
 - (i) Official BS degree transcripts
 - (ii) For non math BS, the completion of the following undergraduate math courses (or their equivalences) are required:
 - MAP 3105 Matrix and Linear Algebra
 - MAP 3112 Ordinary Differential Equations
3. No Graduate Teaching Assistantship will be provided
4. Typical course work:
 - a. **MAA 5210 Topics in Advanced Calculus** (3 credit hours, redesigned course)
Real numbers, epsilon-delta language, limits, continuity, uniform continuity, intermediate value theorem, Rolle's theorem, mean value theorem, Riemann integrals, Fundamental Theorem of Calculus, integrals with a parameter, improper integrals, uniform convergence, differentiation under the integral, partial derivatives, mixed partial derivatives, inverse function theorem, double integrals, repeated integrals, line integrals, Green's formula, infinite series.
Textbook: Mathematical Analysis, by Binmore, Cambridge University Press.
 - All results that can be obtained more easily in Lebesgue integration should be treated under stronger assumptions for the simplicity of the proofs. The main purpose should be on showing that "under certain assumption" the discussed formulas hold. In this way, students are familiar with the formulas but are not burdened by the technical details with the most general and least assumption (which is hard to do in the Riemann integration setting anyway).
 - The proofs in the first part of the topics should be given very carefully and thoroughly. The main purpose is to use the material for the training of students' analysis and critical thinking skills. This half of topics could take half to two thirds of the semester to work on. For students' benefit, try to present more than one proof for selected results, not just stop at establishing the result and move on to the next.

- Students will be required to take a subsequent course in differential geometry which will re-enforce some material in functions of several variables. So, in this course and in this part of material, familiarity with the conclusions of the results is more important than making the most general assumptions in establishing the results.

b. **MAS 5145 Advanced Linear Algebra** (3 credit hours)

vectors, matrices, linear span, linear dependence and independence, linear space and subspace, dimension and rank, similarity, eigen-values and eigen-vectors, characteristic polynomials, symmetric and orthogonal matrices, quadratic forms, positive definiteness, diagonalization.

Textbook: Linear Algebra and Its Applications, by Strang, Brooks/Cole.

- Teach the critical thinking is the main purpose
- Students should learn how to write their own proofs
- Matlab illustration may be helpful if incorporated in teaching (optional)

c. **MTG 5xxx Introduction to Differential Geometry** (3 credit hours, new course)

Curves and surfaces in 2D and 3D, Gauss-Bonnet-Theorem, spherical and hyperbolic geometry

Textbook: Differential Geometry of Curves and Surfaces, by Toponogov and Rovenski

- Analytic geometry after linear algebra (quadratic forms for conic curves) is treated at a higher level.
- Re-enforce vector valued functions (for example, curves and surfaces in 3D)
- May be limited to 3D
- Treat line and surface integrals one more time, at higher level
- Ideally, this course combines analytic geometry, calculus (especially vector valued, multivariate), linear algebra, and basic study of curves and surfaces.

d. **MAA 6405 Complex Variables** (3 credit hours)

complex numbers and geometry (more on the relation to geometry and non-Eulclidean geometry), bilinear transform, cross-ratio, conformal mapping, analytic functions, exponential and logarithmic functions, Cauchy's integral formula, residue theorem and its application to the evaluation of real integrals.

Textbook: Fundamentals of Complex Analysis, by Saff and Snider, Prentice Hall.

- 30% proof and 70% skill
- This may still be a qualifying course but students are better prepared after the Topics in Advanced Calculus and Advanced Linear Algebra

e. **MAP 5711 Scientific Computing** (3 credit hours)

Introduction to Matlab, Newton's method, polynomial interpolation, least squares method, numerical differentiation, numerical integration.

Textbook: Numerical Mathematics and Computing, by Cheney Kincaid, Brooks/Cole.

- Learn the basic numerical algorithms and Matlab
- reinforce Calculus and Linear Algebra

f. **MAP 5426 Special Functions** (3 credit hours)

Series and integral representation, generating functions, Gamma, Beta, Bessel, Legendre, and hypergeometric functions.

Textbook: Special Functions by Temme, Wiley-Interscience.

- provide the opportunity for students to see beyond exponential and logarithmic functions
 - re-enforce the skills in improper integrals and infinite series
5. May apply for MS program after completing 9 credit hours with B or above. This is the best way to make sure all 18 credit hours can be used to satisfy the degree requirement.
 6. At the completion of 18 credit hours, the Certificate will be issued to the students. Students will be required to submit a Certificate Completion form to the Mathematics Department at the beginning of the semester they intend to complete the certificate.
 7. To make it possible for a student to complete the Certificate program through distance learning, all six courses mentioned above should be offered with a complete online resource. Regular online problem solving sessions are a required component: students are required to participate in a certain percentage of the online problem solving sessions in order to receive "B" or better.
 - Recorded Lectures will be made available as the semester proceeds.
 - Homework will be collected through WebCT (or in-class).
 - Examinations are proctored and students who are taking the courses remotely are responsible for making the arrangement (and for paying the involved fee if outside service is needed).
 - One or two meeting on campus will be needed.
 8. At least two courses will be offered per semester, including summer.
 9. One faculty is in charge of the program and will monitor the students progress and help to place the students in appropriate courses.
 10. Students in the certificate program may apply to the MS or PhD program and all credit hours earned for the certificate program will be transferred into the degree program.

PROGRAM DESCRIPTION

The Graduate Certificate in Mathematics is designed to prepare students to teach college level mathematics in high schools or college. All required courses will be offered to accommodate distant learning by posting recorded lectures and offering scheduled online problem sessions and office hours.

CURRICULUM

Students must take five required courses.

Total Hours Required—18 Credit Hours Minimum

Required Courses—15 Credit Hours

- MAA 5210 Topics in Advanced Calculus (3 credit hours)
- MAS 5145 Advanced Linear Algebra (3 credit hours)
- MTG 5xxx Introduction to Differential Geometry (3 credit hours)
- MAA 6405 Complex Variables (3 credit hours)
- MAP 5711 Scientific Computing (3 credit hours)

Selective Courses -- 3 Credit Hours

- MAP 5426 Special Functions (3 credit hours)
- Or any of the following (not necessarily available in online format):
 - MAP 5336 Ordinary Differential Equations and Applications (3 credit hours)
 - MAD 5205 Combinatorics and Graph Theory II (3 credit hours)
 - Any 6000 level course offered by Mathematics Department

Admissions

Admission is open to those with a bachelor's degree from a regionally accredited institution. An application to the graduate certificate program and official transcripts must be submitted. Applicants must apply online. All requested materials must be submitted by the established deadline(s).



University of
**Central
Florida**

Division of Continuing Education

NEW CREDIT APPROVAL FORM

Date: April 1, 2009

Location: Online

Submitted by: Dr. Peter Kincaid/Dr. Patrick Wagner

Name of Program: Modeling & Simulation Professional Masters ~~Program~~ Track

Type of Program: Sponsored Credit* Online*

*Programs will not generate FTE.

Description:

See attachment

Course dates: Fall 2009- Summer 2010

Approval Signatures:

Program Coordinator: J. P. Kincaid Date: 4/8/09

Department Chair/Director: n/a Date: _____

Dean or Designee: [Signature] Date: 4/8/2009

DCE Asst. V.P./Director: Becky Morgan for Patrick Wagner Date: 4/13/09

Vice Provost-Dean Graduate Studies: Patricia Bishop Date: 4/13/09

Vice Provost-Regional Campuses: Dr. Hamlin Date: 4/13/09

Provost or Designee: _____ Date: _____

**Academic Agreement between
The University of Central Florida
and
The Embry-Riddle Aeronautical University Worldwide Campus**

The University of Central Florida, Orlando, Florida (hereafter referred to as "UCF"), and the Embry-Riddle Aeronautical University Worldwide Campus (hereafter referred to as "ERAU"), Daytona Beach, Florida, agree to establish an agreement starting in the Fall 2009, where graduate students from UCF enroll in specified courses at ERAU in order to complete a Professional Science Management (PSM) graduate program at UCF and a graduate certificate program at ERAU.

This agreement is based on the following stipulations:

- 0.1 Students must enroll in a graduate PSM program at UCF, meeting all admissions requirements as determined by UCF and the graduate PSM program.
- 0.2 Students must enroll in an online graduate certificate program at ERAU, meeting all admissions requirements as determined by ERAU and graduate the certificate program.
- 0.3 Student credit hours taken from courses in a graduate certificate at ERAU in an appropriate academic discipline will be transferred to UCF as determined by the graduate PSM program at UCF. Attachment 1 specifies the number of hours and the list of courses for both the PSM graduate program at UCF and the graduate certificate program at ERAU.
- 0.4 Each university will charge the same tuition, as that charged at ERAU for all courses in the graduate program at UCF and the graduate certificate program at ERAU. Fees for each university will be set by that university.
- 0.5 ERAU will treat UCF students as their own, registering them for courses by assigning an admissions advisor to facilitate registration.
- 1.0 A faculty member in the program at UCF and a faculty member in the program at ERAU will serve as Program Directors and will oversee the execution of this agreement.
- 2.0 The responsibilities of the Program Directors at UCF are to:
 - 2.1 Interact with the Director at ERAU for the registration of UCF students into a graduate certificate program at ERAU.
 - 2.2 Serve as UCF's Graduate Advisor of all students under this program.
 - 2.3 Verify the transfer courses are the correct ones to have taken at ERAU and transfer them into a student's program of study.
- 3.0 The faculty will cooperate as appropriate in delivering a unified curriculum to the students. It is possible that team teaching or joint offerings may take place as stipulated in Attachment 1.
- 3.0 The responsibilities of the Program Directors at ERAU are to:

- 3.1 Ensure that the courses in the graduate certification program are scheduled and offered on a regular basis and provide the schedule to UCF to post them on the PSM graduate program's website, so that students know when they can take ERAU courses.
- 3.2 Ensure that UCF students are registered into ERAU courses.

- 4.0 UCF and ERAU are free to make reference to these arrangements in publishing details of courses and programs of study. Any use of the university's corporate signature or any identifying trademarks must be approved by the other university who shall respond in five (5) working days for the material to be published. Any material or copy intended for publication, which refers in any way to one university, must be agreed to in writing by the other university in advance of publication. The designated officers for this purpose are the Deans of the involved colleges.

- 5.0 Both UCF and ERAU are free to discontinue this program at any time, upon notice to the other. This will mean that no new admissions can occur into the program starting in the next semester. However, students who are still fulfilling degree obligations must continue to receive advising and appropriate support until they have completed their degrees or discontinued the program.

In agreement this month _____ and day _____, of this year 2009,

Terry Hickey, Provost, University of Central
Florida

John Watret, Chief Academic Officer of the
Embry-Riddle Aeronautical University
Worldwide Campus

ATTACHMENT 1
CURRICULUM

1. Modeling and Simulation – the first PSM program as part of the agreement:
 - a. The PSM program in Modeling and Simulation is a 36 credit hour program with a master's degree offered by UCF. A majority of the coursework for the program will be taken at UCF, and all of the coursework taken by the students is offered by the cooperating partners.
 - b. The corresponding ERAU graduate certificate program in Simulation Management is 18 credit hours.
 - c. All formal coursework hours will be transferred from the ERAU graduate certificate program in Modeling and Simulation Management into the PSM Modeling and Simulation program, at the discretion of the UCF program director of the PSM program.
 - d. The two programs will each teach cornerstone courses so that business and technical aspects of simulation can be incorporated into the education.
 - e. The curricula for the PSM Modeling and Simulation program and the Graduate Certificate in Modeling and Simulation Management are:

Professional Science Management Masters Degree in Modeling and Simulation			
Course ID	Course Name	Credit Hours	University
UCF Courses (24 credit hours)			
Required UCF Courses (15 credit hours)			
EIN 5140	Project Engineering	3	UCF
IDS 6XXX	Simulation Systems	3	UCF
ESI 5531	Discrete Systems Simulation	3	UCF
IDS 6717	Perspectives on Modeling and Simulation	3	UCF
EIN /IDS 6946	Graduate Internship	3	UCF
UCF Electives (9 credit hours)			
EIN 5108	The Environment of Technical Organizations	3	UCF
EIN 5117	Management Information Systems I	3	UCF
EIN 5317	Training Systems Design	3	UCF
EIN 5356	Cost Engineering	3	UCF
EIN 6258	Human Computer Interaction	3	UCF
ESI 6306	Operations Research	3	UCF
EIN 6528	Simulation-based Life Cycle Engineering	3	UCF
EIN 6551C	Systems Engineering	3	UCF
ERAU Courses (12 credit hours)			
Required ERAU Course (3 credit hours)			
MGMT 524	Management Science	3	ERAU
ERAU Electives (9 credit hours)			
MGMT 532	Philosophy, Principles, and Practices in Management of Quality	3	ERAU
MGMT 533	Legal, Ethical, and Regulatory Bases of Management Practices	3	ERAU
MGMT 535	Theory and Applications of Managerial Communications	3	ERAU
MGMT 633	Principles and Practices of Financial Accounting for Managers	3	ERAU
MGMT 652	Concepts and Practices of Project Management	3	ERAU
MGMT 653	Labor Issues in an Industrial Environment	3	ERAU
MGMT 671	Entrepreneurship and Leadership	3	ERAU
MGMT 672	Planning and Execution of Strategy	3	ERAU
Total Credit Hours for Degree		36	

UCF/ERAU Professional Science Masters
6-year plan for course offerings

	Fall #1	Spring #1	Summer #1	Fall #2	Spring #2	Summer #2
Cohort A	2009 IDS 6xxx (McGill) IDS 6717 (Kincaid)	2010 EIN 5140 (Kotnour) ESI 5531 (Geiger)	2010 MGMT 524 (erau) MGMT 532 (erau) and other courses	2010 EIN 6528 (Proctor) ESI 6551C (Sala-Diakanda)	2011 EIN 5356 (Thompson) XXX 6946 (Kincaid)	2011 MGMT 533 (erau) MGMT 672 (erau) and other courses
Cohort B	2010 IDS 6xxx (McGill) IDS 6717 (Kincaid)	2011 EIN 5140 (Kotnour) ESI 5531 (Geiger)	2011 MGMT 524 (erau) MGMT 532 (erau) and other courses	2011 EIN 6528 (Proctor) ESI 6551C (Sala-Diakanda) EIN 6258 (Windyga)	2012 EIN 5356 (Thompson) XXX 6946 (Kincaid) EIN 5108 (Rabelo)	2012 MGMT 533 (erau) MGMT 672 (erau) and other courses
Cohort C	2011 IDS 6xxx (McGill) IDS 6717 (Kincaid)	2012 EIN 5140 (Kotnour) ESI 5531 (Geiger)	2012 MGMT 524 (erau) MGMT 532 (erau) and other courses	2012 EIN 6528 (Proctor) ESI 6551C (Sala-Diakanda) EIN 6258 (Windyga) EIN 5317 (Williams)	2013 EIN 5356 (Thompson) XXX 6946 (Kincaid) EIN 5108 (Rabelo) EIN 5117 (Windyga)	2013 MGMT 533 (erau) MGMT 672 (erau) and other courses
Cohort D	2012 IDS 6xxx (McGill) IDS 6717 (Kincaid)	2013 EIN 5140 (Kotnour) ESI 5531 (Geiger)	2013 MGMT 524 (erau) MGMT 532 (erau) and other courses	2013 EIN 6528 (Proctor) ESI 6551C (Sala-Diakanda) EIN 6258 (Windyga) EIN 5317 (Williams)	2014 EIN 5356 (Thompson) XXX 6946 (Kincaid) EIN 5108(Rabelo) EIN 5117 (Windyga)	2014 MGMT 533 (erau) MGMT 672 (erau) and other courses
Cohort E	2013 IDS 6xxx (McGill) IDS 6717 (Kincaid)	2014 EIN 5140 (Kotnour) ESI 5531 (Geiger)	2014 MGMT 524 (erau) MGMT 532 (erau) and other courses	2014 EIN 6528 (Proctor) ESI 6551C (Sala-Diakanda) EIN 6258 (Windyga) EIN 5317 (Williams)	2015 EIN 5356 (Thompson) XXX 6946 (Kincaid) EIN 5108 (Rabelo) EIN 5117 (Windyga)	2015 MGMT 533 (erau) MGMT 672 (erau) and other courses

ERAU Graduate Certificate in Simulation Management			
Course ID	Course Name	Credit Hours	University
UCF Courses (Required Courses 6 credit hours)			
ESI 6551 IDS 6XXX	Systems Engineering OR Simulation Systems	3	UCF
IDS 6717	Perspectives on Modeling and Simulation	3	UCF
ERAU Courses (12 credit hours required)			
Required Course (3 credit hours)			
MGMT 524	Management Science	3	ERAU
Elective Courses (9credit hours)			
MGMT 532	Philosophy, Principles, and Practices in Management of Quality	3	ERAU
MGMT 533	Legal, Ethical, and Regulatory Bases of Management Practices	3	ERAU
MGMT 534	Anatomy of Work Organizations	3	ERAU
MGMT 535	Theory and Applications of Managerial Communications	3	ERAU
MGMT 633	Principles and Practices of Financial Accounting for Managers	3	ERAU
MGMT 652	Concepts and Practices of Project Management	3	ERAU
MGMT 653	Labor Issues in an Industrial Environment	3	ERAU
MGMT 671	Entrepreneurship and Leadership	3	ERAU
MGMT 672	Planning and Execution of Strategy	3	ERAU
Total Credit Hours for Certificate		18	

ATTACHMENT 2
FINANCES

1. Each university will charge the same tuition per sch, and use the ERAU rate, currently at \$500 per sch.
2. UCF will offer this program using Continuing Education, as a professional science management (PSM) master's program.
3. Students will pay for the sch taken at each university separately. Sch taken at UCF will be paid to UCF. Sch taken at ERAU will be paid by the student to ERAU.

UNIVERSITY OF CENTRAL FLORIDA

Division of Continuing Education/College Initiated Professional Degree Programs

BUDGET FORM (Tuition Plus Fee Programs) - Year 1

Account Number:		Faculty Contact: Peter Kincaid/Waldemar Karwowski
Program Name:	Modeling & Simulation Professional Masters Program	DCE Contact: Patrick Wagner/ Becky Morgan
Program Dates:	Year 1: Fall 2009-Fall 2010	Department: Institute of Simulation and Training/IEMS
Location:	Online	Unit: Grad Studies/CECS
Max Enroll: 25	Min Enroll: 13	Est Enroll: 15
Budget: Year 1 (Cohort 1-est 15 students) 4.3.09		

GROSS REVENUES

12 credits x \$500	15	Sponsored credit fee-Cohort 1	Proposed	
				90,000.00
TOTAL ALL REVENUE				90,000.00

COSTS

INSTRUCTIONAL COSTS	EXPLANATION	Proposed	
Faculty Instructional Costs paid by Continuing Ed	\$10,000 per course x 3 courses overload: Dual compensation based on faculty @ full load. Develop course video learning segments, provide coordination with other faculty across the program, customize curriculum to the work setting of the participants and integrate to the total program	30,000.00	
Faculty Costs with Benefits paid by CE		3,000.00	
A&P Costs			
A&P Costs with Benefits			
Adjunct	Teaching one course	5,000.00	
Adjunct- FICA			
OPS Personnel	Graduate teaching assistant to research materials and resources for courses, provide classroom logistical and student support		
ASSISTANTSHIPS and FELLOWSHIPS			
LIBRARY			
OPERATING CAPITAL OUTLAY EXPENSES			
1 Tuition	Regular tuition deposited in the university trust fund and not used to directly support the program \$292.56 per credit hour x 24 credit hours x X students (No Overhead) \$10.00 Annual ID Fee assessed to each student \$18 per credit hour Distributed Learning fee	N/A 150.00 3,240.00	
2 Books/Supplies/Duplicating	Textbooks, instructional supplies and duplication of materials		
3 Lunches/ refreshments	Provide lunch/refreshments onsite to maintain course schedule	N/A	
4 Marketing	Promotional print materials to recruit students to the program	5,000.00	
5 Student Laptops	Provide each student a laptop with software customized to the curriculum	N/A	
6 Industrial Scholars	Industry professionals who will meet face to face with the students during class sessions to share expert knowledge, provide data for research and discuss case studies	N/A	
7 Other	Program assistant to provide curriculum research, faculty and logistical support	24,000.00	
SUBTOTAL EXPENSES (sum of 1-7)		70,390.00	
UCF AUXILIARY OVERHEAD CHARGE	8.15% of total expenses minus tuition- Current UCF overhead charge applied to expenditures to recover costs from administrative and finance respective offices to provide support	5,460.50	
Continuing Education Administrative Fee (8.0% of Income)- see attached list of duties		7,200.00	
TOTAL ALL COSTS (Instruction, OPS, Assistantships/Fellowships, Library, OCO, Expenses)		83,050.50	

Any loss to be covered by the following college and / or department account: 3510 0001	Program Reserve	6,949.50
	Department TBD	

Signatures for: Budget approval		Budget closure	
Dept.Chair	<i>A.P. Kincaid</i>	Dept.Chair	
College Dean/Designee	<i>[Signature]</i>	College Dean/Designee	
DCE Director	<i>Patrick Wagner</i>	DCE Director	
Vice Provost, Grad Studies	<i>[Signature]</i>	Vice Provost, Grad Studies	
Vice Provost, Reg Campuses	<i>[Signature]</i>	Vice Provost, Reg Campuses	
Provost		Provost	

UNIVERSITY OF CENTRAL FLORIDA
Division of Continuing Education/College Initiated Professional Degree Programs
BUDGET FORM (Tuition Plus Fee Programs) - Year 2

Account Number:		Faculty Contact: Peter Kincaid/Waldemar Karwowski
Program Name:	Modeling & Simulation Professional Masters Program	DCE Contact: Patrick Wagner/ Becky Morgan
Program Dates:	Year 2: Fall 2010-Fall 2011	Department: Institute of Simulation and Training/EMS
Location:	Online	Unit: Grad Studies/CECS
Max Enroll: 25	Min Enroll: 13	Est Enroll: 15/25

Budget: Year 2 Cohort 1 (est 15 students) and Cohort 2 (est 25 students) 4.3.09

GROSS REVENUES			Proposed
12 credits x \$500	15	Sponsored credit fee-Cohort 1	90,000.00
12 credits x \$500	25	Sponsored credit fee-Cohort 2	150,000.00
TOTAL ALL REVENUE			240,000.00

COSTS			Proposed
INSTRUCTIONAL COSTS	EXPLANATION		
Faculty Instructional Costs paid by Continuing Ed	\$10,000 per course x 7 courses overload: Dual compensation based on faculty @ full load. Develop course video learning segments, provide coordination with other faculty across the program, customize curriculum to the work setting of the participants and integrate to the total program		70,000.00
Faculty Costs with Benefits paid by CE			6,000.00
A&P Costs	Coordinator for program logistics		40,000.00
A&P Costs with Benefits			10,000.00
Adjunct	Teaching one course		5,000.00
Adjunct- FICA			
OPS Personnel	Graduate teaching assistant to research materials and resources for courses, provide classroom logistical and student support		25,000.00
ASSISTANTSHIPS and FELLOWSHIPS			
LIBRARY			

OPERATING CAPITAL OUTLAY EXPENSES			Proposed
1 Tuition	Regular tuition deposited in the university trust fund and not used to directly support the program \$292.56 per credit hour x 24 credit hours x X students (No Overhead) \$10.00 Annual ID Fee assessed to each student \$18 per credit hour Distributed Learning fee		N/A 400.00 17,280.00
2 Books/Supplies/Duplicating	Textbooks, instructional supplies and duplication of materials		
3 Lunches/ refreshments	Provide lunch/refreshments onsite to maintain course schedule		N/A
4 Marketing	Promotional print materials to recruit students to the program		5,000.00
5 Student Laptops	Provide each student a laptop with software customized to the curriculum		N/A
6 Industrial Scholars	Industry professionals who will meet face to face with the students during class sessions to share expert knowledge, provide data for research and discuss case studies		N/A
7 Other	Program assistant to provide curriculum research, faculty and logistical support		24,000.00
8 Miscellaneous			
SUBTOTAL EXPENSES (sum of 1-8)			202,680.00

UCF AUXILIARY OVERHEAD CHARGE	8.15% of total expenses minus tuition- Current UCF overhead charge applied to expenditures to recover costs from administrative and finance respective offices to provide support		15,077.50
Continuing Education Administrative Fee (8.0% of Income)- see attached list of duties			19,200.00
TOTAL ALL COSTS (Instruction, OPS, Assistantships/Fellowships, Library, OCO, Expenses)			236,957.50

Any loss to be covered by the following college and / or department account: 3510 0001	Program Reserve	3,042.50
	Department TBD	

Signatures for: Budget approval	Budget closure
Dept.Chair <i>J.P. Kincaid</i>	Dept.Chair
College Dean/Designee <i>Becky Morgan for Patrick Wagner</i>	College Dean/Designee
DCE Director <i>Patrick Wagner</i>	DCE Director
Vice Provost, Grad Studies <i>Patricia J. Bishop</i>	Vice Provost, Grad Studies
Vice Provost, Reg Campuses <i>David W. ...</i>	Vice Provost, Reg Campuses
Provost	Provost

UNIVERSITY OF CENTRAL FLORIDA
Division of Continuing Education/College Initiated Professional Degree Programs
BUDGET FORM (Tuition Plus Fee Programs) - Year 3

Account Number:		Faculty Contact: Peter Kincaid/Waldemar Karwowski
Program Name:	Modeling & Simulation Professional Masters Program	DCE Contact: Patrick Wagner/ Becky Morgan
Program Dates:	Year 3: Fall 2011-Fall 2012	Department: Institute of Simulation and Training/EMS
Location:	Online	Unit: Grad Studies/CECS
Max Enroll: 35	Min Enroll: 13	Est Enroll: 25/35

Budget: Year 3-Cohort 2 (est 25 students) and Cohort 3 (est 35 students) 4.3.09

GROSS REVENUES			Proposed
12 credits x \$500	25	Sponsored credit fee-Cohort 2	150,000.00
12 credits x \$500	35	Sponsored credit fee-Cohort 3	210,000.00
TOTAL ALL REVENUE			360,000.00

COSTS			Proposed
INSTRUCTIONAL COSTS	EXPLANATION		
Faculty Instructional Costs paid by Continuing Ed	\$10,000 per course x 8 courses overload: Dual compensation based on faculty @ full load. Develop course video learning segments, provide coordination with other faculty across the program, customize curriculum to the work setting of the participants and integrate to the total program		80,000.00
Faculty Costs with Benefits paid by CE			6,000.00
A&P Costs	Coordinator for program logistics		40,000.00
A&P Costs with Benefits			10,000.00
Adjunct	Teaching one course		5,000.00
Adjunct- FICA			
OPS Personnel	2 Graduate teaching assistants to research materials and resources for courses, provide classroom logistical and student support		50,000.00

ASSISTANTSHIPS and FELLOWSHIPS
LIBRARY

OPERATING CAPITAL OUTLAY EXPENSES			Proposed
1 Tuition	Regular tuition deposited in the university trust fund and not used to directly support the program \$292.56 per credit hour x 24 credit hours x X students (No Overhead) \$10.00 Annual ID Fee assessed to each student \$18 per credit hour Distributed Learning fee		N/A 600.00 25,920.00
2 Books/Supplies/Duplicating	Textbooks, instructional supplies and duplication of materials		
3 Lunches/ refreshments	Provide lunch/refreshments onsite to maintain course schedule		N/A
4 Marketing	Promotional print materials to recruit students to the program		10,000.00
5 Student Laptops	Provide each student a laptop with software customized to the curriculum		N/A
6 Industrial Scholars	Industry professionals who will meet face to face with the students during class sessions to share expert knowledge, provide data for research and discuss case studies		N/A
7 Other	Program assistant to provide curriculum research, faculty and logistical support		24,000.00
8 Miscellaneous			15,000.00
SUBTOTAL EXPENSES (sum of 1-8)			266,520.00

UCF AUXILIARY OVERHEAD CHARGE 8.15% of total expenses minus tuition- Current UCF overhead charge applied to expenditures to recover costs from administrative and finance respective offices to provide support

19,560.00

Continuing Education Administrative Fee (8.0% of Income)- see attached list of duties

28,800.00

TOTAL ALL COSTS (Instruction, OPS, Assistantships/Fellowships, Library, OCO, Expenses)

314,880.00

Program Reserve 45,120.00

Any loss to be covered by the following college and / or department account: Department TBD

Signatures for: Budget approval		Budget closure	
Dept.Chair	<i>J.P. Kincaid</i>	Dept.Chair	
College Dean/Designee	<i>Becky Morgan</i>	College Dean/Designee	
DCE Director	<i>Patrick Wagner</i>	DCE Director	
Vice Provost, Grad Studies	<i>Victoria J. Bishop</i>	Vice Provost, Grad Studies	
Vice Provost, Reg Campuses	<i>Dr. J. Lane</i>	Vice Provost, Reg Campuses	
Provost		Provost	

UNIVERSITY OF CENTRAL FLORIDA
Division of Continuing Education/College Initiated Professional Degree Programs
BUDGET FORM (Tuition Plus Fee Programs) - Year 4

Account Number:		Faculty Contact: Peter Kincaid/Waldemar Karwowski
Program Name:	Modeling & Simulation Professional Masters Program	DCE Contact: Patrick Wagner/ Becky Morgan
Program Dates:	Year 4: Fall 2012-Fall 2013	Department: Institute of Simulation and Training/IEMS
Location:	Online	Unit: Grad Studies/CECS
Max Enroll: 45	Min Enroll: 13	Est Enroll: 35/45

Budget: Year 4- Cohort 3 (est 35 students) and Cohort 4 (est 45 students) 4.3.09

GROSS REVENUES			Proposed
12 credits x \$500	35	Sponsored credit fee-Cohort 3	210,000.00
12 credits x \$500	45	Sponsored credit fee-Cohort 4	270,000.00
TOTAL ALL REVENUE			480,000.00

COSTS			Proposed
INSTRUCTIONAL COSTS	EXPLANATION		
Faculty Instructional Costs paid by Continuing Ed	\$10,000 per course x 9 courses overload: Dual compensation based on faculty @ full load. Develop course video learning segments, provide coordination with other faculty across the program, customize curriculum to the work setting of the participants and integrate to the total program		90,000.00
Faculty Costs with Benefits paid by CE			6,000.00
A&P Costs	Coordinator for program logistics		40,000.00
A&P Costs with Benefits			10,000.00
Adjunct	Teaching 3 courses		15,000.00
Adjunct- FICA			
OPS Personnel	3 Graduate teaching assistants to research materials and resources for courses, provide classroom logistical and student support		75,000.00

ASSISTANTSHIPS and FELLOWSHIPS
LIBRARY

OPERATING CAPITAL OUTLAY EXPENSES			Proposed
1 Tuition	Regular tuition deposited in the university trust fund and not used to directly support the program \$292.56 per credit hour x 24 credit hours x X students (No Overhead) \$10.00 Annual ID Fee assessed to each student \$18 per credit hour Distributed Learning fee		N/A 800.00 34,560.00
2 Books/Supplies/Duplicating	Textbooks, instructional supplies and duplication of materials		
3 Lunches/ refreshments	Provide lunch/refreshments onsite to maintain course schedule		N/A
4 Marketing	Promotional print materials to recruit students to the program		20,000.00
5 Student Laptops	Provide each student a laptop with software customized to the curriculum		N/A
6 Industrial Scholars	Industry professionals who will meet face to face with the students during class sessions to share expert knowledge, provide data for research and discuss case studies		N/A
7 Other	Program assistant to provide curriculum research, faculty and logistical support	\$24,000	6.00
8 Miscellaneous			15,000.00
SUBTOTAL EXPENSES (sum of 1-8)			306,360.00

UCF AUXILIARY OVERHEAD CHARGE 8.15% of total expenses minus tuition- Current UCF overhead charge applied to expenditures to recover costs from administrative and finance respective offices to provide support

22,086.50

Continuing Education Administrative Fee (8.0% of Income)- see attached list of duties

38,400.00

TOTAL ALL COSTS (Instruction, OPS, Assistantships/Fellowships, Library, OCO, Expenses)

366,846.50

Any loss to be covered by the following college and / or department account: 3510 0001 **Program Reserve** 113,153.50
 Department TBD

Signatures for: Budget approval	Budget closure
Dept.Chair <i>P. Kincaid</i>	Dept.Chair
College Dean/Designee <i>P. Kincaid</i>	College Dean/Designee
DCE Director <i>Becky Morgan for Heidi Kellerman</i>	DCE Director
Vice Provost, Grad Studies <i>Patricia A. Bishop</i>	Vice Provost, Grad Studies
Vice Provost, Reg Campuses <i>John A. ...</i>	Vice Provost, Reg Campuses
Provost	Provost

see attached page.

UNIVERSITY OF CENTRAL FLORIDA

Division of Continuing Education/College Initiated Professional Degree Programs

BUDGET FORM (Tuition Plus Fee Programs) - Year 4

Account Number:		Faculty Contact: Peter Kincaid/Waldemar Karwowski
Program Name:	Modeling & Simulation Professional Masters Program	DCE Contact: Patrick Wagner/ Becky Morgan
Program Dates:	Year 4: Fall 2012-Fall 2013	Department: Institute of Simulation and Training/IEMS
Location:	Online	Unit: Grad Studies/CECS

Max Enroll: 45	Min Enroll: 13	Est Enroll: 35/45
Budget: Year 4- Cohort 3 (est 35 students) and Cohort 4 (est 45 students) 4.3.09		

GROSS REVENUES

	Proposed
12 credits x \$500 35 Sponsored credit fee-Cohort 3	210,000.00
12 credits x \$500 45 Sponsored credit fee-Cohort 4	270,000.00
TOTAL ALL REVENUE	480,000.00

COSTS

INSTRUCTIONAL COSTS	EXPLANATION	Proposed
Faculty Instructional Costs paid by Continuing Ed	\$10,000 per course x 9 courses overload: Dual compensation based on faculty @ full load. Develop course video learning segments, provide coordination with other faculty across the program, customize curriculum to the work setting of the participants and integrate to the total program	90,000.00
Faculty Costs with Benefits paid by CE		6,000.00
A&P Costs	Coordinator for program logistics	40,000.00
A&P Costs with Benefits		10,000.00
Adjunct	Teaching 3 courses	15,000.00
Adjunct- FICA		
OPS Personnel	3 Graduate teaching assistants to research materials and resources for courses, provide classroom logistical and student support	75,000.00
ASSISTANTSHIPS and FELLOWSHIPS		
LIBRARY		
OPERATING CAPITAL OUTLAY EXPENSES		
1 Tuition	Regular tuition deposited in the university trust fund and not used to directly support the program \$292.56 per credit hour x 24 credit hours x X students (No Overhead) \$10.00 Annual ID fee assessed to each student \$18 per credit hour Distributed Learning fee	N/A 800.00 34,560.00
2 Books/Supplies/Duplicating	Textbooks, instructional supplies and duplication of materials	
3 Lunches/ refreshments	Provide lunch/refreshments onsite to maintain course schedule	N/A
4 Marketing	Promotional print materials to recruit students to the program	20,000.00
5 Student Laptops	Provide each student a laptop with software customized to the curriculum	N/A
6 Industrial Scholars	Industry professionals who will meet face to face with the students during class sessions to share expert knowledge, provide data for research and discuss case studies	N/A
7 Other	Program assistant to provide curriculum research, faculty and logistical support	24,000.00
8 Miscellaneous		15,000.00
SUBTOTAL EXPENSES (sum of 1-8)		330,360.00
UCF AUXILIARY OVERHEAD CHARGE	8.15% of total expenses minus tuition- Current UCF overhead charge applied to expenditures to recover costs from administrative and finance respective offices to provide support	24,042.50
Continuing Education Administrative Fee (8.0% of Income)- see attached list of duties		38,400.00
TOTAL ALL COSTS (Instruction, OPS, Assistantships/Fellowships, Library, OCO, Expenses)		392,802.50

Any loss to be covered by the following college and / or department account: 3510 0001	Program Reserve	87,197.50
	Department TBD	

Signatures for: Budget approval	Budget closure
Dept.Chair	Dept.Chair
College Dean/Designee	College Dean/Designee
DCE Director	DCE Director
Vice Provost, Grad Studies <i>Petunia J. Bishop</i>	Vice Provost, Grad Studies
Vice Provost, Reg Campuses	Vice Provost, Reg Campuses
Provost	Provost

UNIVERSITY OF CENTRAL FLORIDA
 Division of Continuing Education/College Initiated Professional Degree Programs

BUDGET FORM (Tuition Plus Fee Programs) - Year 5

Account Number:			Faculty Contact: Peter Kincaid/Waldemar Karwowski
Program Name:	Modeling & Simulation Professional Masters Program		DCE Contact: Patrick Wagner/ Becky Morgan
Program Dates:	Year 5: Fall 2013-Fall 2014		Department: Institute of Simulation and Training/IEMS
Location:	Online		Unit: Grad Studies/CECS
Max Enroll: 55	Min Enroll: 13	Est Enroll: 45/55	
Budget: Year 5- Cohort 4 (est 45 students) and Cohort 5 (est 55 students) 4.3.09			

GROSS REVENUES

			Proposed
12 credits x \$500	45	Sponsored credit fee-Cohort 4	270,000.00
12 credits x \$500	55	Sponsored credit fee-Cohort 5	330,000.00
TOTAL ALL REVENUE			600,000.00

COSTS

INSTRUCTIONAL COSTS	EXPLANATION	Proposed
Faculty Instructional Costs paid by Continuing Ed	\$10,000 per course x 9 courses overload: Dual compensation based on faculty @ full load. Develop course video learning segments, provide coordination with other faculty across the program, customize curriculum to the work setting of the participants and integrate to the total program	90,000.00
Faculty Costs with Benefits paid by CE		6,000.00
A&P Costs	Coordinator for program logistics	40,000.00
A&P Costs with Benefits		10,000.00
Adjunct	Teaching 3 courses	15,000.00
Adjunct- FICA		
OPS Personnel	4 Graduate teaching assistants to research materials and resources for courses, provide classroom logistical and student support	100,000.00
ASSISTANTSHIPS and FELLOWSHIPS		
LIBRARY		
OPERATING CAPITAL OUTLAY EXPENSES		
1 Tuition	Regular tuition deposited in the university trust fund and not used to directly support the program \$292.56 per credit hour x 24 credit hours x X students (No Overhead) \$10.00 Annual ID Fee assessed to each student \$18 per credit hour Distributed Learning fee	N/A 1,000.00 43,200.00
2 Books/Supplies/Duplicating	Textbooks, instructional supplies and duplication of materials	
3 Lunches/ refreshments	Provide lunch/refreshments onsite to maintain course schedule	N/A
4 Marketing	Promotional print materials to recruit students to the program	25,000.00
5 Student Laptops	Provide each student a laptop with software customized to the curriculum	N/A
6 Industrial Scholars	Industry professionals who will meet face to face with the students during class sessions to share expert knowledge, provide data for research and discuss case studies	N/A
7 Other	Program assistant to provide curriculum research, faculty and logistical support	24,000.00
SUBTOTAL EXPENSES (sum of 1-7)		354,200.00
UCF AUXILIARY OVERHEAD CHARGE	8.15% of total expenses minus tuition- Current UCF overhead charge applied to expenditures to recover costs from administrative and finance respective offices to provide support	25,265.00
Continuing Education Administrative Fee (8.0% of Income)- see attached list of duties		48,000.00
TOTAL ALL COSTS (Instruction, OPS, Assistantships/Fellowships, Library, OCO, Expenses)		427,465.00

Program Reserve 172,535.00

Any loss to be covered by the following college and / or department account: Department TBD

Signatures for: Budget approval		Budget closure	
Dept.Chair	<i>J. P. Kincaid</i>	Dept.Chair	
College Dean/Designee	<i>[Signature]</i>	College Dean/Designee	
DCE Director	<i>Patrick Wagner</i>	DCE Director	
Vice Provost, Grad Studies	<i>Patricia J. Bishop</i>	Vice Provost, Grad Studies	
Vice Provost, Reg Campuses	<i>D. T. [Signature]</i>	Vice Provost, Reg Campuses	
Provost		Provost	

Professional Science Management (M.S.) Program in Modeling and Simulation

TRACK DESCRIPTION

The Professional Science Management M.S. Degree in Modeling and Simulation is designed for working professionals who wish to expand their knowledge and skills in the growing field of modeling and simulation, and who will pursue the degree as part-time students. All UCF classes are taught via distance education using web-based courses. It is a cohort program with admission only in the Fall each year and features a program of study that covers the entire calendar year with the usual breaks for holidays and summer vacation. Those who enter the program are expected to have an appropriate technical background, such as engineering, through academic preparation and/or work experience. They will also have fulfilled a prerequisite of a graduate level course in engineering statistics or the equivalent. The program is offered in cooperation with Embry-Riddle Aeronautical University via business classes through its Worldwide campus allowing for traditional classes at their many worldwide campuses as well as web-based courses. ERAU also offers a graduate certificate in Simulation Management in conjunction with this program. All courses in the ERAU certificate program can also be used in completing the UCF Professional Degree.

CURRICULUM

Total Required Hours for MS—36 Credit Hours Minimum beyond the Bachelor's Degree.

The program requires the completion of 36 credit hours beyond the bachelor's degree. At least 18 credit hours of must be at the 6000 or 600 level. The program is set up so that students generally take 24 credit hours (8 courses) of technical classes through UCF and 12 credit hours (3 courses) of business classes through ERAU. The capstone requirement for this program is fulfilled by completing a three credit hour graduate internship.

Required Courses (18 credit courses)

Required UCF Courses (15 credit hours)

- EIN 5140 Project Engineering (3 credit hours)
- IDS 6937 Simulation Systems (3 credit hours)
- ESI 5531 Discrete Systems Simulation (3 credit hours)
- IDS 6717 Perspectives on Modeling and Simulation (3 credit hours)
- IDS 6946 Graduate Internship (3 credit hours)

Required ERAU Course (3 credit hours)

- MGMT 524 Management Sciences (3 credit hours)

Electives (18 credit hours, 9 UCF credit hours and 9 ERAU credit hours)

UCF Electives (9 credit hours)

- EIN 5108 The Environment of Technical Organizations (3 credit hours)
- EIN 5317 Training System Design (3 credit hours)
- EIN 5632 Cost Engineering (3 credit hours)
- EIN 6528 Human Computer Interaction (3 credit hours)
- EIN 6528 Simulation-based life Cycle Engineering (3 credit hours)
- EIN 6551C Systems Engineering (3 credit hours)

ERAU Elective Business Courses (9 credit hours)

- MGMT 532 Philosophy, Principles, and Practice in Management of Quality (3 credit hours)
- MGMT 533 Legal, Ethical and Regulatory Bases of Management Practices (3 credit hours)
- MGMT 534 Anatomy of Work Organizations (3 credit hours)
- MGMT 535 Theory and Applications of Managerial Communications (3 credit hours)
- MGMT 633 Principles, and Practices of Financial Accounting for Managers (3 credit hours)
- MGMT 652 Concept and Practices of Project Management
- MGMT 653 Labor Issues in an Industrial Environment (3 credit hours)
- MGMT 671 Entrepreneurship and Leadership (3 credit hours)
- MGMT 672 Planning and Execution of Strategy (3 credit hours)

Admissions

For information on general UCF graduate admissions requirements that apply to all prospective students, please visit the [Admissions and Registration](#) section of the Graduate Catalog. Applicants must [apply online](#). All requested materials must be submitted by the established deadline(s). Students applying with the appropriate background in calculus (9 semester hours or the equivalent) and at least a 3.0 undergraduate grade point average, for the last 60 credit hours of undergraduate study, are not required to take the Graduate Record Examination.

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

- One official transcript (in a sealed envelope) from each college/university attended.
- Résumé.
- Statement of educational, research, and professional career objectives.



Program Recommendation Form

SU 2009

College/Unit(s) Submitting Proposal: COS

Proposed Effective Term/Year: ~~Spring 2009~~

Unit(s) Housing Program: Anthropology

Name of Program: MA in Anthropology

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 Suspension Deletion Revision

RECOMMENDATIONS

Yes No

Department Chair:

Allen F. Chase

Date: 4/8/09

Yes No

College Curriculum Committee Chair:

[Signature]

Date: 4/16/09

Yes No

College Dean or Unit Head:

[Signature]

Date: 4/16/09

Yes No

Chair, UPCC or GSC:

Date:

Yes No

Dean, Undergraduate Studies or Graduate Studies:

Date:

Approval:

Provost:

Date:

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

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

_____ Department(s) _____ College _____ Registrar _____ Associate Registrar
_____ Institutional Research _____ Academic Services _____ Faculty Senate _____ Information, Analysis & Assessment

Memo

To: COS Graduate Curriculum Committee
From: Tosha Dupras & Arlen Chase
CC:
Date: 4/17/2009
Re: Changes to be made to the MA in Anthropology - rationales

To Whom it May Concern –

The Department of Anthropology is proposing to make the following changes to our MA program:

1. Course Addition – ANG5XXX: Quantitative Research in Anthropology

The addition of this course to our program came out of our annual program review. It was discovered that our graduate students are missing the level of quantitative methods necessary to conduct this kind of research. This course is very necessary for our students.

2. Course Revision – a change of course name from ANG6181C: GIS Applications in Archaeology to ANG6181C: GIS Applications in Anthropology

The name revision for this course reflects the change to our overall program and in addition will make it more inclusive for all our students, regardless of their subdiscipline.

3. Changes to the structure of our MA program. These changes include the following:

a. Deletion of the three program tracks

The program has decided to delete the three existing program tracks (Cultural Competency, Archaeological Investigations in Forensics and Human Adaptation, and Maya Studies). This will allow students more flexibility in our program, assist in course enrollments, and will be more inclusive for our faculty.

b. Change from 33 to 30 program required hours

By deleting the course tracks we are able to be more flexible with student elective hours, and this allows us to change the program from 33 hours to 30 hours for both the thesis and nonthesis routes.

c. Deleting two courses from the course catalogue – ANG5100 Archaeological Sciences and ANG5741 Mortuary Archaeology.

ANG5741 has not yet been taught in 3 years and we do not anticipate it being taught in the next few years. We do not want to delete the course altogether, just remove it from

the course catalogue listing. ANG5100 was being taught as a companion course and this will no longer be offered this way. We will not delete the course, just remove it from the course catalogue listing.

Anthropology MA

PROGRAM DESCRIPTION

The Department of Anthropology offers a graduate program leading to the Master of Arts degree in Anthropology. The course work in this program is conceptually four-field, with faculty strengths in archaeology, cultural anthropology, and physical anthropology. A Graduate Certificate in Maya Studies may also be earned. A program of graduate study may be individually developed with any graduate faculty member (see the Faculty Page for the UCF Department of Anthropology for research specializations). Current geographical research areas include Belize, Brazil, Bolivia, the Caribbean, Egypt, Europe, Mexico, Peru, Philippines, and the US.

Degree-seeking students in the Anthropology MA program may elect to follow either a thesis or a nonthesis program of study, both of which require a minimum of 30 credit hours, 15 of which must be at the 6000 level. Students choosing the thesis option must receive a commitment from a faculty adviser for admission into the program. The thesis option is designed for students who plan to enter doctoral programs, while the nonthesis option is more appropriate for students entering or continuing professional careers following the MA degree.

CURRICULUM

Total Hours Required for MA—30 Credit Hours Minimum beyond the Bachelor's Degree.

Degree-seeking students in the Anthropology MA program may elect to follow either a thesis or a nonthesis program of study.

The thesis option is designed for students who plan to enter doctoral programs, while the nonthesis option is more appropriate for students entering or continuing professional careers following the MA degree. Both options require 30 hours of course work, of which half must be at the 6000 level.

The MA degree is conferred when students have fulfilled the requirements of either the thesis or nonthesis option. No graduate credit will be given for any grade lower than a B- (2.75), but the grade will be counted toward the GPA. Courses may be retaken to achieve a better grade; however, the unsatisfactory grade will remain in the program of study. In order to stay in good academic standing, students must maintain a minimum Graduate Status GPA of 3.0 in their program of study.

Upon acceptance into the program students will be assigned a faculty adviser. Together the students and their advisers will determine the student's preliminary program of study, either in

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Both options require 33 hours of course work, at least 50 percent of which

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Application Deadlines¶
All application materials must be submitted by the appropriate deadline listed below.¶
Anthropology MA

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THESIS OPTION – 30 Credit Hours

Core Required Courses—12 Credit Hours

These courses provide an in-depth understanding of the epistemological foundations of the discipline. Students are introduced to the theory and practice of anthropology at a level of synthesis that will prepare them for future doctoral study should they wish to pursue it. These courses also establish the foundations of understanding that will prepare students for nonacademic careers that employ anthropological perspectives and knowledge.

- ANG 6110 Archaeological Theory and Method (3 credit hours)
- ANG 6587 Seminar in Biological Anthropology (3 credit hours)
- ANG 6930 Seminar in Cultural Anthropology (3 credit hours)
- ANG 6931 Proseminar in Anthropology (3 credit hours)

Remaining Elective Credit Hours—12 Credit Hours

A minimum of 12 additional credit hours must be selected from the list below in conjunction with the faculty advisor and/or the advisory committee members and approved by the program graduate coordinator. With prior approval, the student may take one elective (3 credit hours) in another department. Additional electives may be selected as they become available.

Under special circumstances, students may enroll in a graduate-level Directed Independent Study course or a Directed Independent Research course to fulfill their non-required elective course requirements. These courses, like most graduate seminars, require written research reports. Enrollment in these courses requires written approval from the student's adviser. No more than 6 hours of graduate-level courses in Directed Independent Study or Directed Independent Research may be included in a student's program of study.

Elective Courses:

- ANG 5166 Problems in Maya Studies
- ANG 5167 Maya Hieroglyphs
- ANG 5228 Maya Iconography
- ANG 5622 Language, Culture and Pedagogy
- ANG 5XXX Quantitative Research in Anthropology
- ANG 5742 Problems in Forensic Anthropology (3 credit hours)

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ANG 6123 Forensic Archaeology Field Methods (3 credit hours)¶

ANG 6181C GIS Applications in Archaeology (3 credit hours)¶

Elective Courses—9 Credit Hours¶

Electives will be selected in consultation with the student's faculty adviser. Students must select at least one course from each group. W

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NONTHESIS OPTION—30 Credit Hours

Students selecting the nonthesis option take an additional 6 hours of elective course work for a total of 18 credit hours of electives.

Core Required Courses—12 Credit Hours

These courses provide an in-depth understanding of the epistemological foundations of the discipline. Students are introduced to the theory and practice of anthropology at a level of synthesis that will prepare them for future doctoral study should they wish to pursue it. These courses also establish the foundations of understanding that will prepare students for nonacademic careers that employ anthropological perspectives and knowledge.

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Remaining Elective Credit Hours—18 Credit Hours

A minimum of 18 additional credit hours must be selected from the list above in conjunction with the faculty advisor and/or the advisory committee members and approved by the program graduate coordinator. With prior approval, the student may take one elective (3 credit hours) in another department. Additional electives may be selected as they become available.

Under special circumstances, students may enroll in a graduate-level Directed Independent Study course or a Directed Independent Research course to fulfill their non-required elective course requirements. These courses, like most graduate seminars, require written research reports. Enrollment in these courses requires written approval from the student's adviser. No more than 6 hours of graduate-level courses in Directed Independent Study or Directed Independent Research may be included in a student's program of study.

Comprehensive Oral Examination

At the conclusion of course work, nonthesis students will be given a comprehensive oral examination. In consultation with the faculty adviser, two additional faculty members shall be selected to serve on the Oral Examination Committee that will be chaired by the faculty adviser. This committee must be selected by the semester prior to the semester in which the student will take the oral exam. A successful comprehensive oral examination completes the requirements for the degree. Students are required to follow all procedures and timetables specified by the College of Graduate Studies. The examination will be based on the course work in the student's program of study. Students must notify the department's graduate program director in writing of their intent to take the exam at least one week before the date fixed for the examination. A committee composed of three faculty members will conduct the oral examination. The grading system for the examination is as follows: 1) Pass with Distinction, 2) Pass, 3) Conditional Pass, and 4) Fail.

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Electives (6 credit hours)

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Students who receive a grade of Conditional Pass will be required to complete additional work as determined by the grading committee. Students who fail must retake the exam. Failure to pass the examination on the second attempt will result in dismissal from the program. Students who indicate their intent to take the examination but do not take the exam will be awarded a failing grade.

INDEPENDENT LEARNING

Students who choose the thesis option will gain independent learning experiences through their thesis research where they are expected to design and conduct their own research which culminates with the writing and defense of their thesis. Students will also gain this experience through their core course requirements as each course contains an independent research assignment. Students in the nonthesis option will gain independent learning experiences through all of their core courses, all of which contain an independent research component.

Admissions

For information on general UCF graduate admissions requirements that apply to all prospective students, please visit the Admissions and Registration 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 admission requirements, applicants to this program must provide:

- One official transcript (in a sealed envelope) from each college/university attended.
- Official, competitive GRE score (minimum score of 1000) taken within the last five years.
- Personal statement of intent that must include the student's research interest, geographical area of interest, faculty they would like to work with, and future career plans (500 words). Contact with a potential advisor is recommended prior to application.
- Three letters of recommendation that assess the applicant's potential as a graduate student. These letters should come from the applicant's previous professors.

The applicant's records will be reviewed on an individual basis and evaluated to assess the applicant's potential for success in the program. Supplemental course work may be recommended for students who do not have a degree in anthropology or are missing key undergraduate coursework.

Meeting minimum UCF admission criteria does not guarantee program admission. Final admission is based on evaluation of the applicant's abilities, past performance, recommendations, match of this program to the applicant's career/academic goals, availability and match to a faculty adviser, and the applicant's potential for completing the degree. There is no automatic

connection between acceptance as a non-degree-seeking student and acceptance into this degree-granting program. Please consult the graduate program director whenever questions arise.

Application Deadlines

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

<u>Anthropology MA</u>	<u>Fall Priority</u>	<u>Fall</u>	<u>Spring</u>	<u>Summer</u>
<u>Domestic Applicants</u>	<u>Jan 1</u>	<u>Feb 15</u>	<u>Nov 1</u>	<u>None</u>
<u>International Applicants</u>	<u>Jan 1</u>	<u>Jan 1</u>	<u>Jul 1</u>	<u>None</u>
<u>International Transfer Applicants</u>	<u>Jan 1</u>	<u>Feb 15</u>	<u>Sep 1</u>	<u>None</u>

FINANCIALS

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Archaeological Investigations in Forensics and Human Adaptation MA ...

Anthropology MA

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- ANG 6931 Proseminar in Anthropology (3 credit hours)

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- ANG 5167 Maya Hieroglyphs
- ANG 5228 Maya Iconography
- ANG 5622 Language, Culture and Pedagogy
- ANG 5XXX Quantitative Research in Anthropology
- ANG 5742 Problems in Forensic Anthropology (3 credit hours)
- ANG 6466C Advanced Human Osteology (3 credit hours)
- ANG 6740C Advanced Forensic Anthropology (3 credit hours)
- ANG 5165 Field Research in Maya Studies (3 credit hours)

- ANG 5272 Culture, Power, and Development (3 credit hours)
- ANG 5307 Peoples and Cultures of Latin America (3 credit hours)
- ANG 5341 Caribbean Cultures (3 credit hours)
- ANG 5437 Anthropology of Tourism (3 credit hours)
- ANG 5467 Nutritional Anthropology (3 credit hours)
- ANG 5620 Language and Culture (3 credit hours)
- ANG 5622 Language, Culture, and Pedagogy (3 credit hours)
- ANG 5738 Advanced Medical Anthropology (3 credit hours)
- ANG 6168 The Ancient Maya (3 credit hours)
- ANG 6123 Forensic Archaeology Field Methods (3 credit hours)
- ANG 6181C GIS Applications in Anthropology (3 credit hours)
- ANG 6324 Contemporary Maya (3 credit hours)
- ANG 6701 Seminar in Applied Anthropology (3 credit hours)
- ANG 6801 Ethnographic Research Methods (3 credit hours)

Thesis Hours—6 Credit Hours

The thesis and oral defense are the culmination of the course work for those students who have elected the thesis option. Students electing to write a thesis must select a Thesis Advisory Committee. The student's faculty adviser will chair the Thesis Advisory Committee. The committee will consist of three members. All members must be approved graduate faculty as cited in the most current UCF Graduate Catalog. Qualified individuals from outside the Department and also the University of Central Florida may be eligible to serve as the third member of Thesis Advisory Committees.

Students may enroll in thesis hours after they have successfully completed the three required courses. When a topic has been selected, students, in conjunction with their faculty adviser, will develop a thesis proposal. Copies of the proposal will be routed to members of their thesis committee and a proposal hearing scheduled. All students must pass a proposal hearing as well as a final oral defense of their thesis. Students who elect to write a thesis should become familiar with the university's requirements and deadlines for organizing and submitting the thesis. The thesis option is highly recommended for students interested in graduate work beyond the Master of Arts degree.

The completion of the thesis must be followed by an oral defense before the Thesis Advisory Committee. A successful format review, oral defense, and electronic submission of the thesis to the College of Graduate Studies for review completes the program requirements. Students are required to follow all procedures and timetables specified by the College of Graduate Studies.

- ANG 6971 Thesis (6 credit hours)
- Successful Oral Defense of Thesis

NONTHESIS OPTION—30 Credit Hours

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Core Required Courses—12 Credit Hours

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Remaining Elective Credit Hours—18 Credit Hours

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Comprehensive Oral Examination

At the conclusion of course work, nonthesis students will be given a comprehensive oral examination. In consultation with the faculty adviser, two additional faculty members shall be selected to serve on the Oral Examination Committee that will be chaired by the faculty adviser. This committee must be selected by the semester prior to the semester in which the student will take the oral exam. A successful comprehensive oral examination completes the requirements for the degree. Students are required to follow all procedures and timetables specified by the College of Graduate Studies. The examination will be based on the course work in the student's program of study. Students must notify the department's graduate program director in writing of their intent to take the exam at least one week before the date fixed for the examination. A committee composed of three faculty members will conduct the oral examination. The grading system for the examination is as follows: 1) Pass with Distinction, 2) Pass, 3) Conditional Pass, and 4) Fail.

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INDEPENDENT LEARNING

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Admissions

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- Personal statement of intent that must include the student's research interest, geographical area of interest, faculty they would like to work with, and future career plans (500 words). Contact with a potential advisor is recommended prior to application.
- Three letters of recommendation that assess the applicant's potential as a graduate student. These letters should come from the applicant's previous professors.

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Meeting minimum UCF admission criteria does not guarantee program admission. Final admission is based on evaluation of the applicant's abilities, past performance, recommendations, match of this program to the applicant's career/academic goals, availability and match to a faculty adviser, and the applicant's potential for completing the degree. There is no automatic

connection between acceptance as a non-degree-seeking student and acceptance into this degree-granting program. Please consult the graduate program director whenever questions arise.

Application Deadlines

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

Anthropology MA	Fall Priority	Fall	Spring	Summer
Domestic Applicants	Jan 1	Feb 15	Nov 1	None
International Applicants	Jan 1	Jan 1	Jul 1	None
International Transfer Applicants	Jan 1	Feb 15	Sep 1	None

FINANCIALS

Graduate students may receive financial assistance through fellowships, assistantships, tuition support, or loans. For more information, see [Financing Grad School](#), 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.

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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 [Financing Grad School](#), which includes descriptions of UCF fellowships and what you should do to be considered for a fellowship.



Program Recommendation Form

College/Unit(s) Submitting Proposal: COS/Chemistry Department

Proposed Effective Term/Year: Fall 2009

Unit(s) Housing Program: Chemistry Department

Name of Program: PhD Chemistry

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 Suspension Deletion Revision

RECOMMENDATIONS

Yes No

Department Chair:

K. O. B. J.

Date:

3/9/09

Yes No

College Curriculum Committee Chair:

[Signature]

Date:

4/16/09

Yes No

College Dean or Unit Head:

Date:

Yes No

Chair, UPCC or GSC:

Date:

Yes No

Dean, Undergraduate Studies or Graduate Studies:

Date:

Approval:

Provost:

Date:

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

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

____ Department(s) ____ College ____ Registrar ____ Associate Registrar

____ Institutional Research ____ Academic Services ____ Faculty Senate ____ Information, Analysis & Assessment



Department of Chemistry
Dr. Kevin Belfield, Chair

MEMORANDUM

TO: Graduate Curriculum Committee
FROM: Kevin D. Belfield, Chair
SUBJECT: Revision to Chemistry PhD program
DATE: March 9, 2009

Attached please find proposed revisions to the Chemistry PhD program. An area of concentration in biochemistry is proposed. With the advent of a major investment by the State of Florida in biotechnology, e.g. attracting Scripps Institute, MD Anderson Cancer Center, the Burnham Institute for Biomedical Research, Torrey Pines Institute, and the Max Planck Institute for Biomedical Imaging, along with the development of our own Medical College, the Chemistry Department has made hiring and expanding research in biochemistry a priority. Biochemistry has always been part of the department's course offerings from its inception in 1968. Three biochemists have been hired by the Chemistry Department in the past two years (Robert Igarashi, Dmitry Kolpashchikov, and Jingdong Ye). These are all research-active, tenure-track faculty that have begun advising PhD Chemistry graduate students. The proposed biochemistry area of concentration is timely and appropriate for a significant number of graduate students and faculty in the department. In addition to the three junior biochemists, established biochemical researchers in the department will participate in the biochemistry concentration, including Jack Ballantyne, Howard Miles, and Manny Perez.

The other major change was increasing the elective credit hours to comply with the newly proposed UCF standard of 27 credit hours of formal course work in doctoral programs. A new elective course is proposed entitled Frontiers in Chemistry. The course action request for this is also being submitted. The other revisions include modification of the qualifying exams and core courses, and clarification of the candidacy exams and dissertation committee membership.

The revised PhD Chemistry curriculum will serve our students, faculty, department, and the university well.

Curriculum Description Brief:

The Chemistry PhD program requires 72 credit hours beyond the bachelor's degree with a minimum ~~18~~ credit hours of electives and directed research in the chosen sub-discipline, an original research project and dissertation presentation and a maximum of 27 credit hours transferred from an approved MS degree program.

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Students are required to take ~~27~~ credit hours of formal courses (excluding ~~research or independent/directed study~~). This includes four core courses and ~~four~~ electives, ~~three~~ of which must be taken within the Department of Chemistry. Six credit hours of directed research are also required; additional courses may be specified by the student's research adviser.

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Program Curriculum:

Total Hours Required for PhD—72 Credit Hours Minimum beyond the Bachelor's Degree; 45 Credit Hours Minimum beyond the Master's Degree.

One of the primary means of education and training in the PhD program is achieved through successful completion of an original research project, close mentorship by their research adviser and the presentation and defense of the PhD dissertation. This intense research experience provides the education and training necessary for the student to substantiate his/her expertise and develop the skills necessary to become an independent professional.

By the second semester, students will choose a dissertation adviser and establish a program of study. Students will take a two-semester seminar, presenting a seminar to the department during the second semester. A third seminar credit hour will be taken in preparation for the dissertation defense. During this semester, the student will present a seminar to the department on their dissertation research. The research adviser and graduate program director, in consultation with the department Chair, will establish an advisory committee for each student. Students must maintain a 3.0 GPA or higher.

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Required Core Courses—12 Credit Hours

Students must take four of the following courses.

- CHM 6710 Applied Analytical Chemistry (3 credit hours)
- CHM 6440 Kinetics and Catalysis (3 credit hours)
- CHS 6251 Applied Organic Synthesis (3 credit hours)
- CHS 6240 Chemical Thermodynamics (3 credit hours)
- BCH 6740 Applied Biochemistry (3 credit hours)

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If a student successfully completes all five core courses, one course will count towards fulfilling the electives requirement.

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Elective Courses—~~18~~ Credit Hours in Chosen Concentration

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Students need ~~four~~ elective courses (~~12 credit hours~~) and 6 credit hours of directed study. They may choose ~~four~~ courses from the departmental offerings or ~~three~~ courses from the departmental offerings and one from outside of the department. Directed research will always be within the department.

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Materials Chemistry Concentration

Choose four courses from the following courses in addition to 6 hours of directed research.

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- CHM 5225 Advanced Organic Chemistry (3 credit hours)
- CHM 5580 Advanced Physical Chemistry (3 credit hours)
- CHS 6260 Chemical Unit Operations and Separations (3 credit hours)
- CHM 6711 Chemistry of Materials (3 credit hours)
- CHM 6620 Solid State Inorganic Chemistry (3 credit hours)
- CHM 5450 Polymer Chemistry (3 credit hours)
- CHM 5451C Techniques in Polymer Science (3 credit hours)
- CHM 5715C Optical Materials Processing and Characterization Techniques (3 credit hours)
- CHM 6449 Photochemistry (3 credit hours)
- CHM 5305 Applied Biological Chemistry (3 credit hours)
- CHM 6938 Special Topics (3 credit hours)
- CHM 5235 Applied Molecular Spectroscopy (3 credit hours)
- CHM 6131 Advanced Instrumental Analysis (3 credit hours)
- CHM 7XXX Frontiers in Chemistry (three semesters, 1 credit hour each semester)
- CHM 7919 Directed Research in Materials Chemistry (6 credit hours)

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One course from outside the Chemistry Department may be chosen from the following list of courses to satisfy the four elective course requirement (12 credit hours).

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- OSE 5050 Fundamentals and Applications of Photonics (3 credit hours)
- EMA 5504 Modern Characterization of Materials (3 credit hours)
- EMA 6518 Transmission Electron Microscopy (3 credit hours)
- EMA 5108 Surface Science (3 credit hours)
- EMA 6129 Solidification and Microstructure Evolution (3 credit hours)
- EMA 6130 Phase Transformations in Metals and Alloys (3 credit hours)
- EMA 6136 Diffusion in Solids (3 credit hours)
- EMA 6516 X-Ray Diffraction and Crystallography (3 credit hours)
- IDS 7691 Structure-Function-Relationships of Biomolecules I (5 credit hours)
- PHY 5933 Selected Topics in Biophysics of Macromolecules (3 credit hours)
- MCB 5527 Genetic Engineering and Biotechnology (3 credit hours)
- BSC 5408L Advanced Biology Laboratory Techniques (3 credit hours)

Environmental Chemistry Concentration

Choose four courses from the following courses in addition to 6 hours of directed research.

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- CHS 6260 Chemical Unit Operations and Separations (3 credit hours)
- CHS 6613 Current Topics in Environmental Chemistry (3 credit hours)
- CHM 5235 Applied Molecular Spectroscopy (3 credit hours)
- CHM 5580 Advanced Physical Chemistry (3 credit hours)
- CHM 6131 Advanced Instrumental Analysis (3 credit hours)
- CHM 6449 Photochemistry (3 credit hours)
- CHM 6938 Special Topics (3 credit hours)
- CHM 7XXX Frontiers in Chemistry (three semesters, 1 credit hour each semester)
- CHM 7919 Directed Research in Environmental Chemistry (6 credit hours)

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One course from outside the Chemistry Department may be chosen from the following list of courses to satisfy the four elective course requirement (12 credit hours).

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[EMA 6516 X-Ray Diffraction and Crystallography](#)
[EMA 6518 Transmission Electron Microscopy](#)

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Required Seminar—3 Credit Hours

- CHM 6936 Seminar (1 credit hour, to be taken three times)

Dissertation—15 Credit Hours Minimum

- CHM 7980 Doctoral Dissertation (15 credit hours)

Within three months before defending the dissertation, the student will present a dissertation research seminar to the Department of Chemistry, registering for one credit hour of seminar.

Qualifying Examinations

Students will be expected to satisfy qualifying (proficiency) requirements (analytical [chemistry](#), [biochemistry](#), inorganic [chemistry](#), organic [chemistry](#) and physical chemistry) during the first year by taking exams in [four](#) of these [five](#) areas. Additional course work may be required if one or more of the qualifying exams are not satisfied. These exams may be waived if the entering student possesses a MS degree in the Chemical Sciences. Satisfaction of this requirement will help ensure that all students are adequately prepared for the core courses. If a student does not satisfy the proficiency exam requirements within the first year, they may be subject to dismissal from the program.

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Candidacy Examination

By the end of the [fifth semester \(excluding summers\)](#), students [must pass](#) the PhD candidacy oral examination. The candidacy examination consists of writing and orally defending an original research proposal to the student's program faculty advisory committee as well as a presentation of their preliminary dissertation research accomplishments and plans. The research proposal will focus on a topic not directly related to the student's dissertation research and must be approved by the adviser and advisory committee. [Failure to pass the PhD candidacy exam will result in dismissal from the program.](#)

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Dissertation Defense

The final requirement for the PhD degree is completion of a satisfactory written dissertation of the student's research, along with successful presentation and defense of the dissertation to the advisory committee, including one doctorate-holding non-program faculty member.

Total Hours Required Beyond Bachelor's: 72

Total Hours Required Beyond Master's: 45

Independent Learning:

The grounding in scientific research methodology provided by the dissertation requirement is a central focus of the proposed program. Students will conduct research either on site or at the professional laboratories where they work. In either case, a member of the UCF Chemistry

Department faculty will act as research adviser and approve the research topic. This research culminates in the writing and presentation of the dissertation. The student will present his/her dissertation for examination by a committee consisting of five members including the research adviser. One of the committee members will be from outside the Chemistry department. Three of the four program committee members will hold tenure-earning faculty appointments in the Chemistry Department. The committee has to be approved by the Graduate Coordinator of the Chemistry program and the department Chair. The dissertation must be judged worthy of publication by the dissertation committee and may not be submitted for examination until so deemed. For students performing their dissertation research off campus, the dissertation adviser will visit the student's laboratory, where their research is to be performed, before the research begins and on a regular basis until the work is complete.

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- Thesis Nonthesis Dissertation

Graduate Council Curriculum Committee
Course Agenda for 04-23-2009
Revised

College of Business Adm Special Topics

REE 6938 Sect 01 BA-Finance 3(3,0)

ST:Real Estate Development: PR: Must take in final term of MSRE program. Capstone project course covering the real estate development process, regulatory considerations, financial and market feasibility, management control, and environmental aspects of real estate development.

30 character abbreviation: **ST:Real Estate Development**

AGENDA NOTES: Course Addition also being proposed.

REE 6938 Sect 01 BA-Finance 3(3,0)

ST:Real Estate Finance and Investment: PR: FIN 6406, Acceptance into MSRE Program. Direct real estate investing in the apartment, office, industrial and retail sectors. Financing real estate transactions, real estate capital markets, and investment analysis.

30 character abbreviation: **ST:Real Estate Finance & Inves**

AGENDA NOTES: Course Addition also being proposed.

REE 6938 Sect 01 BA-Finance 3(3,0)

ST:Real Estate Law: PR: Acceptance into MSRE Program. Overview of the legal system and key laws affecting real estate. Emphasis on property rights, contracts, development law, theory of title, and commercial leases.

30 character abbreviation: **ST:Real Estate Law**

AGENDA NOTES: Course Addition also being proposed.

REE 6938 Sect 01 BA-Finance 3(3,0)

ST:Real Estate Market Analysis and Appraisal: PR: FIN 6406, acceptance into MSRE Program. An applied introduction to the major concepts, principles and methods used in appraising commercial real estate, performing market analysis, and basic economic analysis.

30 character abbreviation: **ST:Real Est Market Analy & App**

AGENDA NOTES: Course Addition also being proposed.

REE 6938 Sect 01 BA-Finance 3(3,0)

ST:Real Estate Markets and Institutions: PR: Acceptance into MSRE Program. Overview of the core real estate concepts, property fundamentals, and the role of various institutions in real estate transactions and operations.

30 character abbreviation: **ST:Real Estate Markets & Insti**

MAN 6938 Sect 01 BA-Management 3(3,0)

ST:Ethical Leadership: PR: Graduate Standing or CI. Building on organizational and behavioral theories of ethical decision making in work organizations, the course examines the challenges involved in ethical decision making.

30 character abbreviation: **ST:Ethical Leadership**

AGENDA NOTES: Course Addition also being proposed.

College of Education Special Topics

MHS 6938 COE-CFCS 3(3,0)

ST: Play Therapy: The Use of Art and Sandtray

Focus on play therapy utilizing art therapy and sandtray techniques. Clinical interventions will be presented followed by experiential exercises and group processing. Repeat for credit 2 times.

30 character abbreviation: **ST: PT-Art & Sandtray**

College of Sciences Special Topics

MAP 6938 Sect 01 COS-Mathematics 3(3,0)

ST: Mathematical Biology: PR: Admission into the mathematics, biology, or molecular biology and microbiology graduate program or C.I. Recommended courses: MAP 2302, MAS 3106, MAP 4103, MAA 4226, and; MAP 5336. Mathematical methods applied to biological models that involve single populations, interacting populations, structured populations, epidemics, genetics, and individual and social decision-making. Graded S/U.

30 character abbreviation: **ST: Mathematical Biology**

College of Business Adm Course Action Additions

REE 6XXX BA-Finance 3(3,0)

Real Estate Development: PR: Must take in final term of MSRE program. Capstone project course covering the real estate development process, regulatory considerations, financial and market feasibility, management control, and environmental aspects of real estate development.

30 character abbreviation: **Real Estate Development**

AGENDA NOTES: Special Topic also being proposed.

REE 6XXX BA-Finance 3(3,0)

Real Estate Finance and Investment: PR: FIN 6406, Acceptance into MSRE Program. Direct real estate investing in the apartment, office, industrial and retail sectors. Financing real estate transactions, real estate capital markets, and investment analysis.

30 character abbreviation: **Real Estate Finance & Invest**

AGENDA NOTES: Special Topic also being proposed.

REE 6XXX BA-Finance 3(3,0)

Real Estate Law: PR: Acceptance into MSRE Program. Overview of the legal system and key laws affecting real estate. Emphasis on property rights, contracts, development law, theory of title, and commercial leases.

30 character abbreviation: **Real Estate Law**

AGENDA NOTES: Special Topic also being proposed.

REE 6XXX BA-Finance 3(3,0)

Real Estate Market Analysis and Appraisal: PR: FIN 6406, acceptance into MSRE Program. An applied introduction to the major concepts, principles and methods used in appraising commercial real estate, performing market analysis, and basic economic analysis.

30 character abbreviation: **Real Est Market Analy & Apprai**

AGENDA NOTES: Special Topic also being proposed.

MAN 6XXX BA-Management 3(3,0)

Ethical Leadership: PR: College of Business Graduate Standing or C.I. Building on a foundation of basic theories of ethical decision-making from organizational and behavioral perspectives, the course examines challenges involved in maintaining exemplary professional ethics.

30 character abbreviation: **Ethical Leadership**

AGENDA NOTES: Special Topic also being proposed.

College of Medicine Course Action Additions

PCB 5XXX COM-Molecular & Microbiology 3(3,0) SPLIT CLASS

Cellular and Molecular Basis of Brain Functions: PR: Graduate Standing or C.I. Designed to provide graduate students the concepts required to understand the physiological basis of brain functions at the molecular, cellular and system levels.

30 character abbreviation: **Cell & Mol Basis Brain Functio**

PCB 5XXXC COM-Molecular & Microbiology 4(3,2) SPLIT CLASS

Advanced Human Physiology: PR: Graduate standing or C.I. Designed to provide graduate students advanced knowledge of physiological processes at the cellular, molecular and system levels.

30 character abbreviation: **Advanced Human Physiology**

PCB 5XXXL COM-Molecular & Microbiology 2(0,2) SPLIT CLASS

Laboratory Virtual Simulations in Physiology: CR: PCB 5XXXC Advanced Human Physiology. Conduct experiments in physiology that enhance the ability to design, collect, analyze data and report results in a scientific manner.

30 character abbreviation: **L Virtual Simulations in Phys**

College of Sciences Course Action Additions

ANG 5XXX COS-Anthropology 3(3,0)

Quantitative Research in Anthropology: PR: Admission to Anthropology MA, Maya Studies GC, or CI. Quantitative approaches to problems in anthropology, including multivariate systems, assessment of reliability, and approaches for small samples.

Materials & Supply Fee addition proposed: \$2.66

30 character abbreviation: **Quant Research Anthro**

CHM 6XXX COS-Chemistry 3(3,0)

Advanced Mass Spectrometry for Forensic Science: PR: C.I. Principles and data analysis of quadrupole mass filters and chemical manipulations of ions stored in quadrupolar trapping fields.

30 character abbreviation: **Adv Mass Spec in Forensic Sci**

CHM 7XXX COS-Chemistry 1(1,0)

Frontiers in Chemistry: PR: Admission to the PhD Chemistry program or CI. Chemistry research seminar addressing current challenges, trends and opportunities in the chemical sciences. May be used in the degree program a maximum of 3 times.

30 character abbreviation: **Frontiers in Chemistry**

MTG 5XXX COS-Mathematics 3(3,0)

Introduction to Differential Geometry: PR: MAC 2313 or equivalent or CI. Curves and surfaces in 2D and 3D, covariant derivative of a vector field, geodesics, Gauss-Bonnet; Theorem.

30 character abbreviation: **Intro to Differential Geometry**

PHY 5XXX COS-Physics 3(3,0)

Physics of Graphene and Carbon Nanotubes: PR: PHZ 4404 or equivalent, or CI. Advanced topics in carbon nanotubes and graphene sheets by presentation and discussion of current literature.

30 character abbreviation: **Phys Graphene & Carb Nanotube**

College of Business Adm Course Action Revisions

MAN 5867 ~~Small Business Institute~~ 3(3,0)
Small Business Consulting

PR: C.I.

Hands-on small business consulting course. Students are assigned teams and work with a local small business.

30 character abbreviation: **Small Business Consulting**

College of Sciences Course Action Revisions

ANG 6181C ~~GIS Applications in Archaeology~~ 3(2,2)
GIS Applications in Anthropology

PR: Admission to Anthropology MA, Maya Studies GC, or C.I.

Application of ~~global~~ geographic information systems methodology for the documentation of ~~and analysis of anthropological, archeological and forensic sites.~~ problems.

30 character abbreviation: **GIS Appl in Anthropology**

MAA 5210 Topics in Advanced Calculus 4(4,0)
3(3,0)

PR: ~~MAA 4226 or equivalent, graduate status or senior standing, or C.I.~~ PR: MAS 3105, MAP 2302, or equivalent or C.I.

~~Topics in multivariable calculus, including~~ Real numbers, epsilon-delta language, limits, continuity, integration, differentiation, Taylor's theorem, series, uniform convergence, inverse and implicit function theorems.