Graduate Council Curriculum Committee
September 26, 2018
2:30 p.m., Millican Hall 395E

Agenda

1. Welcome and call to order
2. General business
    - Introductions
    - Graduate Council Curriculum Committee overview
    - Proxy voting
3. Revision of Biomedical Sciences MS
4. Revision of Biomedical Sciences MS, Cancer Biology Track
5. Revision of Biomedical Sciences MS, Infectious Disease Track
6. Revision of Biomedical Sciences MS, Metabolic and Cardiovascular Sciences Track
7. Revision of Biomedical Sciences MS, Neuroscience Track
8. Inactivation of Biomedical Sciences MS - Genetic Counseling Track
9. Inactivation of Biotechnology MS- Professional Science Masters Track
10. Courses
11. Adjournment

Members of the Graduate Council Curriculum Committee

Elsie Olan, Chair, College of Community Innovation and Education
Andre Gesquiere, Vice Chair, College of Sciences
Sonia Arellano, College of Arts and Humanities
Mathilda Van Niekerk, Rosen College of Hospitality Management
Art Weeks, College of Engineering and Computer Science
Jihe (Jackie) Zhao, College of Medicine
Diane Andrews, College of Nursing
Mercedeh Khajavikhan, College of Optics and Photonics
Olga Molina, College of Health Professions and Sciences
Alex Rubenstein, College of Business Administration
Terrie Sypolt, University Libraries
Wei Wei, Rosen College of Hospitality Management
Kiana Terrell, Graduate Student Association
Tosha Dupras, College of Sciences, Administrator
Joellen Edwards, College of Nursing, Administrator
Ali Gordon, College of Engineering and Computer Science, Administrator
David Hagan, College of Optics and Photonics, Administrator
Lynn Hepner, College of Arts and Humanities, Administrator
Devon Jensen, Graduate Studies, Administrator
Glenn Lambie, College of Community Innovation and Education, Administrator
Saleh Naser, College of Medicine, Administrator
Linda Rosa-Lugo, College of Health Professions and Sciences, Administrator
Sevil Sonmez, College of Business Administration, Administrator
Youcheng Wang, Rosen College of Hospitality Management, Administrator

Graduate Curriculum Committee- September 26, 2018

Committee	**Graduate Curriculum Committee**
Notes	**Program Agenda**
Total Proposals	**7**

Biomedical Sciences MS

2018-2019 Graduate Program Revision/Reactivation

General Catalog Information

Select *Program* below, unless creating an Acalog *Shared Core*.

A *Shared Core* is a set of curriculum set up in the online catalog (Acalog) to serve multiple program pages. For more information, contact the Curriculum Specialist.

Program Type* ◉ Program ○ Shared Core

Read before you begin

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LAUNCH proposal by clicking in the top left corner. DO NOT make proposed changes before launching proposal. Changes will only be tracked after proposal is launched.

College / Department:* College of Medicine Burnett School of Biomedical Sciences

This form is to be used to REVISE graduate degree programs, tracks, or certificate programs. If there are tracks being added to the program, one form must be submitted for EACH program and the track(s).

Please refer to the Graduate Council Curriculum Meeting Schedule for submission deadlines.

Proposed Effective Term / Year*
Immediately

Name of program, track and / or certificate:*
Biomedical Sciences MS

Unit(s) Housing Program:

Type of Action:*
- [x] Program
- [ ] Track
- [ ] Certificate

If you will be submitting other revision forms for tracks or course actions, please list them here:

Is the CIP code being updated?
- [ ] Yes
- [ ] No

If yes, please provide the new CIP code:

Description:*

College: Medicine	**Degree:** MS
Department: Burnett School of Biomedical Sciences	**Option:** Nonthesis
Program Websites: https://med.ucf.edu/biomed/graduate-programs/	

Rationale:

Follow these steps to propose courses to the revised program curriculum:

Step 1

There are two options for adding courses: "Add Course" and "Import Course." For courses already in the catalog, click on "Import Course" and find the courses needed. For new classes going through a Curriculog Approval Process click on "Add Course"-- a box will open asking you for the Prefix, Course Number and Course Title.

Step 2

Click on "View Curriculum Schema." Click on the area/header of the program where you would like to add courses. When you click on "Add Courses" it will bring up the list of courses available from Step 1. Select the courses you wish to add. For removing courses click on the X and proceed.

Prospective Curriculum*

Program Description

This program is no longer accepting applications for Fall 2018.

The Master of Science in Biomedical Sciences program is a nonthesis program for students who wish to further their knowledge in the field and prepare for professional careers in medical fields, higher education, and research. **Students interested in research and thesis work should apply to the Master of Science in Biotechnology program.**

Curriculum

The Biomedical Sciences nonthesis program requires a minimum of 33 credit hours of courses that includes a capstone experience. The program addresses the need of applicants who wish to pursue a teaching career in secondary schools, two-year and four-year colleges or other careers without an active research role. Nonthesis students are not considered for departmental graduate assistantships or tuition assistance.

Total Credit Hours Required: 33 Credit Hours Minimum beyond the Bachelor's Degree

Required Courses: 18 Credit Hours

ZOO 6737 Clinically Oriented Human Anatomy
MCB 6226 Molecular Diagnostics
PCB 6595 Regulation of Gene Expression
PHI 5634 Medical Ethics
BSC 6407C Laboratory Methods in Molecular Biology
or

BSC 5418 Tissue Engineering

MCB 6938 - Seminar **1 Credit Hour** (to be repeated by all students) or

MCB 6314 Industrial Perspectives Seminar

Elective Courses: 12 Credit Hours

Nonthesis students take 12 credit hours of electives with 6 credit hours from the Biomedical Specialization and 6 credit hours from the Microbiology Specialization.

Biomedical Specialization

BSC 5418 Tissue Engineering
MCB 5225 Molecular Biology of Disease
MCB 6226 Molecular Diagnostics
PCB 5238 Immunobiology

PCB 5236 Cancer Biology

PCB 5275 Signal Transduction Mechanics

PCB 5527 Genetic Engineering and Biotechnology

PCB 5709C Laboratory Virtual Simulations in Physiology

PCB 5815 Molecular Aspects of Obesity, Diabetes and Metabolism

PCB 5834C Advanced Human Physiology

IDS 5127 Foundation of Bio-Imaging Science

PCB 5265 Stem Cell Biology

GEB 5516 Technological Entrepreneurship

Others: If approved by Graduate Committee

Microbiology Specialization

MCB 5205 Infectious Processes

MCB 5505 Molecular Virology

MCB 5208 Cellular Microbiology: Host-Pathogen Interactions

MCB 6417C Microbial Metabolism

MCB 5932 Current Topics in Molecular Biology

MCB 5415 Cellular Metabolism

MCB 5209 Microbial Stress Response

PCB 6595 Regulation of Gene Expression

PCB 5235 Molecular Immunology

Others: If approved by Graduate Committee

Capstone: 3 Credit Hours

An in-depth current literature research report on a relevant subject will be required for each student. The student will select a faculty adviser to chair a faculty committee of three members for evaluation of the report.

An oral presentation on the written capstone report will be used as a final examination. A majority of the program faculty must be present for the final examination. Before graduation, the report should be submitted for consideration of

publication as a review article in appropriate journals.

MCB 6026 Molecular Biology and Microbiology Capstone
(minimum)

Comprehensive Examination

Nonthesis students must pass an oral comprehensive exam to qualify for the Master of Science degree.

Students must successfully pass an oral comprehensive examination to test the understanding of the basic concepts in the field and relevant applications. The comprehensive examination will be conducted during the capstone defense and will be administered by the capstone committee. Should the student fail this exam, a second opportunity will be provided within 2 weeks of the first attempt. A second failure will result in dismissal from the program.

Teaching Requirement

Students without significant prior teaching experience, such as, but not limited to, a minimum of a year in secondary schools or colleges, are required to serve as Graduate Teaching Assistants for a minimum of one semester.

Independent Learning

In the final semester of study, nonthesis students will complete a capstone course that requires an in-depth current literature research report on a relevant subject, which will serve as the independent learning experience.

The student will select a faculty adviser to chair a faculty committee of three members for evaluation of the report.

Application Requirements

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

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

One official transcript (in a sealed envelope) from each college/university attended.

A bachelor's degree in Biological Sciences or related area.

Official, competitive GRE score (taken within the last five years) or MCAT score (taken within the last three years).

Three letters of recommendation.

A written statement of research experience, area of interest, and immediate and long-range goals.

Resume or CV.

Personal interviews are helpful but not required. Applicants who do not have a competitive GPA or GRE/MCAT may occasionally be accepted if there is other convincing evidence of potential for high achievement and success.

Applicants who hold a BS degree in unrelated fields are expected to have the equivalent of 16 semester hours of credit in the biological sciences including a course in general microbiology, biochemistry or molecular biology or cell biology, plus one year of organic chemistry, one year of physics, basic university mathematics and statistics, and laboratory skills equivalent to the minimum required of our own undergraduates. Minor deficiencies may be remedied after acceptance by enrollment at the first opportunity in an appropriate course.

Application Deadlines

Biomedical Sciences MS	*Fall Priority	Fall	Spring	Summer
Domestic Applicants	Jan 15	Jan 15	-	-
International Applicants	Jan 15	Jan 15	-	-
International Transfer Applicants	Jan 15	Jan 15	-	-
*Applicants who plan to enroll full time in a degree program and who wish to be considered for university fellowships or assistantships should apply by the Fall Priority date.				

Financials

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

Fellowships

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

Program Tracks

Biomedical Sciences MS, Cancer Biology Track

Biomedical Sciences MS, Genetic Counseling Track

Biomedical Sciences MS, Infectious Disease Track

Biomedical Sciences MS, Integrated Medical Sciences Track

Biomedical Sciences MS, Metabolic and Cardiovascular Sciences Track

Biomedical Sciences MS, Neuroscience Track

Contact Info

Graduate Program

Saleh Naser PhD

Professor

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UCF College of Medicine

Steven Ebert PhD

Associate Professor

steven.ebert@ucf.edu

Telephone: 407-266-7047

BBS 421

Graduate Admissions

Kourtney Siano

gradadmissions@ucf.edu

Telephone: 407-823-2766

Millican Hall 230

Online Application

Graduate Admissions

Mailing Address

UCF College of Graduate Studies

Millican Hall 230

PO Box 160112

Orlando, FL 32816-0112

Institution Codes

GRE: 5233

GMAT: RZT-HT-58

TOEFL: 5233

ETS PPI: 5233

Graduate Fellowships

Grad Fellowships

Telephone: 407-823-0127

gradfellowship@ucf.edu

https://funding.graduate.ucf.edu

Graduate Financial Aid

UCF Student Financial Assistance

Millican Hall 120

Telephone: 407-823-2827

Appointment Line: 407-823-5285

Fax: 407-823-5241

finaid@ucf.edu

http://finaid.ucf.edu

Impact on Current Students

Will students be moved from an existing program, track, or certificate into this new program, track, or certificate?*	○ Yes ◉ No
If yes, state the name of the program or track where students are currently enrolled and attach a list of students if possible:	
Will students have the option to stay in their existing program, track, or certificate?*	○ Yes ◉ No
If yes, how will current students be impacted by this change?	Not applicable

Future Students

Provide a statement of who is likely to enroll and why. Please state if there is licensure or certification that depends upon this education, etc.	

Year 1

Headcount:	SCHs:

Year 2

Headcount:	SCHs:

Year 3

Headcount:	SCHs:

Indicate likely career or student outcomes upon completion:	

Please complete the following section on financial support:

(Specify all forms of support – assistantships, fellowships, and tuition remission.)

Year 1

Number of assistantship students:	Source of funds:
Number of fellowship students (specify fellowship):	
Number of tuition remissions:	Source of funds:

Year 2

Number of assistantship students	Source of funds:

Number of fellowship students (specify fellowship):	
Number of tuition remissions:	**Source of funds:**

Year 3

Number of assistantship students:	**Source of funds:**
Number of fellowship students (specify fellowship):	
Number of tuition remissions:	**Source of funds:**

Attachments

Please attach any required files by navigating to the Proposal Toolbox and clicking in the top right corner.

Faculty List*	○ Attached ◉ Not Applicable
Support from involved units that no duplication exists*	○ Attached ◉ Not Applicable

Administration Use Only

Catalog Ownership:	Burnett School of Biomedical Sciences
Program OID	1970
Program Type	Master
Degree Type	Master of Science
Status*	

Active-Visible Inactive-Hidden

Biomedical Sciences MS, Cancer Biology Track

2018-2019 Graduate Program Revision/Reactivation

General Catalog Information

Select *Program* below, unless creating an Acalog *Shared Core*.

A *Shared Core* is a set of curriculum set up in the online catalog (Acalog) to serve multiple program pages. For more information, contact the Curriculum Specialist.

Program Type* (•) Program
( ) Shared Core

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LAUNCH proposal by clicking in the top left corner. DO NOT make proposed changes before launching proposal. Changes will only be tracked after proposal is launched.

College / Department:* College of Medicine Burnett School of Biomedical Sciences

This form is to be used to REVISE graduate degree programs, tracks, or certificate programs. If there are tracks being added to the program, one form must be submitted for EACH program and the track(s).

Please refer to the Graduate Council Curriculum Meeting Schedule for submission deadlines.

Proposed Effective Term / Year* Immediately

Name of program, track and / or certificate:* Biomedical Sciences MS, Cancer Biology Track

Unit(s) Housing Program:

Type of Action:* ☐ Program ☑ Track ☐ Certificate

If you will be submitting other revision forms for tracks or course actions, please list them here:

Is the CIP code being updated? ☐ Yes ☐ No

If yes, please provide the new CIP code:

Description:*

College: Medicine	**Degree:** MS
Department: Burnett School of Biomedical Sciences	**Option:** Nonthesis
Program Websites: https://med.ucf.edu/biomed/graduate-programs/	

Rationale:

MS of Science in Biomedical Sciences is a nonthesis program with tracks in Neuroscience, Cancer Biology, Infectious disease, and Metabolic and Cardiovascualr Sciences. It is designed for students who wish to further their knowledge and training in the field in order to enhance their profile to pursue career in medicine, healthcare, and higher education. The curriculum has been revised in order to provide the students with more appropriate courses to help them better prepare and to become more competitive for achieving their future career goals and job market need.

Follow these steps to propose courses to the revised program curriculum:

Step 1

There are two options for adding courses: "Add Course" and "Import Course." For courses already in the catalog, click on "Import Course" and find the courses needed. For new classes going through a Curriculog Approval Process click on "Add Course"-- a box will open asking you for the Prefix, Course Number and Course Title.

Step 2

Click on "View Curriculum Schema." Click on the area/header of the program where you would like to add courses. When you click on "Add Courses" it will bring up the list of courses available from Step 1. Select the courses you wish to add. For removing courses click on the and proceed.

Prospective Curriculum*

Track Description

This track is no longer accepting applications for Fall 2018.

The Cancer Biology Track in the Master of Science in Biomedical Sciences Program is a nonthesis plan of study for students who want to further their knowledge in the cancer biology field and who may pursue doctoral training or professional education focused on medicine and cancer biology. Students interested in research and thesis work should apply to the Master of Science in Biotechnology Program.

Curriculum

The Cancer Biology Track in the Biomedical Sciences MS program requires a minimum of 33 credit hours of courses that includes a capstone experience. Students take 18 credit hours of required core courses, 12 credit hours of elective courses relevant to cancer biology and related disciplines, a capstone project focusing on cancer biology and an oral comprehensive exam.

Total Credit Hours Required: 33 Credit Hours Minimum beyond the Bachelor's Degree

Nonthesis students are not considered for departmental graduate assistantships or tuition assistance.

Required Courses: 18 Credit Hours

ZOO 6737 Clinically Oriented Human Anatomy
MCB 6226 Molecular Diagnostics
PCB 6595 Regulation of Gene Expression
PCB 5236 Cancer Biology
BSC 6407C Laboratory Methods in Molecular Biology
or

BSC 5418 Tissue Engineering

MCB 6938 - Seminar **1 Credit Hour** (to be repeated by all students) or

MCB 6314 Industrial Perspectives Seminar

Elective Courses: 12 Credit Hours

PCB 5025 Molecular and Cellular Pharmacology
MCB 5415 Cellular Metabolism
PCB 5235 Molecular Immunology
MCB 5225 Molecular Biology of Disease
PCB 6595 Regulation of Gene Expression
MCB 5505 Molecular Virology
PCB 5275 Signal Transduction Mechanics
MCB 6226 Molecular Diagnostics
IDS 5127 Foundation of Bio-Imaging Science
BSC 5418 Tissue Engineering
BSC 5436 Biomedical Informatics : Structure Analysis
PCB 5265 Stem Cell Biology

Other elective courses must be approved by the Program Coordinator.

Capstone: 3 Credit Hours

An in-depth current literature research report in the area of Cancer Biology will be required for each student. The student will select a faculty adviser to

chair a faculty committee of three members for evaluation of the report.

MCB 6026 Molecular Biology and Microbiology Capstone
(minimum)

The Capstone Process

Students are encouraged to contact faculty as early as possible in order to identify a faculty whose research focus complements the student's interest. The student and the mentor should select two additional faculty members to serve on the capstone evaluation committee.

Students must submit a signed Capstone Committee form to the Program Coordinator for approval as soon as the registration for the course is complete. The form must be submitted to the Program Office.

When you are ready to defend your Capstone project, you must register for the capstone course (MCB 6026) for three credit hours. It is important that the student register for the capstone course with the intention of completing the project at the end of the semester.

The Capstone Report

Evaluation of the capstone project requires a written report (in the format of a mini-review manuscript) and a presentation (project defense) in front of the capstone committee. No visitors are allowed during the capstone defense. Students may ask for advice and guidance from the project mentor/chair. The average capstone report ranges from 10 to 15 single-space pages in a manuscript format with proper citations. The

student's Committee Chair will be responsible for checking the report for plagiarism using either Turnitin or iThenticate before the report is shared with the committee. The committee must receive the report at least one week before the time of presentation.

Note: The defense (presentation) must be held no later than one week before final exam week.

The Capstone Defense/Comprehensive Exam

The capstone defense and comprehensive exam evaluation is designed to assess the student's knowledge and understanding of the project and other relevant subjects in the field. Questions asked by the capstone committee to evaluate the student as competent in the field will satisfy the requirement of the comprehensive exam. The oral presentation will take place in the form of a 30-40 minute seminar and will be followed by questions and discussion.

The student will be evaluated on performance in all three sections (written report, oral presentation and ability to answer questions).

Should the student fail, a second opportunity will be provided within two weeks of the first attempt. A second failure will result in an Unsatisfactory (U) grade in the course and dismissal from the program.

Comprehensive Examination

Students must pass an oral comprehensive exam to qualify for the Master of Science. The oral comprehensive exam tests the student's understanding of the basic concepts in the field and relevant applications. The comprehensive exam will be conducted during the capstone defense and will be

administered by the capstone committee. Should the student fail this exam, a second opportunity will be provided within two weeks of the first attempt. A second failure will result in dismissal from the program.

Teaching Requirement

Students without significant prior teaching experience, such as, but not limited to, a minimum of a year in secondary schools or colleges, are required to serve as Classroom Laboratory Assistants (CLA) for a minimum of one semester (one semester in at least one lab section).

Research Shadowing (Optional)

Students are encouraged to discuss with their capstone mentor the possibility of joining the lab for research shadowing of other graduate students. Acquired lab skills should assist students with the capstone project and with future endeavors.

Independent Learning

In the final semester of study students will complete a capstone course that requires an in-depth current literature research report on a relevant subject, which will serve as the independent learning experience. The student will select a faculty adviser to chair a faculty committee of three members for evaluation of the report.

Application Requirements

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

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

One official transcript (in a sealed envelope) from each college/university attended.

A bachelor's degree in Biological Sciences or related area.

Official, competitive GRE score (taken within the last five years) or MCAT score (taken within the last three years).

Three letters of recommendation.

A written statement of research experience, area of interest, and immediate and long-range goals.

Resume or CV.

Personal interviews are helpful but not required. Applicants who do not have a competitive GPA or GRE/MCAT may occasionally be accepted if there is other convincing evidence of potential for high achievement and success.

Applicants who hold a BS degree in unrelated fields are expected to have the equivalent of 16 semester hours of credit in the biological sciences including a course in general microbiology, biochemistry or molecular biology or cell biology, plus one year of organic chemistry, one year of physics, basic university mathematics and statistics, and laboratory skills equivalent to the minimum required of our own undergraduates. Minor deficiencies may be remedied after acceptance by enrollment at the first opportunity in an appropriate course.

Application Deadlines

Cancer Biology	*Fall Priority	Fall	Spring	Summer
Domestic Applicants	Jan 15	Jan 15	-	-
International Applicants	Jan 15	Jan 15	-	-
International Transfer Applicants	Jan 15	Jan 15	-	-
*Applicants who plan to enroll full time in a degree program and who wish to be considered for university fellowships or assistantships should apply by the Fall Priority date.				

Financials

Graduate students may receive financial assistance through fellowships, assistantships, tuition support, or loans. For more information, see the College of Graduate Studies Funding website, 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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Contact Info

Graduate Program

Saleh Naser PhD

Professor

saleh.naser@ucf.edu

Telephone: 407-823-0955

UCF College of Medicine

Graduate Admissions

Kourtney Siano

gradadmissions@ucf.edu

Telephone: 407-823-2766

Millican Hall 230

Online Application

Graduate Admissions

Mailing Address

UCF College of Graduate Studies

Millican Hall 230

PO Box 160112

Orlando, FL 32816-0112

Institution Codes

GRE: 5233

GMAT: RZT-HT-58

TOEFL: 5233

ETS PPI: 5233

Graduate Fellowships

Grad Fellowships

Telephone: 407-823-0127

gradfellowship@ucf.edu

https://funding.graduate.ucf.edu

Graduate Financial Aid

UCF Student Financial Assistance

Millican Hall 120

Telephone: 407-823-2827

Appointment Line: 407-823-5285

Fax: 407-823-5241

finaid@ucf.edu

http://finaid.ucf.edu

Impact on Current Students

Will students be moved from an existing program, track, or certificate into this new program, track, or certificate?* ○ Yes ◉ No

If yes, state the name of the program or track where students are currently enrolled and attach a list of students if possible:

Will students have the option to stay in their existing program, track, or certificate?* ○ Yes ◉ No

If yes, how will current students be impacted by this change?

Future Students

Provide a statement of who is likely to enroll and why. Please state if there is licensure or certification that depends upon this education, etc.

Year 1

Headcount:	SCHs:

Year 2

Headcount:	SCHs:

Year 3

Headcount:	SCHs:

Indicate likely career or student outcomes upon completion:	

Please complete the following section on financial support:

(Specify all forms of support – assistantships, fellowships, and tuition remission.)

Year 1

Number of assistantship students:	Source of funds:
Number of fellowship students (specify fellowship):	
Number of tuition remissions:	Source of funds:

Year 2

Number of assistantship students	Source of funds:

Number of fellowship students (specify fellowship):	
Number of tuition remissions:	**Source of funds:**

Year 3

Number of assistantship students:	**Source of funds:**
Number of fellowship students (specify fellowship):	
Number of tuition remissions:	**Source of funds:**

Attachments

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Faculty List*	○ Attached ◉ Not Applicable
Support from involved units that no duplication exists*	○ Attached ◉ Not Applicable

Administration Use Only

Catalog Ownership:	Burnett School of Biomedical Sciences
Program OID	1971
Program Type	Master
Degree Type	Master of Science

Status* ◉ Active-Visible ○ Inactive-Hidden

Biomedical Sciences MS, Infectious Disease Track

2018-2019 Graduate Program Revision/Reactivation

General Catalog Information

Select *Program* below, unless creating an Acalog *Shared Core*.

A *Shared Core* is a set of curriculum set up in the online catalog (Acalog) to serve multiple program pages. For more information, contact the Curriculum Specialist.

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Please refer to the Graduate Council Curriculum Meeting Schedule for submission deadlines.

Proposed Effective Term / Year* Immediately

Name of program, track and / or certificate:* Biomedical Sciences MS, Infectious Disease Track

Unit(s) Housing Program:

Type of Action:* ☐ Program ☑ Track ☐ Certificate

If you will be submitting other revision forms for tracks or course actions, please list them here:

Is the CIP code being updated? ☐ Yes ☐ No

If yes, please provide the new CIP code:

Description:*

College: Medicine	**Degree:** MS
Department: Burnett School of Biomedical Sciences	**Option:** Nonthesis
Program Websites: https://med.ucf.edu/biomed/graduate-programs/	

Rationale:

MS of Science in Biomedical Sciences is a nonthesis program with tracks in Neuroscience, Cancer Biology, Infectious disease, and Metabolic and Cardiovascualr Sciences. It is designed for students who wish to further their knowledge and training in the field in order to enhance their profile to pursue career in medicine, healthcare, and higher education. The curriculum has been revised in order to provide the students with more appropriate courses to help them better prepare and to become more competitive for achieving their future career goals and job market need.

Follow these steps to propose courses to the revised program curriculum:

Step 1

There are two options for adding courses: "Add Course" and "Import Course." For courses already in the catalog, click on "Import Course" and find the courses needed. For new classes going through a Curriculog Approval Process click on "Add Course"-- a box will open asking you for the Prefix, Course Number and Course Title.

Step 2

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Prospective Curriculum*

Track Description

This track is no longer accepting applications for Fall 2018.

The Infectious Disease Track in the Master of Science in Biomedical Sciences Program is a nonthesis plan of study for students who want to further their knowledge in the infectious disease field and who may pursue doctoral training or professional education focused on medicine and infectious disease. Students interested in research and thesis work should apply to the Master of Science in Biotechnology Program.

Curriculum

The Infectious Disease Track in the Biomedical Sciences MS program requires a minimum of 33 credit hours of courses that includes a capstone experience. Students take 18 credit hours of required core courses, 12 credit hours of elective courses relevant to infectious disease, a capstone project focusing on infectious disease and an oral comprehensive exam.

Total Credit Hours Required: 33 Credit Hours Minimum beyond the Bachelor's Degree

Nonthesis students are not considered for departmental graduate assistantships or tuition assistance.

Required Courses: 18 Credit Hours

ZOO 6737 Clinically Oriented Human Anatomy
PCB 6595 Regulation of Gene Expression
MCB 6226 Molecular Diagnostics
MCB 5208 Cellular Microbiology: Host-Pathogen Interactions
BSC 6407C Laboratory Methods in Molecular Biology
or

BSC 5418 Tissue Engineering

MCB 6938 - Seminar **1 Credit Hour** (to be repeated by all students) or

or

MCB 6314 Industrial Perspectives Seminar

Elective Courses: 12 Credit Hours

PCB 5527 Genetic Engineering and Biotechnology
MCB 5205 Infectious Processes
MCB 5505 Molecular Virology
MCB 6417C Microbial Metabolism
MCB 5932 Current Topics in Molecular Biology
MCB 5415 Cellular Metabolism
MCB 5209 Microbial Stress Response
PCB 6595 Regulation of Gene Expression
PCB 5235 Molecular Immunology
MCB 5225 Molecular Biology of Disease
PCB 5238 Immunobiology
PCB 5275 Signal Transduction Mechanics

Other elective courses must be approved by the Program Coordinator.

Capstone: 3 Credit Hours

An in-depth current literature research report in the area of Infectious Disease will be required for each student. The student will select a faculty adviser to

chair a faculty committee of three members for evaluation of the report.

MCB 6026 Molecular Biology and Microbiology Capstone
(minimum)

The Capstone Process

Students are encouraged to contact faculty as early as possible in order to identify a faculty whose research focus complements the student's interest. The student and the mentor should select two additional faculty members to serve on the capstone evaluation committee.

Students must submit a signed Capstone Committee form to the Program Coordinator for approval as soon as the registration for the course is complete. The form must be submitted to the Program Office.

When you are ready to defend your Capstone project, you must register for the capstone course (MCB 6026) for three credit hours. It is important that the student register for the capstone course with the intention of completing the project at the end of the semester.

The Capstone Report

Evaluation of the capstone project requires a written report (in the format of a mini-review manuscript) and a presentation (project defense) in front of the capstone committee. No visitors are allowed during the capstone defense. Students may ask for advice and guidance from the project mentor/chair. The average capstone report ranges from 10 to 15 single-space pages in a manuscript format with proper citations. The

student's Committee Chair will be responsible for checking the report for plagiarism using either Turnitin or iThenticate before the report is shared with the committee. The committee must receive the report at least one week before the time of presentation.

Note: The defense (presentation) must be held no later than one week before final exam week.

The Capstone Defense/Comprehensive Exam

The capstone defense and comprehensive exam evaluation is designed to assess the student's knowledge and understanding of the project and other relevant subjects in the field. Questions asked by the capstone committee to evaluate the student as competent in the field will satisfy the requirement of the comprehensive exam. The oral presentation will take place in the form of a 30-40 minute seminar and will be followed by questions and discussion.

The student will be evaluated on performance in all three sections (written report, oral presentation and ability to answer questions).

Should the student fail, a second opportunity will be provided within two weeks of the first attempt. A second failure will result in an Unsatisfactory (U) grade in the course and dismissal from the program.

Comprehensive Examination

Students must pass an oral comprehensive exam to qualify for the Master of Science. The oral comprehensive exam tests the student's understanding of the basic concepts in the field and relevant applications. The comprehensive exam will be conducted during the capstone defense and will be

administered by the capstone committee. Should the student fail this exam, a second opportunity will be provided within two weeks of the first attempt. A second failure will result in dismissal from the program.

Teaching Requirement

Students without significant prior teaching experience, such as, but not limited to, a minimum of a year in secondary schools or colleges, are required to serve as Classroom Laboratory Assistants (CLA) for a minimum of one semester (one semester in at least one lab section).

Research Shadowing (Optional)

Students are encouraged to discuss with their capstone mentor the possibility of joining the lab for research shadowing of other graduate students. Acquired lab skills should assist students with the capstone project and with future endeavors.

Independent Learning

In the final semester of study students will complete a capstone course that requires an in-depth current literature research report on a relevant subject, which will serve as the independent learning experience. The student will select a faculty adviser to chair a faculty committee of three members for evaluation of the report.

Application Requirements

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

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

One official transcript (in a sealed envelope) from each college/university attended.

A bachelor's degree in Biological Sciences or related area.

Official, competitive GRE score (taken within the last five years) or MCAT score (taken within the last three years).

Three letters of recommendation.

A written statement of research experience, area of interest, and immediate and long-range goals.

Resume or CV.

Personal interviews are helpful but not required. Applicants who do not have a competitive GPA or GRE/MCAT may occasionally be accepted if there is other convincing evidence of potential for high achievement and success.

Applicants who hold a BS degree in unrelated fields are expected to have the equivalent of 16 semester hours of credit in the biological sciences including a course in general microbiology, biochemistry or molecular biology or cell biology, plus one year of organic chemistry, one year of physics, basic university mathematics and statistics, and laboratory skills equivalent to the minimum required of our own undergraduates. Minor deficiencies may be remedied after acceptance by enrollment at the first opportunity in an appropriate course.

Application Deadlines

Infectious Disease	*Fall Priority	Fall	Spring	Summer
Domestic Applicants	Jan 15	Jan 15	-	-
International Applicants	Jan 15	Jan 15	-	-
International Transfer Applicants	Jan 15	Jan 15	-	-
*Applicants who plan to enroll full time in a degree program and who wish to be considered for university fellowships or assistantships should apply by the Fall Priority date.				

Financials

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

Fellowships

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

student's graduate study and do not have a work obligation. For more information, see UCF Graduate Fellowships, which includes descriptions of university fellowships and what you should do to be considered for a fellowship.

Contact Info

Graduate Program

Saleh Naser PhD

Professor

saleh.naser@ucf.edu

Telephone: 407-823-0955

UCF College of Medicine

Graduate Admissions

Kourtney Siano

gradadmissions@ucf.edu

Telephone: 407-823-2766

Millican Hall 230

Online Application

Graduate Admissions

Mailing Address

UCF College of Graduate Studies

Millican Hall 230

PO Box 160112

Orlando, FL 32816-0112

Institution Codes

GRE: 5233

GMAT: RZT-HT-58

TOEFL: 5233

ETS PPI: 5233

Graduate Fellowships

Grad Fellowships

Telephone: 407-823-0127

gradfellowship@ucf.edu

https://funding.graduate.ucf.edu

Graduate Financial Aid

UCF Student Financial Assistance

Millican Hall 120

Telephone: 407-823-2827

Appointment Line: 407-823-5285

Fax: 407-823-5241

finaid@ucf.edu

http://finaid.ucf.edu

Impact on Current Students

Will students be moved from an existing program, track, or certificate into this new program, track, or certificate?* ○ Yes ◉ No

If yes, state the name of the program or track where students are currently enrolled and attach a list of students if possible:

Will students have the option to stay in their existing program, track, or certificate?* ○ Yes ◉ No

If yes, how will current students be impacted by this change?

Future Students

Provide a statement of who is likely to enroll and why. Please state if there is licensure or certification that depends upon this education, etc.

Year 1

Headcount:	SCHs:

Year 2

Headcount:	SCHs:

Year 3

Headcount:	SCHs:

Indicate likely career or student outcomes upon completion:	

Please complete the following section on financial support:

(Specify all forms of support – assistantships, fellowships, and tuition remission.)

Year 1

Number of assistantship students:	Source of funds:

Number of fellowship students (specify fellowship):	

Number of tuition remissions:	Source of funds:

Year 2

Number of assistantship students	Source of funds:

Number of fellowship students (specify fellowship):	
Number of tuition remissions:	**Source of funds:**

Year 3

Number of assistantship students:	**Source of funds:**
Number of fellowship students (specify fellowship):	
Number of tuition remissions:	**Source of funds:**

Attachments

Please attach any required files by navigating to the Proposal Toolbox and clicking in the top right corner.

Faculty List*	○ Attached ◉ Not Applicable
Support from involved units that no duplication exists*	○ Attached ◉ Not Applicable

Administration Use Only

Catalog Ownership:	Burnett School of Biomedical Sciences
Program OID	1973
Program Type	Master
Degree Type	Master of Science

Status* ◉ Active-Visible ○ Inactive-Hidden

Biomedical Sciences MS, Metabolic and Cardiovascular Sciences Track

2018-2019 Graduate Program Revision/Reactivation

General Catalog Information

Select *Program* below, unless creating an Acalog *Shared Core*.

A *Shared Core* is a set of curriculum set up in the online catalog (Acalog) to serve multiple program pages. For more information, contact the Curriculum Specialist.

Program Type* (•) Program ( ) Shared Core

Read before you begin

TURN ON help text before starting this proposal by clicking in the top right corner of the heading.

IMPORT curriculum data from the Catalog by clicking in the top left corner. FILL IN all fields required marked with an * after importing data. You will not be able to launch the proposal without completing required fields.

LAUNCH proposal by clicking in the top left corner. DO NOT make proposed changes before launching proposal. Changes will only be tracked after proposal is launched.

College / Department:* College of Medicine Burnett School of Biomedical Sciences

This form is to be used to REVISE graduate degree programs, tracks, or certificate programs. If there are tracks being added to the program, one form must be submitted for EACH program and the track(s).

Please refer to the Graduate Council Curriculum Meeting Schedule for submission deadlines.

Proposed Effective Term / Year* Immediately

Name of program, track and / or certificate:* Biomedical Sciences MS, Metabolic and Cardiovascular Sciences Track

Unit(s) Housing Program:

Type of Action:* ☐ Program ☑ Track ☐ Certificate

If you will be submitting other revision forms for tracks or course actions, please list them here:

Is the CIP code being updated? ☐ Yes ☐ No

If yes, please provide the new CIP code:

Description:*

College: Medicine	**Degree:** MS
Department: Burnett School of Biomedical Sciences	**Option:** Nonthesis
Program Websites: https://med.ucf.edu/biomed/graduate-programs/	

Rationale:

MS of Science in Biomedical Sciences is a nonthesis program with tracks in Neuroscience, Cancer Biology, Infectious disease, and Metabolic and Cardiovascualr Sciences. It is designed for students who wish to further their knowledge and training in the field in order to enhance their profile to pursue career in medicine, healthcare, and higher education. The curriculum has been revised in order to provide the students with more appropriate courses to help them better prepare and to become more competitive for achieving their future career goals and job market need.

Follow these steps to propose courses to the revised program curriculum:

Step 1

There are two options for adding courses: "Add Course" and "Import Course." For courses already in the catalog, click on "Import Course" and find the courses needed. For new classes going through a Curriculog Approval Process click on "Add Course"-- a box will open asking you for the Prefix, Course Number and Course Title.

Step 2

Click on "View Curriculum Schema." Click on the area/header of the program where you would like to add courses. When you click on "Add Courses" it will bring up the list of courses available from Step 1. Select the courses you wish to add. For removing courses click on the and proceed.

Prospective Curriculum*

Track Description

This track is no longer accepting applications for Fall 2018.

The Metabolic and Cardiovascular Sciences Track in the Master of Science in Biomedical Sciences Program is a nonthesis plan of study for students who want to further their knowledge in the metabolic and cardiovascular sciences field and who may pursue doctoral training or professional education focused on medicine and metabolic and cardiovascular sciences. Students interested in research and thesis work should apply to the Master of Science in Biotechnology Program.

Curriculum

The Metabolic and Cardiovascular Sciences Track in the Master of Science in Biomedical Sciences Program is a nonthesis plan of study for students who want to further their knowledge in the metabolic and cardiovascular sciences field and who may pursue doctoral training or professional education focused on medicine and metabolic and cardiovascular sciences. Students interested in research and thesis work should apply to the Master of Science in Biotechnology Program.

Total Credit Hours Required: 33 Credit Hours
Minimum beyond the Bachelor's Degree

Nonthesis students are not considered for departmental graduate assistantships or tuition assistance.

Required Courses: 18 Credit Hours

ZOO 6737 Clinically Oriented Human Anatomy
PCB 6595 Regulation of Gene Expression
MCB 6226 Molecular Diagnostics
PCB 5815 Molecular Aspects of Obesity, Diabetes and Metabolism
BSC 6407C Laboratory Methods in Molecular Biology
or

BSC 5418 Tissue Engineering

MCB 6938 - Seminar **1 Credit Hour** (to be repeated by all students) or

MCB 6314 Industrial Perspectives Seminar

Elective Courses: 12 Credit Hours

MCB 5415 Cellular Metabolism
PCB 5834C Advanced Human Physiology
PCB 5265 Stem Cell Biology
CHM 5305 Applied Biological Chemistry
BSC 5436 Biomedical Informatics : Structure Analysis
BSC 5418 Tissue Engineering
PCB 5709C Laboratory Virtual Simulations in Physiology
MCB 5225 Molecular Biology of Disease
PET 6366 Exercise, Nutrition and Weight Control
PET 6388 Cardiovascular Physiology

Other elective courses must be approved by the Program Coordinator.

Capstone: 3 Credit Hours

An in-depth current literature research report in the area of Metabolic and Cardiovascular Sciences will be required for each student. The student will select a faculty adviser to chair a faculty committee of three members for evaluation of the report.

MCB 6026 Molecular Biology and Microbiology Capstone
(minimum)

The Capstone Process

Students are encouraged to contact faculty as early as possible in order to identify a faculty whose research focus complements the student's interest. The student and the mentor should select two additional faculty members to serve on the capstone evaluation committee.

Students must submit a signed Capstone Committee form to the Program Coordinator for approval as soon as the registration for the course is complete. The form must be submitted to the Program Office.

When you are ready to defend your Capstone project, you must register for the capstone course (MCB 6026) for three credit hours. It is important that the student register for the capstone course with the intention of completing the project at the end of the semester.

The Capstone Report

Evaluation of the capstone project requires a written report (in the format of a mini-review manuscript) and a presentation (project defense) in front of the capstone committee. No visitors are allowed during the capstone defense. Students may ask for advice and guidance from the project mentor/chair. The average capstone report ranges from 10 to 15 single-space pages in a manuscript format with proper citations. The student's Committee Chair will be responsible for checking the report for plagiarism using either Turnitin or iThenticate before the report is shared with the committee. The committee must receive the report at least one week before the time of presentation.

Note: The defense (presentation) must be held no later than one week before final exam week.

The Capstone Defense/Comprehensive Exam

The capstone defense and comprehensive exam evaluation is designed to assess the student's knowledge and understanding of the project and other relevant subjects in the field. Questions asked by the capstone committee to evaluate the student as competent in the field will satisfy the requirement of the comprehensive exam. The oral presentation will take place in the form of a 30-40 minute seminar and will be followed by questions and discussion.

The student will be evaluated on performance in all three sections (written report, oral presentation and ability to answer questions).

Should the student fail, a second opportunity will be provided within two weeks of the first attempt. A second failure will result in an Unsatisfactory

(U) grade in the course and dismissal from the program.

Comprehensive Examination

Students must pass an oral comprehensive exam to qualify for the Master of Science. The oral comprehensive exam tests the student's understanding of the basic concepts in the field and relevant applications. The comprehensive exam will be conducted during the capstone defense and will be administered by the capstone committee. Should the student fail this exam, a second opportunity will be provided within two weeks of the first attempt. A second failure will result in dismissal from the program.

Teaching Requirement

Students without significant prior teaching experience, such as, but not limited to, a minimum of a year in secondary schools or colleges, are required to serve as Classroom Laboratory Assistants (CLA) for a minimum of one semester (one semester in at least one lab section).

Research Shadowing (Optional)

Students are encouraged to discuss with their capstone mentor the possibility of joining the lab for research shadowing of other graduate students. Acquired lab skills should assist students with the capstone project and with future endeavors.

Independent Learning

In the final semester of study students will complete a capstone course that requires an in-depth current literature research report on a relevant subject, which will serve as the independent learning experience. The student will select a faculty adviser to chair a faculty committee of three members for evaluation of the report.

Application Requirements

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

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

- One official transcript (in a sealed envelope) from each college/university attended.
- A bachelor's degree in Biological Sciences or related area.
- Official, competitive GRE score (taken within the last five years) or MCAT score (taken within the last three years).
- Three letters of recommendation.
- A written statement of research experience, area of interest, and immediate and long-range goals.
- Resume or CV.

Personal interviews are helpful but not required. Applicants who do not have a competitive GPA or GRE/MCAT may occasionally be accepted if there is other convincing evidence of potential for high achievement and success.

Applicants who hold a BS degree in unrelated fields are expected to have the equivalent of 16 semester hours of credit in the biological sciences including a course in general microbiology, biochemistry or molecular biology or cell biology, plus one year of organic chemistry, one year of

physics, basic university mathematics and statistics, and laboratory skills equivalent to the minimum required of our own undergraduates. Minor deficiencies may be remedied after acceptance by enrollment at the first opportunity in an appropriate course.

Application Deadlines

Metabolic and Cardiovascular Sciences	*Fall Priority	Fall	Spring	Summer
Domestic Applicants	Jan 15	Jan 15	-	-
International Applicants	Jan 15	Jan 15	-	-
International Transfer Applicants	Jan 15	Jan 15	-	-

***Applicants who plan to enroll full time in a degree program and who wish to be considered for university fellowships or assistantships should apply by the Fall Priority date.**

Financials

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

Fellowships

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

Contact Info

Graduate Program

Saleh Naser PhD

Professor

saleh.naser@ucf.edu

Telephone: 407-823-0955

UCF College of Medicine

Graduate Admissions

Kourtney Siano

gradadmissions@ucf.edu

Telephone: 407-823-2766

Millican Hall 230

Online Application

Graduate Admissions

Mailing Address

UCF College of Graduate Studies

Millican Hall 230

PO Box 160112

Orlando, FL 32816-0112

Institution Codes

GRE: 5233

GMAT: RZT-HT-58

TOEFL: 5233

ETS PPI: 5233

Graduate Fellowships

Grad Fellowships

Telephone: 407-823-0127

gradfellowship@ucf.edu

https://funding.graduate.ucf.edu

Graduate Financial Aid

UCF Student Financial Assistance

Millican Hall 120

Telephone: 407-823-2827

Appointment Line: 407-823-5285

Fax: 407-823-5241

finaid@ucf.edu

http://finaid.ucf.edu

Impact on Current Students

Will students be moved from an existing program, track, or certificate into this new program, track, or certificate?* ○ Yes ◉ No

If yes, state the name of the program or track where students are currently enrolled and attach a list of students if possible:

Will students have the option to stay in their existing program, track, or certificate?* ○ Yes ◉ No

If yes, how will current students be impacted by this change?

Future Students

Provide a statement of who is likely to enroll and why. Please state if there is licensure or certification that depends upon this education, etc.

Year 1

Headcount:	SCHs:

Year 2

Headcount:	SCHs:

Year 3

Headcount:	SCHs:

Indicate likely career or student outcomes upon completion:

Please complete the following section on financial support:

(Specify all forms of support – assistantships, fellowships, and tuition remission.)

Year 1

Number of assistantship students:	**Source of funds:**
Number of fellowship students (specify fellowship):	
Number of tuition remissions:	**Source of funds:**

Year 2

Number of assistantship students	**Source of funds:**
Number of fellowship students (specify fellowship):	
Number of tuition remissions:	**Source of funds:**

Year 3

Number of assistantship students:	**Source of funds:**
Number of fellowship students (specify fellowship):	
Number of tuition remissions:	**Source of funds:**

Attachments

Please attach any required files by navigating to the Proposal Toolbox and clicking in the top right corner.

Faculty List* Attached Not Applicable

Support from involved units that no duplication exists* ○ Attached ◉ Not Applicable

Administration Use Only

Catalog Ownership: Burnett School of Biomedical Sciences

Program OID 1975

Program Type Master

Degree Type Master of Science

Status* ◉ Active-Visible ○ Inactive-Hidden

Biomedical Sciences MS, Neuroscience Track

2018-2019 Graduate Program Revision/Reactivation

General Catalog Information

Select *Program* below, unless creating an Acalog *Shared Core*.

A *Shared Core* is a set of curriculum set up in the online catalog (Acalog) to serve multiple program pages. For more information, contact the Curriculum Specialist.

Program Type*	(•) Program ( ) Shared Core

Read before you begin

TURN ON help text before starting this proposal by clicking in the top right corner of the heading.

IMPORT curriculum data from the Catalog by clicking in the top left corner. FILL IN all fields required marked with an * after importing data. You will not be able to launch the proposal without completing required fields.

LAUNCH proposal by clicking in the top left corner. DO NOT make proposed changes before launching proposal. Changes will only be tracked after proposal is launched.

College / Department:*	College of Medicine Burnett School of Biomedical Sciences

This form is to be used to REVISE graduate degree programs, tracks, or certificate programs. If there are tracks being added to the program, one form must be submitted for EACH program and the track(s).

Please refer to the Graduate Council Curriculum Meeting Schedule for submission deadlines.

Proposed Effective Term / Year*	Immediately
Name of program, track and / or certificate:*	Biomedical Sciences MS, Neuroscience Track
Unit(s) Housing Program:	

Type of Action:* ☐ Program ☑ Track ☐ Certificate

If you will be submitting other revision forms for tracks or course actions, please list them here:

Is the CIP code being updated? ☐ Yes ☐ No

If yes, please provide the new CIP code:

Description:*

College: Medicine	**Degree:** MS
Department: Burnett School of Biomedical Sciences	**Option:** Nonthesis
Program Websites: https://med.ucf.edu/biomed/graduate-programs/	

Rationale:

MS of Science in Biomedical Sciences is a nonthesis program with tracks in Neuroscience, Cancer Biology, Infectious disease, and Metabolic and Cardiovascualr Sciences. It is designed for students who wish to further their knowledge and training in the field in order to enhance their profile to pursue career in medicine, healthcare, and higher education. The curriculum has been revised in order to provide the students with more appropriate courses to help them better prepare and to become more competitive for achieving their future career goals and job market need.

Follow these steps to propose courses to the revised program curriculum:

Step 1

There are two options for adding courses: "Add Course" and "Import Course." For courses already in the catalog, click on "Import Course" and find the courses needed. For new classes going through a Curriculog Approval Process click on "Add Course"-- a box will open asking you for the Prefix, Course Number and Course Title.

Step 2

Click on "View Curriculum Schema." Click on the area/header of the program where you would like to add courses. When you click on "Add Courses" it will bring up the list of courses available from Step 1. Select the courses you wish to add. For removing courses click on the and proceed.

Prospective Curriculum*

Track Description

This track is no longer accepting applications for Fall 2018.

The Neuroscience Track in the Master of Science in Biomedical Sciences Program is a nonthesis plan of study for students who want to further their knowledge in the neuroscience field and who may pursue doctoral training or professional education focused on medicine and neuroscience. Students interested in research and thesis work should apply to the Master of Science in Biotechnology Program.

Curriculum

The Neuroscience Track in the Biomedical Sciences MS program requires a minimum of 33 credit hours of courses that includes a capstone experience. Students take 18 credit hours of required core courses, 12 credit hours of elective courses relevant to neuroscience, a capstone project focusing on neuroscience and an oral comprehensive exam.

Total Credit Hours Required: 33 Credit Hours Minimum beyond the Bachelor's Degree

Nonthesis students are not considered for departmental graduate assistantships or tuition assistance.

Required Courses: 18 Credit Hours

ZOO 6737 Clinically Oriented Human Anatomy
PCB 6595 Regulation of Gene Expression
MCB 6226 Molecular Diagnostics
PCB 5837 Cellular and Molecular Neuroscience
BSC 6407C Laboratory Methods in Molecular Biology
or

BSC 5418 Tissue Engineering

MCB 6938 - Seminar **1 Credit Hour** (to be repeated by all students) or

MCB 6314 Industrial Perspectives Seminar

Elective Courses: 12 Credit Hours

SPA 6417 Cognitive/Communicative Disorders
PCB 5275 Signal Transduction Mechanics
ZOO 5748C Clinical Neuroanatomy
ZOO 5749C Clinical Neuroscience
CAP 6616 Neuroevolution and Generative and Developmental Systems
PCB 5838 Cellular and Molecular Basis of Brain Functions
BSC 5418 Tissue Engineering
PCB 5709C Laboratory Virtual Simulations in Physiology
MCB 5225 Molecular Biology of Disease
PCB 5834C Advanced Human Physiology
EXP 5254 Human Factors and Aging
IDS 6916 Simulation Research Methods and Practicum
EXP 5208 Sensation and Perception
PSB 5005 Physiological Psychology
EXP 6116 Visual Performance
EXP 6506 Human Cognition and Learning
PSB 6348 The Neuroanatomical Basis of Psychological Function
PSB 6328 Psychophysiology
PSB 6352 Neuroimaging Design and Analysis Methods

Other elective courses must be approved by the Program Coordinator.

Capstone: 3 Credit Hours

An in-depth current literature research report in the area of Neuroscience will be required for each student. The student will select a faculty adviser to chair a faculty committee of three members for evaluation of the report.

MCB 6026 Molecular Biology and Microbiology Capstone
(minimum)

The Capstone Process

Students are encouraged to contact faculty as early as possible in order to identify a faculty whose research focus complements the student's interest. The student and the mentor should select two additional faculty members to serve on the capstone evaluation committee.

Students must submit a signed Capstone Committee form to the Program Coordinator for approval as soon as the registration for the course is complete. The form must be submitted to the Program Office.

When you are ready to defend your Capstone project, you must register for the capstone course (MCB 6026) for three credit hours. It is important that the student register for the capstone course with the intention of completing the project at the end of the semester.

The Capstone Report

Evaluation of the capstone project requires a written report (in the format of a mini-review manuscript) and a presentation (project defense) in front of the capstone committee. No visitors are allowed during the capstone defense. Students may ask for advice and guidance from the project mentor/chair. The average capstone report ranges from 10 to 15 single-space pages in a manuscript format with proper citations. The student's Committee Chair will be responsible for checking the report for plagiarism using either Turnitin or iThenticate before the report is shared with the committee. The committee must receive the report at least one week before the time of presentation.

Note: The defense (presentation) must be held no later than one week before final exam week.

The Capstone Defense/Comprehensive Exam

The capstone defense and comprehensive exam evaluation is designed to assess the student's knowledge and understanding of the project and other relevant subjects in the field. Questions asked by the capstone committee to evaluate the student as competent in the field will satisfy the requirement of the comprehensive exam. The oral presentation will take place in the form of a 30-40 minute seminar and will be followed by questions and discussion.

The student will be evaluated on performance in all three sections (written report, oral presentation and ability to answer questions).

Should the student fail, a second opportunity will be provided within two weeks of the first attempt. A second failure will result in an Unsatisfactory

(U) grade in the course and dismissal from the program.

Comprehensive Examination

Students must pass an oral comprehensive exam to qualify for the Master of Science. The oral comprehensive exam tests the student's understanding of the basic concepts in the field and relevant applications. The comprehensive exam will be conducted during the capstone defense and will be administered by the capstone committee. Should the student fail this exam, a second opportunity will be provided within two weeks of the first attempt. A second failure will result in dismissal from the program.

Teaching Requirement

Students without significant prior teaching experience, such as, but not limited to, a minimum of a year in secondary schools or colleges, are required to serve as Graduate Teaching Assistants for a minimum of one semester (one semester in at least one lab section).

Research Shadowing (Optional)

Students are encouraged to discuss with their capstone mentor the possibility of joining the lab for research shadowing of other graduate students. Acquired lab skills should assist students with the capstone project and with future endeavors.

Independent Learning

In the final semester of study students will complete a capstone course that requires an in-depth current literature research report on a relevant subject, which will serve as the independent learning experience. The student will select a faculty adviser to chair a faculty committee of three members for evaluation of the report.

Application Requirements

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

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

- **One official transcript (in a sealed envelope) from each college/university attended.**
- **A bachelor's degree in Biological Sciences or related area.**
- **Official, competitive GRE score (taken within the last five years) or MCAT score (taken within the last three years).**
- **Three letters of recommendation.**
- **A written statement of research experience, area of interest, and immediate and long-range goals.**
- **Resume or CV.**

Personal interviews are helpful but not required. Applicants who do not have a competitive GPA or GRE/MCAT may occasionally be accepted if there is other convincing evidence of potential for high achievement and success.

Applicants who hold a BS degree in unrelated fields are expected to have the equivalent of 16 semester hours of credit in the biological sciences including a course in general microbiology, biochemistry or molecular biology or cell biology, plus one year of organic chemistry, one year of physics, basic university mathematics and statistics, and

laboratory skills equivalent to the minimum required of our own undergraduates. Minor deficiencies may be remedied after acceptance by enrollment at the first opportunity in an appropriate course.

Application Deadlines

Neuroscience	*Fall Priority	Fall	Spring	Summer
Domestic Applicants	Jan 15	Jan 15	-	-
International Applicants	Jan 15	Jan 15	-	-
International Transfer Applicants	Jan 15	Jan 15	-	-

*Applicants who plan to enroll full time in a degree program and who wish to be considered for university fellowships or assistantships should apply by the Fall Priority date.

Financials

Graduate students may receive financial assistance through fellowships, assistantships, tuition support, or loans. For

more information, see the College of Graduate Studies Funding website, which describes the types of financial assistance available at UCF and provides general guidance in planning your graduate finances. The Financial Information section of the Graduate Catalog is another key resource.

Fellowships

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

Contact Info

Graduate Program

Saleh Naser PhD

Professor

saleh.naser@ucf.edu

Telephone: 407-823-0955

UCF College of Medicine

Graduate Admissions

Kourtney Siano

gradadmissions@ucf.edu

Telephone: 407-823-2766

Millican Hall 230

Online Application

Graduate Admissions

Mailing Address

UCF College of Graduate Studies

Millican Hall 230

PO Box 160112

Orlando, FL 32816-0112

Institution Codes

GRE: 5233

GMAT: RZT-HT-58

TOEFL: 5233

ETS PPI: 5233

Graduate Fellowships

Grad Fellowships

Telephone: 407-823-0127

gradfellowship@ucf.edu

https://funding.graduate.ucf.edu

Graduate Financial Aid

UCF Student Financial Assistance

Millican Hall 120

Telephone: 407-823-2827

Appointment Line: 407-823-5285

Fax: 407-823-5241

finaid@ucf.edu

http://finaid.ucf.edu

Impact on Current Students

Will students be moved from an existing program, track, or certificate into this new program, track, or certificate?* ○ Yes ◉ No

If yes, state the name of the program or track where students are currently enrolled and attach a list of students if possible:

Will students have the option to stay in their existing program, track, or certificate?* ○ Yes ◉ No

If yes, how will current students be impacted by this change?

Future Students

Provide a statement of who is likely to enroll and why. Please state if there is licensure or certification that depends upon this education, etc.

Year 1

Headcount:	SCHs:

Year 2

Headcount:	SCHs:

Year 3

Headcount:	SCHs:

Indicate likely career or student outcomes upon completion:

Please complete the following section on financial support:

(Specify all forms of support – assistantships, fellowships, and tuition remission.)

Year 1

Number of assistantship students:	**Source of funds:**
Number of fellowship students (specify fellowship):	
Number of tuition remissions:	**Source of funds:**

Year 2

Number of assistantship students	**Source of funds:**
Number of fellowship students (specify fellowship):	
Number of tuition remissions:	**Source of funds:**

Year 3

Number of assistantship students:	**Source of funds:**
Number of fellowship students (specify fellowship):	
Number of tuition remissions:	**Source of funds:**

Attachments

Please attach any required files by navigating to the Proposal Toolbox and clicking in the top right corner.

Faculty List*	○ Attached ◉ Not Applicable
Support from involved units that no	○ Attached ◉ Not Applicable

duplication exists*

Administration Use Only

Catalog Ownership: Burnett School of Biomedical Sciences

Program OID 1976

Program Type Master

Degree Type Master of Science

Status* (•) Active-Visible ( ) Inactive-Hidden

MS Biomedical Sciences - Genetic Counseling Track

2018-2019 Graduate Program Termination

General Catalog Information

Select *Program* below, unless creating an Acalog *Shared Core*.

A *Shared Core* is a set of curriculum set up in the online catalog (Acalog) to serve multiple program pages. For more information, contact the Curriculum Specialist.

Program Type* (•) Program ( ) Shared Core

Read before you begin

TURN ON help text before starting this proposal by clicking in the top right corner of the heading.

IMPORT curriculum data from the Catalog by clicking in the top left corner. FILL IN all fields required marked with an * after importing data. You will not be able to launch the proposal without completing required fields.

LAUNCH proposal by clicking in the top left corner. DO NOT make proposed changes before launching proposal. Changes will only be tracked after proposal is launched.

College / Department:* College of Medicine Burnett School of Biomedical Sciences

Type of Proposal:
- [ ] Termination
- [ ] Suspension
- [x] Inactivation

This form is to be used to INACTIVATE/SUSPEND degree programs, tracks, or certificate programs. Please note that inactivating or suspending a program, track, or certificate is an internal procedure for stopping enrollment and course activity within that plan of study. To completely "close" a degree program you must "terminate" the program.

Please refer to the Graduate Council Curriculum Meeting Schedule for submission deadlines.

Proposed Effective Term / Year: College of Medicine Burnett School of Biomedical Sciences

Name of program, track and / or certificate:*	MS Biomedical Sciences - Genetic Counseling Track
Unit(s) Housing Program:	
Type of Action:*	☐ Program ☑ Track ☐ Certificate
If the inactivation applies to multiple tracks, please list them here:	
Description:*	MS Biomedical Sciences-Genetic Counseling track is designed to provide the students with a curriculum that meets the standards for accreditation by the Accreditation Council of Genetic Counseling (ACGC). The ACGC is the national accrediting body for genetic counseling degree programs. The didactic and clinical training/fieldwork elements of the curriculum are designed to prepare students for the national certification exam administered by the American Board of Genetic Counselors (ABGC). We request the inactivation of the PSM track because of have not been able to obtain adequate clinical sites within the Orlando area and the college does not have the resources to continue the program in its current format.
Rationale:	

Follow these steps to propose courses to the revised program curriculum:

Step 1

There are two options for adding courses: "Add Course" and "Import Course." For courses already in the catalog, click on "Import Course" and find the courses needed. For new classes going through a Curriculog Approval Process click on "Add Course"-- a box will open asking you for the Prefix, Course Number and Course Title.

Step 2

Click on "View Curriculum Schema." Click on the area/header of the program where you would like to add courses. When you click on "Add Courses" it will bring up the list of courses available from Step 1. Select the courses you wish to add. For removing courses click on the and proceed

Prospective Curriculum*

Impact on Current Students

Are students currently enrolled in the program?* Yes No

If yes, number of current students:

Attach a "teach out" plan for all current students specifying how they can finish the program or where students will be placed if moving to another program. The "teach out" plan should specify when courses will be offered to enable students to finish. Specify whether students will remain in the existing program to finish, and if yes, when the completion date will be, whether students will be moved to another program, etc.

Enter the terms and courses that will be taught for each term throughout the last semester:

Fall

Courses

Spring

Courses

Summer

Courses

Fall

Courses

Spring

Courses

Attachments

Please attach any required files by navigating to the Proposal Toolbox and clicking in the top right corner.

Written Agreement for Involved* ○ Attached ◉ Not Applicable

Teach Out Plan* ○ Attached ◉ Not Applicable

Program Termination

To terminate all degree programs within a given CIP code, at a given level (i.e., master's, specialist, doctorate, professional program), attach the Board of Governors Academic Degree Program Termination Form, along with all required information. Once termination is approved through the Board of Trustees and Board of Governors, a full degree proposal would be required to offer the program in the future.

Termination Materials* ○ Attached ◉ Not Applicable

Program Suspension

To suspend a degree program or track at a given level (i.e., master's, specialist, doctorate, professional program), attach the Board of Governors Temporary Suspension of New Enrollments in an Academic Program form, along with all required information.

Suspension Materials* ○ Attached ◉ Not Applicable

Administration Use Only

Catalog Ownership:

Program OID

Program Type

Degree Type

Status* ◉ Active-Visible ○ Inactive-Hidden

UNIVERSITY OF CENTRAL FLORIDA
COLLEGE OF GRADUATE STUDIES

NEW FORM – BEGINNING FALL 2015

Program Recommendation Form - INACTIVATIONS / SUSPENSIONS ONLY

This form is to be used to **INACTIVATE** or **SUSPEND** degree programs, tracks, or certificate programs.

Please refer to the Graduate Council Curriculum Meeting Schedule for submission deadlines.

Checklist of Items to be attached with completed form:

☐ If applicable, a written agreement from all involved units that they are in support of this inactivation or suspension.

☐ If applicable, attach a teach out plan.

College/Unit(s) Submitting Proposal: COM-BSBS

☑ **INACTIVATION - Proposed Effective Term/Year:** Fall 2018

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

☐ **SUSPENSION - Proposed Effective Term/Year:** _____

Admissions will be temporarily suspended for new students and the program will be removed from the online application. A notation will be entered in the graduate catalog indicating the program is not accepting applications. Currently enrolled students will not experience any issues with continued enrollment. Suspension is limited to no more than three years.

Unit(s) Housing Program: Burnett School of Biomedical Sciences

Name of program, track and/or certificate: MS Biomedical Sciences-Genetic Counseling track

Please check all that apply: This action affects a: ☐ **Program** ☑ **Track** ☐ **Certificate**

If the inactivation/suspension applies to multiple tracks, please list them here:

Brief description of **program and rationale** for the inactivation/suspension: **Do not add complete catalog copy here.**

MS Biomedical Sciences-Genetic Counseling track is designed to provide the students with a curriculum that meets the standards for accreditation by the Accreditation Council of Genetic Counseling (ACGC). The ACGC is the national accrediting body for genetic counseling degree programs. The didactic and clinical training/fieldwork elements of the curriculum are designed to prepare students for the national certification exam administered by the American Board of Genetic Counselors (ABGC).

We request the inactivation of the PSM track because of have not been able to obtain adequate clinical sites within the Orlando area and the college does not have the resources to continue the program in its current format

Impact on Current Students

Are students currently enrolled in the program? ☐ Yes ☐ No

If yes, number of current students: _____

If program, track, or certificate is being inactivated or suspended, then attach a "teach out" plan for all current students specifying how they can finish the program or where students will be placed if moving to another program. The "teach out" plan should specify when courses will be offered to enable students to finish. Specify whether students will remain in the existing program to finish, and if yes, when the completion date will be, whether students will be moved to another program, etc.

Enter the terms and courses that will be taught for each term throughout the last semester.

Fall	Spring	Summer	Fall	Spring

Signature Page

Recommend Approval (all approval levels must be signed)

Department Chair /Director **(Print)** _____ **(Signature)** _____ **Date** _____

College Academic Standards **(Print)** _____ **(Signature)** _____ **Date** _____

College Dean **(Print)** Richard D. Peppler **(Signature)** _____ **Date** 8/28/18

Graduate Council **(Print)** _____ **(Signature)** _____ **Date** _____

Graduate Dean **(Print)** _____ **(Signature)** _____ **Date** _____

Approval

Provost and Executive Vice President: _____ **Date** _____

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

Department(s); College; Registrar; Associate Registrar; Institutional Knowledge Management; Academic Services; College of Graduate Studies

MS Biotechnology - Professional Science Masters Track

2018-2019 Graduate Program Termination

General Catalog Information

Select *Program* below, unless creating an Acalog *Shared Core*.

A *Shared Core* is a set of curriculum set up in the online catalog (Acalog) to serve multiple program pages. For more information, contact the Curriculum Specialist.

Program Type* (•) Program
( ) Shared Core

Read before you begin

TURN ON help text before starting this proposal by clicking in the top right corner of the heading.

IMPORT curriculum data from the Catalog by clicking in the top left corner. FILL IN all fields required marked with an * after importing data. You will not be able to launch the proposal without completing required fields.

LAUNCH proposal by clicking in the top left corner. DO NOT make proposed changes before launching proposal. Changes will only be tracked after proposal is launched.

College / Department:* College of Medicine Burnett School of Biomedical Sciences

Type of Proposal: [x] Inactivation
[ ] Suspension

This form is to be used to INACTIVATE/SUSPEND degree programs, tracks, or certificate programs.

Please refer to the Graduate Council Curriculum Meeting Schedule for submission deadlines.

Proposed Effective Term / Year: College of Medicine Burnett School of Biomedical Sciences

Name of program, track and / or certificate:* MS Biotechnology - Professional Science Masters Track

Unit(s) Housing Program:	
Type of Action:*	☐ Program ☑ Track ☐ Certificate
If the inactivation applies to multiple tracks, please list them here:	
Description:*	MS Biotechnology-PSM track is designed to prepare students with knowledge and training in Biotechnology and Business Administration. We request the inactivation of the PSM track due to: 1. minimum interest in the track and low number of applications received for multiple years. 2. low enrollment for multiple years 3. limited availability of required business courses 4. limited available internship opportunity 5. high credit hours for the degree (42 credit hour)
Rationale:	

Follow these steps to propose courses to the revised program curriculum:

Step 1

There are two options for adding courses: "Add Course" and "Import Course." For courses already in the catalog, click on "Import Course" and find the courses needed. For new classes going through a Curriculog Approval Process click on "Add Course"-- a box will open asking you for the Prefix, Course Number and Course Title.

Step 2

Click on "View Curriculum Schema." Click on the area/header of the program where you would like to add courses. When you click on "Add Courses" it will bring up the list of courses available from Step 1. Select the courses you wish to add. For removing courses click on the and proceed

Prospective Curriculum*

Impact on Current Students

Are students currently enrolled in the program?* (•) Yes ( ) No

If yes, number of current students: 2

Attach a "teach out" plan for all current students specifying how they can finish the program or where students will be placed if moving to another program. The "teach out" plan should specify when courses will be offered to enable students to finish. Specify whether students will remain in the existing program to finish, and if yes, when the completion date will be, whether students will be moved to another program, etc.

Enter the terms and courses that will be taught for each term throughout the last semester:

Fall

Courses

Spring

Courses

Summer

Courses

Fall

Courses

Spring

Courses

Attachments

Please attach any required files by navigating to the Proposal Toolbox and clicking in the top right corner.

Written Agreement for Involved* ○ Attached ◉ Not Applicable

Teach Out Plan* ◉ Attached ○ Not Applicable

Program Termination

To terminate all degree programs within a given CIP code, at a given level (i.e., master's, specialist, doctorate, professional program), attach the Board of Governors Academic Degree Program Termination Form, along with all required information. Once termination is approved through the Board of Trustees and Board of Governors, a full degree proposal would be required to offer the program in the future.

Termination Materials* ○ Attached ◉ Not Applicable

Program Suspension

To suspend a degree program or track at a given level (i.e., master's, specialist, doctorate, professional program), attach the Board of Governors Temporary Suspension of New Enrollments in an Academic Program form, along with all required information.

Suspension Materials* ○ Attached ◉ Not Applicable

Administration Use Only

Catalog Ownership:

Program OID

Program Type

Degree Type

Status* ◉ Active-Visible ○ Inactive-Hidden

UNIVERSITY OF CENTRAL FLORIDA
COLLEGE OF GRADUATE STUDIES

NEW FORM – BEGINNING FALL 2015

Program Recommendation Form - INACTIVATIONS / SUSPENSIONS ONLY

This form is to be used to **INACTIVATE** or **SUSPEND** degree programs, tracks, or certificate programs.

Please refer to the Graduate Council Curriculum Meeting Schedule for submission deadlines.

Checklist of Items to be attached with completed form:

☐ If applicable, a written agreement from all involved units that they are in support of this inactivation or suspension.

☐ If applicable, attach a teach out plan.

College/Unit(s) Submitting Proposal: COM-BSBS

☑ **INACTIVATION - Proposed Effective Term/Year:** Fall 2019

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

☐ **SUSPENSION - Proposed Effective Term/Year:** _____

Admissions will be temporarily suspended for new students and the program will be removed from the online application. A notation will be entered in the graduate catalog indicating the program is not accepting applications. Currently enrolled students will not experience any issues with continued enrollment. Suspension is limited to no more than three years.

Unit(s) Housing Program: Burnett School of Biomedical Sciences

Name of program, track and/or certificate: MS Biotechnology-Professional Science Master track

Please check all that apply: This action affects a: ☐ **Program** ☑ **Track** ☐ **Certificate**

If the inactivation/suspension applies to multiple tracks, please list them here:

Brief description of **program and rationale** for the inactivation/suspension: **Do not add complete catalog copy here.**

MS Biotechnology-PSM track is designed to prepare students with knowledge and training in Biotechnology and Business Administration.
We request the inactivation of the PSM track due to:
1. minimum interest in the track and low number of applications received for multiple years.
2. low enrollment for multiple years
3. limited availability of required business courses
4. limited available internship opportunity
5. high credit hours for the degree (42 credit hour)

Impact on Current Students

Are students currently enrolled in the program? ☑ Yes ☐ No

If yes, number of current students: 2

If program, track, or certificate is being inactivated or suspended, then attach a "teach out" plan for all current students specifying how they can finish the program or where students will be placed if moving to another program. The "teach out" plan should specify when courses will be offered to enable students to finish. Specify whether students will remain in the existing program to finish, and if yes, when the completion date will be, whether students will be moved to another program, etc.

Enter the terms and courses that will be taught for each term throughout the last semester.

Fall	Spring	Summer	Fall	Spring
no change	no change	no change	no change	no change

Signature Page

Recommend Approval (all approval levels must be signed)

Department Chair /Director (Print) _____ (Signature) Griffith Parks Digitally signed by Griffith Parks DN: cn=Griffith Parks, o=University of Central Florida, ou=Burnett School of Biomedical Sciences, email=Griffith.Parks@ucf.edu, c=US Date: 2018.08.27 17:29:27 -04'00' **Date** _____

College Academic Standards (Print) nasers (Signature) _____ Digitally signed by nasers DN: dc=edu, dc=ucf, dc=net, ou=People, cn=nasers, email=Saleh.Naser@ucf.edu Date: 2018.08.27 16:51:15 -04'00' **Date** _____

College Dean (Print) Richard D. Peppler (Signature) Richard Peppler Digitally signed by Richard Peppler DN: cn=Richard Peppler, o=University of Central Florida, College of Medicine, ou, email=pep@cfl.rr.com, c=US Date: 2018.08.28 06:59:45 -04'00' **Date** 8/28/18

Graduate Council (Print) _____ (Signature) _____ **Date** _____

Graduate Dean (Print) _____ (Signature) _____ **Date** _____

Approval

Provost and Executive Vice President: _____ **Date** _____

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

Department(s); College; Registrar; Associate Registrar; Institutional Knowledge Management; Academic Services; College of Graduate Studies

Teach Out Plan:

We have 2 students currently in MS Biotechnology-Professional Science track.

One of the students has 1 professional business course and 1 independent study course. He is on schedule to graduate by Spring 2019.

The other student has 1 Biotechnology course and 1 professional courses, and internship left. He plans to graduate in by Summer 2019.

Although we are requesting inactivating the PSM tracks, none of the courses listed in the track curriculum have been changed or removed. These courses are required for other programs and tracks in BSBS.

Graduate Council Curriculum Committee
September 26, 2018
2:30 p.m., Millican Hall 395E

Course Agenda

1.Course Additions

College of Engineering and Computer Science course additions

EEL - 5464 - Introduction to Sensors (split level course)
EEL - 6251 - Power System Optimization
EEL - 6253 - Power System Resilience
EIN - 5115 - Management Information Systems in Health Systems
EIN - 6141 - Healthcare Systems Engineering Capstone
EIN - 6358 - Advanced Engineering Economics in Health Systems
ESI - 5218 - Statistics in Health Systems
ESI - 5534 - Discrete Event Simulation in Health Systems
ESI - 6226 - Quality Management in Health Systems
ESI - 6352 - Risk Assessment & Management in Health Systems

2.Course Revisions

College of Engineering and Computer Science course revisions

EEL - 5245 - Power Electronics
The contact hours are being changed as the course currently has only lecture and no labs or discussion sessions- 3(2,1) changed to 3(3,0). Changed course number from 5245C to 5245.

EEL - 5439C - RF and Microwave ~~Communications~~ Active Circuits
The title and description of this course are outdated. The new course title and description fit the content of the course much better. Also updating the prerequisites to reflect the dual courses EEL 4436C/EEL 5437C.
Description:
~~RF and~~ Transmission line, microwave ~~active circuits microstrip~~ network theory, impedance matching, noise, power gain amplifier, low noise amplifier, power amplifier, oscillator, ~~and~~ mixer ~~design~~ and ~~fabrication. Receiver design, noise, familiarization with network and spectrum analyzers~~ microwave communication system.

EIN - 5248 – Ergonomics
Deleting the laboratory requirements since many available expert system/simulation softwares can replace laboratory experimentations-3(2,2) changed to 3(3,0). Changed course number from 5248C to 5248. Prerequisites: EIN 4360 or C.I.
Description:

Applications of anthropometry, functional anatomy, mechanics, and physiology of ~~musculoskeletal~~ musculo-skeletal system concepts in the ~~engineering~~ design of industrial tools, equipments, and workstations.

EEL - 5464 - Introduction to Sensors

2018-2019 Graduate Course New

General Catalog Information

Read before you begin

1. TURN ON help text before starting this proposal by clicking in the top right corner of the heading.

2. FILL IN all fields required marked with an *. You will not be able to launch the proposal without completing required fields.

3. LAUNCH proposal by clicking in the top left corner.

Course additions must be accompanied by a course syllabus and rationale. Departments must also submit an electronic syllabus to the college curriculum person.

College*	College of Engineering and Computer Science
Proposal Type*	Grad Course Addition
Unit / Department / College*	Department of Electrical and Computer Engineering
Approved Graduate Faculty/Scholars:*	Reza Abdolvand
Prefix:*	EEL
Number:*	5464
Course Title:*	Introduction to Sensors
30 Character Abbreviation:	Introduction to Sensors
Course Description:*	Basics of measurements, physics of energy transduction, sensor specifications (range, sensitivity, accuracy, repeatability, noise), applications, basics of signal conditioning.

Credit Hours:	3
Class Hours:	3
Lab and Field Work Hours:	0
Contact Hours:	3
Variable Credit (1-99):	
Repeat for credit?	○ Yes ◉ No
If yes, indicate the total times the course may be used in the degree program.	
Repeat within same semester?	○ Yes ◉ No

NOTE: For a repeatable course, indicate in the syllabus what will remain the same and what will change when the course is repeated. Also indicate who approves content before a course is repeated.

Prerequisite(s):	EEL 3123C.
Corequisite(s):	

Graded S/U? ○ Yes ◉ No

Split-Level Class: ◉ Yes ○ No

If offering a split-level class, complete this section even if it had been approved earlier for individual delivery.

List undergraduate split-level course: EEL 4XXX Introduction to Sensors

NOTE: Both the graduate and the undergraduate split-level syllabi must be approved through the established university process for approving courses so that there are two separate and complete syllabi for each course. The graduate syllabus should clearly demonstrate more advanced subject matter, expectations, and rigor. Attach both undergraduate and graduate syllabi to this form.

Term of Offering

When will the course be offered? ☐ Odd Fall ☑ Even Fall ☐ Odd Spring ☐ Even Spring ☐ Odd Summer ☐ Even Summer ☐ Every Semester ☐ Occasional

Intended Utilization of Course

The course will be used primarily as: ○ Required Course ◉ Elective Course

New Field

New Materials and Supply Fees? * ○ Yes ◉ No

If yes, also complete the 2018-19 Graduate Materials and Supply Fee Request form.

Justification for Course Addition

What is the rationale for adding this course? Considering that sensors are prevalent in our daily life and the fact that there is an ever growing market for them, there is very little that engineers and specifically electrical engineers graduating from our department learn about them. This course is aiming at filling this gap and training students on the basics of sensors operation and design.

What majors require or recommend this course for graduation?	None
If not a major requirement, what will be the source of students?	Elective course for all graduate and undergraduate students
What is the estimated annual enrollment?	25

Possible duplications and conflicts with other departments or colleges should be discussed with appropriate parties. Please detail discussion you have had.

Detail Discussion	N/A

Attachment List

Please attach any required files by navigating to the Proposal Toolbox and clicking in the top right corner.

Check	☑ I have completed all relevant parts of the form.
Attached	☑ I have attached a course syllabus and rationale.

Administration Use Only

Catalog Ownership:	
Course Type	
Status	○ Inactive-Hidden ○ Active-Visable

HEADING

EEL - 5464 - Introduction to Sensors

2018-2019 Graduate Course Split Level Class

General Catalog Information

Please submit this form along with the completed Gradaute Course New form. Include both the 4000 syllabus and the 5000 syllabus as attachments to the Graduate Course New form. The 5000 syllabus should bold any additions or differences.

The Graduate Council Curriculum Committee discourages the establishment of split-level classes. Graduate students are entitled to more challenging content, instruction, and assessment, which are difficult to provide in classes offered to undergraduates as well. Circumstances may compel a unit to propose a split-level class. In these cases, the proposal should indicate the reasons a splitlevel class is necessary and what long-term measures are being taken to provide undergraduates and graduates with appropriate coursework. In addition, it is important to differentiate each of the undergraduate and graduate course elements. To provide reviewers with a clear delineation of the differences between the 4000 and 5000 courses, the fileds should be completed.

For more information, contact Dr. Devon Jensen, Associate Dean, in the College of Graduate Studies.

College*	College of Engineering and Computer Science
Proposal Type*	Grad Course Split Level
Unit / Department / College*	Department of Electrical and Computer Engineering
Prefix*	EEL
Code*	5464
Name*	Introduction to Sensors
Course Description*	Basics of measurements, physics of energy transduction, sensor specifications (range, sensitivity, accuracy, repeatability, noise), applications, basics of signal conditioning.

What is the rationale for the split-level class?	With the fast progress of science and technology the clear borders between different disciplines are fading. As a result in many departments graduate students enter with a BS degree from a different discipline and they haven't been exposed to some required material. In most schools, graduate students are allowed to take a few (e.g. 3) undergraduate courses for credit and that helps with filling the knowledge gap. Unfortunately at UCF this is not an option. In my field of study this creates a huge problem as the nature of my research is interdisciplinary and I regularly need to train my students on basic concepts that are usually taught in undergraduate courses. With offering the "Introduction to Sensors" as a split-level course I am trying to partially resolve this issue in my field. The topic of sensors is a very interdisciplinary topic that although it could (and should) be offered to undergraduate students but, that is not a common practice and graduate students enter the related field without ever being formally trained on the topic. Please note that in the syllabus of the course the goal for the undergraduate course is different than that of the gradaute course and it is clearly defined in the syallabus. Therefore, the students from the two different levels would be tested differently although the presented material appears to have overlap.

List any course objectives or content:

1) That is common to both the undergraduate and graduate syllabi but have been differentiated for undergraduate and graduate students. For example, an objective for undergraduates may require identification of a concept where the graduate objective may require application.

or

2) In cases where entirely new objectives or content have been added to the existing undergraduate objectives and content, in the 5000 course column list any course elements that the graduate syllabus requires in addition to the elements of the undergraduate syllabus. For example, if there are 3 course readings in the undergraduate syllabus and a 4th reading was added for the graduate syllabus, list it in the 5000 field below and leave the 4000 field blank.

Differences Between 4000 and 5000 Course Objectives and Content

Course Element	1. Physics of Transduction 2. Sensor Electronics 3. Sensor Systems

4000 Course	1. Basic Operation Principles 2. Not required 3. Basic Knowledge of Components
5000 Course	1. In-depth understanding of the underlaying physics 2. Required 3. Be able to design

List different or additional assessment elements (course assignments and tests that count toward the grade). For example, if an undergraduate course assignment that requires students to read an article and write a reflection has been expanded to require graduate students to read a book and present it to the class, the two versions of this assignment would be contrasted in this table. If a third exam was added for graduate students, list it in the 5000 field below.

Course Element	1. Project 2. All Exams
Differences Between 4000	1. Not required

and 5000 Course Assessment	2. Question on basic understanding

5000 Course Assessment and % of grade	1. Required 2. Question on system performance and design This course is the graduate level of the same course that is in the process of being added to the undergraduate catalog as a 4XXX level class. The content is the same but the graduate students are graded differently and they are required to finish a term project (20% of overall grade) where as the undergraduate students are only graded on their test and quiz grades.

Administration Use Only

Catalog Ownership:	

Introduction to Sensors (4XXX)
Proposed Syllabus

Course Description:

Sensors are the interface between the physical world and machines and they are the main ingredient for development of "smart" devices. This course focuses on sensors and attempts to offer a foundation for understanding their design and operation principles.

Goals: The goal of this course is for students to acquire basic knowledge of sensors; how they operate and what they are used for.

Instructor: Reza Abdolvand

Text Book: Fraden, Jacob. *Handbook of modern sensors: physics, designs, and applications*. Springer Science & Business Media, 2004**.**

Over View of Topics:

1- Sensors: Types and Application
2- Sensors: Characteristic
3- Physics of Transduction including (not limited to):
   a. Piezo-resistivity
   b. Piezo-electricity
   c. Pyro-electricity
   d. Magneto-elasticity
   e. Magneto-resistivity
   f. Thermo-electricity (Seebeck and Peltier)
   g. Thermo-resistivity
   h. Photo-conductivity

4- Sensor systems
   a. System Component
      i. Sensing element
      ii. Electronics
   b. Types:
      i. Chemical sensors
      ii. Physical sensors

Grading:

1-	Participation :	10%
2-	Class Quizz :	30%
3-	Midterm Exam :	30%
4-	Final Exam :	30%

Course Policies:

Webcourses: Syllabus, homework questions, and unofficial grades will be posted on webcourses periodically.

Exam Policy:

1. All exams are closed book and closed notes.
2. Calculators are allowed in the exams.
3. Failure to show up in exams will result in receiving no credits for that exam.
4. No makeup exams are given unless there is a legitimate medical emergency.

Attendance Policy: At the end of each lecture, the attendance will be recorded. Students are expected to attend 80% of the sessions in order to qualify for the 5% grade in the class participation category. The other 5% is a measure of the students' engagement in class through participation in discussion.

University of Central Florida

Course Action Request Form

■ Course Addition ☐ Course Revision ☐ Course Deletion

Forward to your college office

Course Information NOTE: *Course additions and course revisions must be accompanied by a course syllabus and rationale.*
Note: Departments must also submit an electronic syllabus to the college curriculum person.

College: CECS **Department:** ECE

Department Chair: Zhihua Qu **Phone:** 3-5976

Academic Affairs Approved Instructor: Reza Abdolvand

	Course Prefix	Number	Title	Credit Hours Ex.: 3(3,0)
Course Prefix				
New or Proposed Revision	EEL	5XXX	Introduction to Sensors	3(3,0)

30 Char. Abbreviation:

Course Description (25 word limit) (If course revision, underscore changes.):

Basics of measurements, physics of energy transduction, sensor specifications (range, sensitivity, accuracy, repeatability, noise), applications, basics of signal conditioning.

Will lab fees be charged? ☐ Yes ■ No

Repeat for credit? ☐ Yes ■ No If yes, indicate the total times this course may be used in the degree program.

Repeat within same semester? ☐ Yes ■ No

NOTE: For a repeatable course, indicate in the syllabus what will remain the same and what will change when the course is repeated. Also indicate who approves content before a course is repeated.

Prerequisite(s) and/or Corequisite(s): EEL 3123C **Graded S/U?** ☐ Yes ■ No

Split-Level Class: ■ Yes ☐ No

If offering a split-level class, complete this section even if it had been approved earlier for individual delivery.

List undergraduate split-level course: EEL 4XXX Introduction to Sensors

NOTE: *Both the graduate and the undergraduate split-level syllabi must be approved through the established university process for approving courses so that there are two separate and complete syllabi for each course. The graduate syllabus should clearly demonstrate more advanced subject matter, expectations, and rigor. Attach both undergraduate and graduate syllabi to this form.*

Term of Offering
When will course be offered?

☐ Odd Fall ☐ Odd Spring ☐ Odd Summer ☐ Every Semester

■ Even Fall ☐ Even Spring ☐ Even Summer ☐ Occasional

Intended Utilization of Course
The course will be used primarily as:

☐ Required Courses ■ Elective Courses

Justification for Course Addition or Course Revision

What is the rationale for adding/changing this course?

Considering that sensors are prevalent in our daily life and the fact that there is an ever growing market for them, there is very little that engineers and specifically electrical engineers graduating form our department learn about them. This course is aiming at filling this gap and training students on the basics of sensors operation and design.

What majors require or recommend this course for graduation? None

If not a major requirement, what will be the source of students? Elective Course for all Grads and Undergrads

What is the estimated annual enrollment? 25

Possible duplications and conflicts with other departments or colleges should be discussed with appropriate parties. Please detail discussion you have had.

N/A

Justification for Course Deletion

Is this course a required course for graduation in a major or prerequisite? ☐ Yes ■ No

If yes, have the involved major departments been informed, in writing, of proposed deletion? ☐ Yes ■ No

If not, explain:Course Description (25 word limit) (If course revision, underscore changes.):

Notes:

This course is the graduate level of the same course that is in the process of being added to the undergraduate catalog as a 4xxx level class. The content is the same but the graduate students are graded differently and they are required to finish a term project (20% of overall grade) where as the undergraduate students are only graded based on their test and quiz grades.

Approval Signatures

Department Chair K B Sundaram **Date** 11/9/17

College Academic Standards M. Bayoumi **Date** 2/28/18

College Dean [signature] **Date** 3/5/18

Graduate Council _____ **Date** _____

Graduate Dean _____ **Date** _____

Introduction to Sensors (5XXX)
Proposed Syllabus

Course Description:

Sensors are the interface between the physical world and machines and they are the main ingredient for development of "smart" devices. This course focuses on sensors and attempts to offer a foundation for understanding their design and operation principles.

Goals: The goal of this course is to prepare students for conducting independent research on the topic of sensors.

Instructor: Reza Abdolvand

Text Book: Fraden, Jacob. *Handbook of modern sensors: physics, designs, and applications*. Springer Science & Business Media, 2004.

Over View of Topics:

1- Sensors: Types and Application
2- Sensors: Characteristic
3- Physics of Transduction including (not limited to):
   a. Piezo-resistivity
   b. Piezo-electricity
   c. Pyro-electricity
   d. Magneto-elasticity
   e. Magneto-resistivity
   f. Thermo-electricity (Seebeck and Peltier)
   g. Thermo-resistivity
   h. Photo-conductivity

4- Sensor systems
   a. System Component
      i. Sensing element
      ii. Electronics
   b. Types:
      i. Chemical sensors
      ii. Physical sensors

Grading:

1-	Class Participation :	10%
2-	Class Quizz* :	30%
3-	Midterm Exam* :	30%
4-	Project :	30%

* The class quizzes and the midterm exam for graduate students will be different than those given to the undergraduate students who take the 4000 level class. The questions will be designed to gauge student's ability in utilizing their knowledge of the topic in developing new solutions and concepts.

Course Policies:

Webcourses: Syllabus, homework questions, and unofficial grades will be posted on webcourses periodically.

Exam Policy:

1. All exams are closed book and closed notes.
2. Calculators are allowed in the exams.
3. Failure to show up in exams will result in receiving no credits for that exam.
4. No makeup exams are given unless there is a legitimate medical emergency.

Project: The project is intended to give the graduate students an opportunity to extend their knowledge of the topic beyond what is presented in class. Students will work individually or as groups and present their findings at the end of the semester.

Attendance Policy: Class attendance will be recorded. Students are expected to attend 80% of the sessions in order to qualify for the 5% grade in the class participation category. The other 5% is a measure of the students' engagement in class through participation in discussion.

UCF | College of Graduate Studies

Graduate Split-Level Class Action Request Form

The Graduate Council Curriculum Committee discourages the establishment of split-level classes. Graduate students are entitled to more challenging content, instruction, and assessment, which are difficult to provide in classes offered to undergraduates as well. Circumstances may compel a unit to propose a split-level class. In these cases, the proposal should indicate the reasons a split-level class is necessary and what long-term measures are being taken to provide undergraduates and graduates with appropriate coursework. In addition, it is important to differentiate each of the undergraduate and graduate course elements. To provide reviewers with a clear delineation of the differences between the 4000 and 5000 courses, Summary Tables 1 and 2 should be completed.

Please submit this form along with the completed Course Action Request (CAR) form. Include both the 4000 syllabus and the 5000 syllabus. The 5000 syllabus should bold any additions or differences.

What is the rationale for the split-level class?

With the fast progress of science and technology the clear borders between different disciplines are fading. As a result in many departments graduate student enter with a BS degree from a different discipline and they haven't been exposed to some required material. In most schools, graduate students are allowed to take a few (e.g. 3) undergraduate courses for credit and that help with filling the knowledge gap. Unfortunately at UCF this is not an option. In my field of study this creates a huge problem as the nature of my research is interdisciplinary and I regularly need to train my students on basic concepts that are usually taught in undergraduate courses. With offering the "Introduction to Sensors" as a split-level course I am trying to partially resolve this issue in my field. The topic of sensors is a very interdisciplinary topic that although it could (and should) be offered to undergraduate students but, that is not a common practice and graduate students enter the related field without ever being formally trained on the topic. Please note that in the syllabus of the course the goal for the undergraduate course is different than that of the graduate course and it is clearly defined in the syllabus. Therefore, the students from the two different level would be tested differently although the presented material appears to have overlap.

Table 1

List any **course objectives or content:**

1) That is common to both the undergraduate and graduate syllabi but have been differentiated for undergraduate and graduate students. For example, an objective for undergraduates may require identification of a concept where the graduate objective may require application.

or

2) In cases where entirely new objectives or content have been added to the existing undergraduate objectives and content, in the 5000 course column list any course elements that the graduate syllabus requires in addition to the elements of the undergraduate syllabus. For example, if there are 3 course readings in the undergraduate syllabus and a 4th reading was added for the graduate syllabus, list it in the 5000 course column and leave the 4000 course column blank.

Table 1 Differences Between 4000 and 5000 Course Objectives and Content		
Course Element	**4000 Course**	**5000 Course**
Physics of Transduction	Basic Operation Principles	In-depth Understanding of the underlaying Physics
Sensor Electronics	Not required	Required
Sensor Systems	Basic Knowledge of Components	Be able to design

Table 2

List different or additional **assessment** elements (course assignments and tests that count toward the grade). For example, if an undergraduate course assignment that requires students to read an article and write a reflection has been expanded to require graduate students to read a book and present it to the class, the two versions of this assignment would be contrasted in this table. If a third exam was added for graduate students, list it in the 5000 column.

Table 2 Differences Between 4000 and 5000 Course Assessment		
Course Element	**4000 Course Assessment and % of grade**	**5000 Course Assessment and % of grade**
Project	Not Required	Required
All Exams	Question on basic understanding	Question on system performance and design

For more information, contact Dr. John Weishampel, Associate Dean, in the College of Graduate Studies.

EEL - 6251 - Power System Optimization

2018-2019 Graduate Course New

General Catalog Information

Read before you begin

1. TURN ON help text before starting this proposal by clicking in the top right corner of the heading.

2. FILL IN all fields required marked with an *. You will not be able to launch the proposal without completing required fields.

3. LAUNCH proposal by clicking in the top left corner.

Course additions must be accompanied by a course syllabus and rationale. Departments must also submit an electronic syllabus to the college curriculum person.

College*	College of Engineering and Computer Science
Proposal Type*	Grad Course Addition
Unit / Department / College*	Department of Electrical and Computer Engineering
Approved Graduate Faculty/Scholars:*	Dr. Qifeng Li
Prefix:*	EEL
Number:*	6251
Course Title:*	Power System Optimization
30 Character Abbreviation:	Power System Optimization
Course Description:*	This is an advanced course to power systems engineering designed to provide students with the knowledge of optimization technologies and their applications in power systems.

Credit Hours:	3
Class Hours:	3
Lab and Field Work Hours:	0
Contact Hours:	3
Variable Credit (1-99):	
Repeat for credit?	○ Yes ◉ No
If yes, indicate the total times the course may be used in the degree program.	
Repeat within same semester?	○ Yes ◉ No

NOTE: For a repeatable course, indicate in the syllabus what will remain the same and what will change when the course is repeated. Also indicate who approves content before a course is repeated.

Prerequisite(s):	EEL 4216.
Corequisite(s):	

Graded S/U? ○ Yes ◉ No

Split-Level Class: ○ Yes ◉ No

If offering a split-level class, complete this section even if it had been approved earlier for individual delivery.

List undergraduate split-level course:

NOTE: Both the graduate and the undergraduate split-level syllabi must be approved through the established university process for approving courses so that there are two separate and complete syllabi for each course. The graduate syllabus should clearly demonstrate more advanced subject matter, expectations, and rigor. Attach both undergraduate and graduate syllabi to this form.

Term of Offering

When will the course be offered? ☐ Odd Fall ☐ Even Fall ☐ Odd Spring ☐ Even Spring ☐ Odd Summer ☐ Even Summer ☐ Every Semester ☑ Occasional

Intended Utilization of Course

The course will be used primarily as: ○ Required Course ◉ Elective Course

New Field

New Materials and Supply Fees? * ○ Yes ◉ No

If yes, also complete the 2018-19 Graduate Materials and Supply Fee Request form.

Justification for Course Addition

What is the rationale for adding this course? This course will provide students knowledge of basic optimization theories as well as state-of-the-art optimization techologies with applications in power systems and smart grids.

What majors require or recommend this course for graduation?	Electrical and Computer Engineering
If not a major requirement, what will be the source of students?	
What is the estimated annual enrollment?	20

Possible duplications and conflicts with other departments or colleges should be discussed with appropriate parties. Please detail discussion you have had.

Detail Discussion	N/A

Attachment List

Please attach any required files by navigating to the Proposal Toolbox and clicking in the top right corner.

Check	☑ I have completed all relevant parts of the form.
Attached	☑ I have attached a course syllabus and rationale.

Administration Use Only

Catalog Ownership:	
Course Type	
Status	○ Inactive-Hidden ○ Active-Visable

HEADING

University of Central Florida

Course Action Request Form

■ Course Addition ☐ Course Revision ☐ Course Deletion

Forward to your college office

Course Information NOTE: *Course additions and course revisions must be accompanied by a course syllabus and rationale.*
Note: Departments must also submit an electronic syllabus to the college curriculum person.

College: CECS **Department:** ECE

Department Chair: Dr. Zhihua Qu **Phone:** 407-823-5976

Academic Affairs Approved Instructor: Dr. Qifeng Li

	Course Prefix	Number	Title	Credit Hours Ex.: 3(3,0)
Course Prefix				
New or Proposed Revision	EEL	6XXX	Power System Optimization	3(3,0)

30 Char. Abbreviation: Power System Optimization

Course Description (25 word limit) (If course revision, underscore changes.):

This is an advanced course to power systems engineering designed to provide students with the knowledge of optimization technologies and their applications in power systems.

Will lab fees be charged? ☐ Yes ■ No

Repeat for credit? ☐ Yes ■ No If yes, indicate the total times this course may be used in the degree program. _____

Repeat within same semester? ☐ Yes ■ No

NOTE: For a repeatable course, indicate in the syllabus what will remain the same and what will change when the course is repeated. Also indicate who approves content before a course is repeated.

Prerequisite(s) and/or Corequisite(s): EEL 4216 **Graded S/U?** ☐ Yes ■ No

Split-Level Class: ☐ Yes ■ No

If offering a split-level class, complete this section even if it had been approved earlier for individual delivery.

List undergraduate split-level course: _____

NOTE: *Both the graduate and the undergraduate split-level syllabi must be approved through the established university process for approving courses so that there are two separate and complete syllabi for each course. The graduate syllabus should clearly demonstrate more advanced subject matter, expectations, and rigor. Attach both undergraduate and graduate syllabi to this form.*

Term of Offering
When will course be offered?

☐ Odd Fall ☐ Odd Spring ☐ Odd Summer ☐ Every Semester

☐ Even Fall ☐ Even Spring ☐ Even Summer ■ Occasional

Intended Utilization of Course
The course will be used primarily as:

☐ Required Courses ■ Elective Courses

Justification for Course Addition or Course Revision

What is the rationale for adding/changing this course?

This course will provide students knowledge of basic optimization theories as well as state-of-the-art optimization technologies with applications in power systems and smart grids.

What majors require or recommend this course for graduation? _____

If not a major requirement, what will be the source of students? Electrical and Computer Engineering

What is the estimated annual enrollment? 20

Possible duplications and conflicts with other departments or colleges should be discussed with appropriate parties. Please detail discussion you have had.

N/A

Justification for Course Deletion

Is this course a required course for graduation in a major or prerequisite? ☐ Yes ☐ No

If yes, have the involved major departments been informed, in writing, of proposed deletion? ☐ Yes ☐ No

If not, explain:Course Description (25 word limit) (If course revision, underscore changes.):

Notes:

Approval Signatures

Department Chair _____ **Date** 3/21/2018

College Academic Standards _____ **Date** 3/28/2018

College Dean _____ **Date** 4/5/18

Graduate Council _____ **Date** _____

Graduate Dean _____ **Date** _____

Department of Electrical and Computer Engineering
University of Central Florida

EEL 6XXX Power System Optimization

Designation: Graduate Elective
Course ID:
Section Number:
Units: 3 units

2018-19 Catalog Description: Fundamentals of mathematical programming, modeling of power systems, economic dispatch, unit commitment, AC/DC optimal power flow, demand response, electric market, introduction to convex optimization.

Pre-requisite(s): EEL 4216

Class location and time: TBD, TR, 15:00-16:15

Office hours:

Instructor: Prof. Qifeng Li
Office: RB1-150G
Phone: 407-823-0159
Email: qifeng.li@ucf.edu

Course Objectives: The course is to provide students with a working knowledge of fundamental optimization techniques with applications in power systems and smart grids. The course offers an introduction to the basic concepts of power system operation and planning along with necessary theories and methods in optimization. The advanced optimization techniques are introduced for improving the computational efficiency of solving large-scale power system optimization problems. The goal is to expose students to emerging technologies in this broad field of power system optimization so the students become prepared for employment as well as research.

Learning Outcomes: By the end of this course, graduate students will be able to:

1. Students will understand fundamentals of power generation, operation and planning as well as the core issues that need to be addressed in modern and future power grids.
2. Students will have the ability of properly modeling and analyzing power systems under different levels.
3. Students will learn the basic knowledge of mathematical programing.
4. Students will be able to apply optimization algorithms to solve fundamental power generation, operation, and planning problems: economic dispatch, unit commitment, AC/DC optimal power flow, and electric market.
5. Students will learn to solve the new optimization challenges in modern and future power grids: the functionality of smart grids: demand response, and optimization problems in distribution systems considering renewable energy and battery energy storage.

Textbook Required: Selected topics and chapters from the references. All required support materials will be made available through Canvas and no copyrighted materials will be included in these resources.

References:

- J. J. Grainger and W. D. Stevenson Jr., *Power Systems Analysis*, McGraw Hill, 1994.
- J. Wood and B. F. Wollenberg, *Power Generation, Operation, and Control*, 2nd edition, John Wiley & Sons, Inc, 1996.
- J. A. Momoh, *Electric Power System Applications of Optimization*, 2nd Edition, CRC Press, Boca Raton, 2008.
- R. Vanderbei, *Linear Programming : Foundations and Extensions*, 4th edition, Springer, 2014.
- D. Bertsekas, *Nonlinear Programming*, 3rd edition, Athena Scientific, 2016
- S. Boyd and L Vandenberghe, *Convex Optimization*, Cambridge University Press, 2004.

Exams, Homework and Grading:

- In-class exam: two exams, 75 minutes and 100 points each, open book and open notes. *45% of the total grade (Midterm 20%, Final 25%).*
- Homework: 5 homework assignments, 100 points each. *15% of the total grade.*

- Projects: 3 projects, 1-week time each, 100 points each, use standard software available. *30% of the total grade each.*
- Participation in class: Students interrupt, ask questions in class, and will be scored at the instructor's discretion. *5% of the total grade each.*
- Supplemental work: Attend 2-3 seminars offered by distinguished speakers or utility guest speakers. *5% of the total grade.*

A = > 90%	C = 70-74%
B+ = 85-89%	D+ = 65-69%
B = 80-84%	D = 60-64%
C+ = 75-79%	F = < 60%

Instructional Delivery: This course will be 70% lecture, 20% projects and homeworks, and 10% seminars/discussions.

Class Schedule (subject to change):

	Week 1
8/21	Introduction to power system optimization, Part I
8/23	Introduction to power system optimization, Part II
	Week 2
8/28	Linear Programming I
8/30	Linear Programming II
	Week 3
9/4	Economic Dispatch
9/6	DC Optimal Power Flow I
	Week 4
9/11	DC Optimal Power Flow II
9/13	Mixed-integer Programming I
	Week 5
9/18	Mixed-integer Programming II
9/20	Unit commitment
	Week 6
9/25	Power Market I
9/27	Power Market II
	Week 7
10/2	Nonlinear Programming I
10/4	Nonlinear Programming II
	Week 8
10/9	Power System Modeling I

10/11	Power System Modeling II
	Week 9
10/16	AC Optimal power flow I
10/18	AC Optimal power flow II
	Week 10
10/23	Midterm exam review
10/25	Midterm exam
	Week 11
10/30	Convex Optimization I
11/1	Convex Optimization II
	Week 12
11/6	Distribution System Optimization
11/8	Energy Storage Optimization
	Week 13
11/13	Demand Response and leader-follower optimization I
11/15	Demand Response and leader-follower optimization II
	Week 14
11/20	Project presentation
11/22	Project presentation
	Week 15
11/27	Final Review
11/29	Final Exam

Academic Integrity

You are expected to practice the highest possible standards of academic integrity. Any deviation from this expectation, including but not limited to improper citation of sources, using another student's work, and any other form of academic misrepresentation, will result in a minimum academic penalty of your failing the assignment. You will be referred to the Office of Integrity and Ethical Development for possible additional disciplinary measures.

You are NOT allowed to redistribute the course materials to anyone that is NOT a part of this course.

Attendance Policy

This is a under graduate level course where participation is expected. Hence, absence in excess of 10% of class meetings will result in the lowering of the earned total by one letter grade for each absence in excess of 10%.

Disability Services

Any student with a documented disability should contact the Student Accessibility Services (SAS)
at 407-823-2371 to make arrangements for appropriate accommodations.

Submission of Assignments
All submissions should be done through Canvas, UCF webcourse portal www.webcourses.ucf.edu

Distance Learning Related Components
All learning outcomes in this distance learning mode are equivalent to face-to-face version of this course.

This course is an asynchronous online course. Students will work at different times from different locations and will not be required to attend any face-to-face or synchronous meetings at the same time.

All discussion board posts and emails will be responded to within 24 hours. Feedback will be provided on all assignments within 48 hours.

Online lectures will be provided through Canvas. Therefore, students must have access to the Internet to view/hear lectures. No special software is required. Students will also submit all assignments and take all quizzes/tests through Canvas.

Minimal technical skills are needed in this online course. All work in this course must be completed and submitted online. Therefore, students MUST have consistent and reliable access to a computer and the Internet. Before starting this course, students must feel comfortable doing the following. The minimal technical skills students should have included the ability to:

- organize and save electronic files,
- use email and attached files,
- check email and Blackboard daily, and
- download and upload documents.

Contribution of course to meeting the Professional Component: Math & Science Topics (30%), Engineering Topics (60%), General Education (energy, 10%)

EEL - 6253 - Power System Resilience

2018-2019 Graduate Course New

General Catalog Information

Read before you begin

1. TURN ON help text before starting this proposal by clicking in the top right corner of the heading.

2. FILL IN all fields required marked with an *. You will not be able to launch the proposal without completing required fields.

3. LAUNCH proposal by clicking in the top left corner.

Course additions must be accompanied by a course syllabus and rationale. Departments must also submit an electronic syllabus to the college curriculum person.

College*	College of Engineering and Computer Science
Proposal Type*	Grad Course Addition
Unit / Department / College*	Department of Electrical and Computer Engineering
Approved Graduate Faculty/Scholars:*	Dr. Wei Sun
Prefix:*	EEL
Number:*	6253
Course Title:*	Power System Resilience
30 Character Abbreviation:	Power System Resilience
Course Description:*	This is an advanced course to power systems engineering, designed to provide students with the knowledge of power system resilience.

Credit Hours:	3
Class Hours:	3
Lab and Field Work Hours:	0
Contact Hours:	3
Variable Credit (1-99):	
Repeat for credit?	○ Yes ◉ No
If yes, indicate the total times the course may be used in the degree program.	
Repeat within same semester?	○ Yes ◉ No

NOTE: For a repeatable course, indicate in the syllabus what will remain the same and what will change when the course is repeated. Also indicate who approves content before a course is repeated.

Prerequisite(s):	EEL 4216.
Corequisite(s):	

Graded S/U? ○ Yes ◉ No

Split-Level Class: ○ Yes ◉ No

If offering a split-level class, complete this section even if it had been approved earlier for individual delivery.

List undergraduate split-level course:

NOTE: Both the graduate and the undergraduate split-level syllabi must be approved through the established university process for approving courses so that there are two separate and complete syllabi for each course. The graduate syllabus should clearly demonstrate more advanced subject matter, expectations, and rigor. Attach both undergraduate and graduate syllabi to this form.

Term of Offering

When will the course be offered? ☐ Odd Fall ☐ Even Fall ☐ Odd Spring ☐ Even Spring ☐ Odd Summer ☐ Even Summer ☐ Every Semester ☑ Occasional

Intended Utilization of Course

The course will be used primarily as: ○ Required Course ◉ Elective Course

New Field

New Materials and Supply Fees? * ○ Yes ◉ No

If yes, also complete the 2018-19 Graduate Materials and Supply Fee Request form.

Justification for Course Addition

What is the rationale for adding this course? This course will provide students with state-of-the-art knowledge in power system and smart grid, and provide students with hands-on experience using the newly established Siemens Digital Grid Lab.

What majors require or recommend this course for graduation?	Electrical Engineering
If not a major requirement, what will be the source of students?	
What is the estimated annual enrollment?	30

Possible duplications and conflicts with other departments or colleges should be discussed with appropriate parties. Please detail discussion you have had.

Detail Discussion	N/A

Attachment List

Please attach any required files by navigating to the Proposal Toolbox and clicking in the top right corner.

Check	☑ I have completed all relevant parts of the form.
Attached	☑ I have attached a course syllabus and rationale.

Administration Use Only

Catalog Ownership:	
Course Type	
Status	○ Inactive-Hidden ○ Active-Visable

HEADING

University of Central Florida

Course Action Request Form

☑ Course Addition ☐ Course Revision ☐ Course Deletion

Forward to your college office

Course Information NOTE: Course additions and course revisions must be accompanied by a course syllabus and rationale.
Note: Departments must also submit an electronic syllabus to the college curriculum person.

College: ENGINEERING & COMPUTER SCIENCE **Department:** ECE

Department Chair: Dr. Zhihua Qu **Phone:** 407-823-5976

Academic Affairs Approved Instructor: Dr. Wei Sun

	Course Prefix	Number	Title	Credit Hours Ex.: 3(3,0)
Course Prefix				
New or Proposed Revision	EEL	6XXX	Power System Resilience	3(3,0)

30 Char. Abbreviation: POWER SYSTEM RESILIENCE

Course Description (25 word limit) (If course revision, underscore changes.):

This is an advanced course to power systems engineering, designed to provide students with the knowledge of power system resilience.

Will lab fees be charged? ☐ Yes ■ No

Repeat for credit? ☐ Yes ■ No If yes, indicate the total times this course may be used in the degree program. _____

If course is repeatable, explain what will remain the same and what will change when the course is repeated.

NOTE: For a repeatable course, indicate in the syllabus what will remain the same and what will change when the course is repeated.Also indicate who approves content before a course is repeated.

Prerequisite(s) and/or Corequisite(s): EEL 4216 **Graded S/U?** ☐ Yes ■ No

Split-Level Class: ☐ Yes ■ No

If offering a split-level class, complete this section even if it had been approved earlier for individual delivery.

List undergraduate split-level course: _____

NOTE: Both the graduate and the undergraduate split-level syllabi must be approved through the established university process for approving courses so that there are two separate and complete syllabi for each course. The graduate syllabus should clearly demonstrate more advanced subject matter, expectations, and rigor. Attach both undergraduate and graduate syllabi to this form.

Term of Offering
When will course be offered?

☐ Odd Fall ☐ Odd Spring ☐ Odd Summer ☐ Every Semester

☐ Even Fall ☐ Even Spring ☐ Even Summer ■ Occasional

Intended Utilization of Course
The course will be used primarily as:

☐ Required Courses ■ Elective Courses

RECEIVED
APR 26 2018
BY: .....

Justification for Course Addition or Course Revision

What is the rationale for adding/changing this course?

This course will provide students state-of-the-art knowledge in power system and smart grid, and provide students with hands-on experience using the newly established Siemens Digital Grid Lab.

What majors require or recommend this course for graduation? Electrical Engineering

If not a major requirement, what will be the source of students? _____

What is the estimated annual enrollment? 30

Possible duplications and conflicts with other departments or colleges should be discussed with appropriate parties. Please detail discussion you have had.

N/A

Justification for Course Deletion

Is this course a required course for graduation in a major or prerequisite? ☐ Yes ☐ No

If yes, have the involved major departments been informed, in writing, of proposed deletion? ☐ Yes ☐ No

If not, explain:Course Description (25 word limit) (If course revision, underscore changes.):

Notes:

Approval Signatures

Department Chair _____ **Date** 3/5/2018

College Academic Standards _____ **Date** 4/25/18

College Dean _____ **Date** 4/30/18

Graduate Council _____ **Date** _____

Graduate Dean _____ **Date** _____

EEL 6XXX: Power System Resilience

Department of Electrical and Computer Engineering
College of Engineering and Computer Science, University of Central Florida

COURSE SYLLABUS

Instructor:	Dr. Wei Sun	Term:	
Office:	HEC 306	Class Meeting Days:	
Phone:	(407) 823-2344	Class Meeting Hours:	
E-Mail:	sun@ucf.edu	Class Location:	
Website:	http://www.eecs.ucf.edu/~weisun	Lab Location:	
Office Hours:			

I. University Course Catalog Description

A current topic will be discussed such as power system transients, system protection, T&D, and dielectric engineering. Occasional. ECS - Department of Electrical Engineering and Computer Science

II. Course Overview

This is an advanced course to power systems engineering, designed to provide students with the knowledge of power system resilience. Course content includes power outages and blackouts, natural disasters, restoration of generation, transmission and distribution, renewable generators, distributed energy resources, electric vehicles, microgrids, phasor measurement units, interaction with telecommunication and transportation systems, resilience metrics, etc.

III. Course Objectives

This course builds up and addresses the following goals:

1) Acquire knowledge of power system resilience and advanced smart grid technologies.
2) Develop the ability to apply the knowledge along with computer software to solve problems in power system recovery and restoration.
3) Develop skills to communicate effectively through writing and presentation.
4) Prepare students for multidisciplinary research in power system area.

IV. Course Prerequisites

Course Prerequisites: EEL4216-Fundamentals of Electric Power Systems.

V. Course Credits

3 credit hours

VI. Required/Supplementary Texts and Materials

There will be no required textbook. All lecture notes and other materials (e.g., papers, reports, etc.) will be posted on webcourses@ucf.

VII. Topics

1. Introduction (Week 1-2)
    a. Power outages and blackouts
    b. Extreme events (natural disasters, cyber attacks, etc.)
    c. Resilience definition
2. Transmission System (Week 3-8)
    a. Impact analysis and assessment
    b. Interaction with telecommunication and transportation system
    c. Maintenance scheduling
    d. Generation restoration
    e. Transmission energization
    f. PMU-based monitoring and control
    g. Renewable generators
3. Distribution System (Week 9-14)
    a. Impact analysis and assessment
    b. Interaction with telecommunication and transportation system
    c. Social media
    d. Distributed energy resources
    e. PHEVs
    f. Microgrids
4. Resilience Metrics (Week 15)
    a. Metrics for transmission and distribution systems
    b. Metrics for other infrastructure systems

* Note: The topics are subject to revision

VIII. Basis for Final Grade

Assessment	Percent of Final Grade
Assignment and Projects	50%
Midterm Exam	25%
Final Exam	25%
	100%

Grading Scale (%)			
90-100	A	70-76	C
87-89	B+	67-69	D+
80-86	B	60-66	D
77-79	C+	0 - 59	F

IX. Grade Dissemination

Graded tests and materials in this course will be returned individually only by request. You can access your scores at any time using "myUCF Grades" in the portal. Please note that scores returned mid-semester are unofficial grades. If you need help accessing myUCF Grades, see the online tutorial: https://myucfgrades.ucf.edu/help/.

X. Course Policies

Financial Aid Requirement: All instructors/faculty are required to document students' academic activity at the beginning of each course. In order to document that you began this course, please complete the following academic activity by the end of the first week of classes or as soon as possible after adding the course. Failure to do so may result in a delay in the disbursement of your financial aid.

Grades of "Incomplete": The current university policy concerning incomplete grades will be followed in this course. Incomplete grades are given only in situations where unexpected emergencies prevent a student from completing the course and the remaining work can be completed the next semester. Your instructor is the final authority on whether you qualify for an incomplete. Incomplete work must be finished by the end of the subsequent semester or the "I" will automatically be recorded as an "F" on your transcript.

Email: It is the student's responsibility to check email often. When emailing instructor, in the email subject line, type: EEL5937 + additional, yet concise, useful/revealing info. Provide sufficient detail in the text message.

Attendance: You are highly encouraged to participate in discussion during the class. Although there is no attendance check, you are expected to show up every class. It is imperative that you come to class and take notes.

XI. Course Policies: Student Expectations

Disability Access: The University of Central Florida is committed to providing reasonable accommodations for all persons with disabilities. This syllabus is available in alternate formats upon request. Students who need accommodations must be registered with Student Disability Services, Ferrell Commons Room 185, phone (407) 823-2371, TTY/TDD only phone (407) 823-2116, before requesting accommodations from the professor.

Professionalism Policy: Per university policy and classroom etiquette; mobile phones, iPods, *etc.* **must be silenced** during all classroom and lab lectures. Those not heeding this rule will be asked to leave the classroom/lab immediately so as to not disrupt the learning environment. Please arrive on time for all class meetings. Students who habitually disturb the class by talking, arriving late, *etc.*, and have been warned may suffer a reduction in their final class grade.

Academic Conduct Policy: Academic dishonesty in any form will not be tolerated. If you are uncertain as to what constitutes academic dishonesty, please consult The Golden Rule, the University of Central Florida's Student Handbook (http://www.goldenrule.sdes.ucf.edu/) for further details. As in all University courses, The Golden Rule Rules of Conduct will be applied. Violations of these rules will result in a record of the infraction being placed in your file and receiving a zero on the work in question AT A MINIMUM. At the instructor's discretion, you may also receive a failing grade for the course. Confirmation of such incidents can also result in expulsion from the University.

University Writing Center: The University Writing Center (UWC) is a free resource for UCF undergraduates and graduates. At the UWC, a trained writing consultant will work individually with you on anything you're writing (in or out of class), at any point in the writing process from brainstorming to editing. Appointments are recommended, but not required. For more information or to make an appointment, visit the UWC website at http://www.uwc.ucf.edu, stop by MOD 608, or call 407.823.2197.

EIN - 5115 - Management Information Systems in Health Systems

2018-2019 Graduate Course New

General Catalog Information

Read before you begin

1. TURN ON help text before starting this proposal by clicking in the top right corner of the heading.

2. FILL IN all fields required marked with an *. You will not be able to launch the proposal without completing required fields.

3. LAUNCH proposal by clicking in the top left corner.

Course additions must be accompanied by a course syllabus and rationale. Departments must also submit an electronic syllabus to the college curriculum person.

College*	College of Engineering and Computer Science
Unit / Department / College*	Department of Industrial Engineering and Management Systems
Approved Graduate Faculty/Scholars:*	Dr. Ahmed Elshennawy, Dr. Richard Biehl
Prefix:*	EIN
Number:*	5115
Course Title:*	Management Information Systems in Health Systems
30 Character Abbreviation:	Mgmt Info Sys in Health Sys
Course Description:*	Consideration is given to the organizational, managerial, and economic aspects of MIS design, implementation and use for planning and control functions in large-scale Health Systems.

Credit Hours:	3
Class Hours:	3
Lab and Field Work Hours:	0
Contact Hours:	
Variable Credit (1-99):	
Repeat for credit?	○ Yes ◉ No
If yes, indicate the total times the course may be used in the degree program.	
Repeat within same semester?	○ Yes ◉ No

NOTE: For a repeatable course, indicate in the syllabus what will remain the same and what will change when the course is repeated. Also indicate who approves content before a course is repeated.

Prerequisite(s):	
Corequisite(s):	

Graded S/U? ○ Yes ◉ No

Split-Level Class: ○ Yes ◉ No

If offering a split-level class, complete this section even if it had been approved earlier for individual delivery.

List undergraduate split-level course:

NOTE: Both the graduate and the undergraduate split-level syllabi must be approved through the established university process for approving courses so that there are two separate and complete syllabi for each course. The graduate syllabus should clearly demonstrate more advanced subject matter, expectations, and rigor. Attach both undergraduate and graduate syllabi to this form.

Term of Offering

When will the course be offered? ☐ Odd Fall ☐ Even Fall ☐ Odd Spring ☐ Even Spring ☑ Odd Summer ☑ Even Summer ☐ Every Semester ☐ Occasional

Intended Utilization of Course

The course will be used primarily as: ◉ Required Course ○ Elective Course

New Field

New Materials and Supply Fees? * ○ Yes ◉ No

If yes, also complete the 2018-19 Graduate Materials and Supply Fee Request form.

Justification for Course Addition

What is the rationale for adding this course?

Primarily, the application of this topic to Healthcare Systems requires a different approach from the tradition IEMS class. All the material is specifically catered illustrate systems engineering principles in the Healthcare sector, more specifically, for health systems. For this class, a heavy emphasis is placed on characterizing the implementation and use of management information systems (MIS) for planning and control functions in large-scale Health Systems.

	Secondly, given the unique 7 week FULLY Online format of the classes in the HSE track, every class has to be customized. Hence, we are applying to have a unique course number so that students can easily differentiate between the regular semester long classes and the 7 week fully Online course specifically catered towards health systems.

What majors require or recommend this course for graduation?	IEMS Masters (Healthcare Systems Engineering Track)

If not a major requirement, what will be the source of students?	

What is the estimated annual enrollment?	15+ students

Possible duplications and conflicts with other departments or colleges should be discussed with appropriate parties. Please detail discussion you have had.

Detail Discussion	**PLEASE NOTE** -- Attached are the syllabus and the CAR form with the appoved signatures from the Department Chair, College Academic Standards, and College Dean. *The primary objective of this course is to provide the student with a solid understanding of the implementation and use of management information systems (MIS) for planning and control functions in large-scale Health Systems.* Consideration is given to the organizational, managerial, and economic aspects of MIS. This course explores the definition and use of MIS technologies in the context of the management of health systems at the patient, provider, and system levels. Healthcare has become a sector largely dominated by information technology tools and systems, while remaining very immature regarding the interoperability challenges that might connect and coordinate care across different organizations and system components. Included are issues of data standards and systems interoperability inherent in the information-intensive nature of health systems.

Attachment List

Please attach any required files by navigating to the Proposal Toolbox and clicking in the top right corner.

Check	☑ I have completed all relevant parts of the form.
Attached	☑ I have attached a course syllabus and rationale.
Smartfield Field	

Administration Use Only

Catalog Ownership:	
Course Type	
Status	○ Inactive-Hidden ○ Active-Visable

HEADING

University of Central Florida

Graduate Course Action Request Form

☑ Course Addition ☐ Course Revision ☐ Course Deletion

Forward to your college office

Course additions and course revisions must be accompanied by a course syllabus and rationale. Departments must also submit an electronic syllabus to the college curriculum person.

Course Information

College: CECS **Department:** IEMS

Department Chair: Dr. Waldemar Karwowski **Phone:** (407) 823-2204

Approved Graduate Faculty/Scholars: Dr. Ahmed Elshennawy

	Course Prefix	Number	Title	Credit Hours Ex.: 3(3,0)
Current or New Course	EIN	5xxx	Management Information Systems in Healthcare	3(3,0)
Proposed Course Revision				

30 Character Abbreviation: Mgmt Info Sys in Healthcare

Course Description (25 word limit)

Consideration is given to the organizational, managerial, and economic aspects of MIS design, implementation and use for planning and control functions in large-scale Health Systems.

New or revised Materials and Supply Fees? ☐ Yes ☑ No If yes, also complete the Materials and Supply Fee Request Form.

Repeat for credit? ☐ Yes ☑ No If yes, indicate the total times this course may be used in the degree program. _____

Repeat within same semester? ☐ Yes ☑ No

NOTE: For a repeatable course, indicate in the syllabus what will remain the same and what will change when the course is repeated. Also indicate who approves content before a course is repeated.

Prerequisite(s) and/or Corequisite(s): Admission to the Healthcare Systems Engineering track of the Industrial Engineering MS program.

Graded S/U? ☐ Yes ☐ No

Split-Level Class: ☐ Yes ☑ No

If offering a split-level class, complete this section even if it had been approved earlier for individual delivery.

List undergraduate split-level course: _____

NOTE: Both the graduate and the undergraduate split-level syllabi must be approved through the established university process for approving courses so that there are two separate and complete syllabi for each course. The graduate syllabus should clearly demonstrate more advanced subject matter, expectations, and rigor. Attach both undergraduate and graduate syllabi to this form.

Term of Offering

When will the course be offered?

☐ Odd Fall ☐ Odd Spring ☑ Odd Summer ☐ Every Semester

☐ Even Fall ☐ Even Spring ☑ Even Summer ☐ Occasional

Intended Utilization of Course

The course will be used primarily as:

☑ Required Course ☐ Elective Course

Justification for Course Addition or Course Revision

What is the rationale for adding or revising this course?

Primarily, the application of this topic to Healthcare Systems requires a different approach from the tradition IEMS class. All the material is specifically catered illustrate systems engineering principles in the Healthcare sector, more specifically, for health systems. For this class, a heavy emphasis is placed on characterizing the implementation and use of management information systems (MIS) for planning and control functions in large-scale Health Systems.

Secondly, given the unique 7 week FULLY Online format of the classes in the HSE track, every class has to be customized. Hence, we are applying to have a unique course number so that students can easily differentiate between the regular semester long classes and the 7 week fully Online course specifically catered towards health systems.

What majors require or recommend this course for graduation? Industrial Engineering MS program (Healthcare Systems Engineering Track)

If not a major requirement, what will be the source of students? _____

What is the estimated annual enrollment? 15+ students

Possible duplications and conflicts with other departments or colleges should be discussed with appropriate parties. Please detail discussion you have had.

Justification for Course Deletion

Is this course a required course for graduation in a major or prerequisite? ☐ Yes ☐ No

If yes, have the involved major departments been informed, in writing, of proposed deletion? ☐ Yes ☐ No

If not, explain

Notes:

The primary objective of this course is to provide the student with a solid understanding of the implementation and use of management information systems (MIS) for planning and control functions in large-scale Health Systems.

Consideration is given to the organizational, managerial, and economic aspects of MIS. This course explores the definition and use of MIS technologies in the context of the management of health systems at the patient, provider, and system levels. Healthcare has become a sector largely dominated by information technology tools and systems, while remaining very immature regarding the interoperability challenges that might connect and coordinate care across different organizations and system components. Included are issues of data standards and systems interoperability inherent in the information-intensive nature of health systems.

Approval Signatures

Department Chair Waldemar Karwowski Digitally signed by Waldemar Karwowski DN: cn=Waldemar Karwowski, o, ou, email=wkarwowski@gmail.com, c=US Date: 2018.03.09 14:48:10 -05'00' **Date** _____

College Academic Standards _____ **Date** 4/12/18

College Dean _____ **Date** 4/17/18

Graduate Council _____ **Date** _____

Vice President for Research and Dean of the College of Graduate Studies _____ **Date** _____

EIN 5XXX: Management Information Systems in Healthcare

Industrial Engineering & Management Systems Department
College of Engineering & Computer Science
University of Central Florida

COURSE SYLLABUS

Instructor:		Term:	Summer 20XX
Office:		Credits:	3
E-Mail:		Class Meeting Days:	Daily
Website:		Class Meeting Hours:	Continuous
Office Hours:		Class Location:	WebCourses@UCF

I. WELCOME & PURPOSE & GOALS

Welcome to Management Information Systems in Health Systems (EIN 5XXX).

The primary objective of this course is to provide the student with a solid understanding of the implementation and use of management information systems (MIS) for planning and control functions in large-scale Health Systems.

This course explores the definition and use of MIS technologies in the context of the management of health systems at the patient, provider, and system levels. Healthcare has become a sector largely dominated by information technology tools and systems, while remaining very immature regarding the interoperability challenges that might connect and coordinate care across different organizations and system components. Included are issues of data standards and systems interoperability inherent in the information-intensive nature of health systems.

II. COURSE DESCRIPTION (UCF Catalog)

Consideration is given to the organizational, managerial, and economic aspects of MIS design, implementation and use for planning and control functions in large-scale Health Systems.

III. COURSE PREREQUISITE

Admission to the Healthcare Systems Engineering track of the Industrial Engineering MS program.

IV. TEXTS AND MATERIALS

Wager, Karen A.; Lee, Frances Wickham, Glaser, John P. (2017). *Health Care Information Systems: A Practical Approach for Health Care Management*, 4th Edition. Jossey-Bass. ISBN: 9781119337188.

Peppard, Joe; & Ward, John (2016). *The Strategic Management of Information Systems: Building a Digital Strategy*, 4th Edition. Wiley. ISBN: 9780470034675

Martin, C.; & Lazuta, Gene (2016). *IT's About Patient Care: Transforming Healthcare Information Technology the Cleveland Clinic Way*. McGraw-Hill Education. ISBN: 9781259642937

SOFTWARE & TOOLS:

- Microsoft Word, Excel, PowerPoint (or fully compatible suite)
- Internet access for Canvas, Internet, and UCF Library databases

V. LEARNING OBJECTIVES

This course is designed to provide opportunities for graduate engineering students to expand their understanding of management information systems fundamental topics and issues. Upon completion of this course, the successful student will be able to:

1. Describe the various technical, organizational, and managerial considerations of various management information systems types and scenarios;
2. Integrate the tools and techniques of MIS into the thought processes of healthcare systems engineering;
3. Evaluate capabilities and issues that surround the process capability and maturity of healthcare systems implementing and using management information systems;
4. Understand the implications of a variety of emerging technologies for the use of advanced MIS solutions to affect a healthcare systems capability and change; and
5. Evaluate any social or ethical issues that might impact any decisions to develop or implement an MIS solution in response to a healthcare systems problems or concerns.

VI. COURSE SCHEDULE

This course uses readings, discussion, and assignments in WebCourses@UCF. Each week as described in the 'Learning Objectives' corresponds to a 'module' in WebCourses@UCF. Dates for opening, submitting, and closing of all assignments are defined within WebCourses@UCF modules.

Week 1 – An Enterprise-Level View
Week 2 – Enterprise Applications
Week 3 – Defining Strategy
Week 4 – Organizing for Value
Week 5 – Aligning Strategy
Week 6 – Governing Benefits
Week 7 – Operating Strategically

Each week, students will be expects to complete the discussions, assignments, and any part of the course final project as described in the class schedule within the weekly WebCourses@UCF modules. All work is intended to be completed solely by the individual enrolled in this course, working independently unless otherwise instructed.

VII. WEEKLY READINGS, DISCUSSIONS, & ASSIGNMENT FRAMEWORK

Each weekly class unit includes a collection of readings and topical discussions. The discussion topics are designed to guide everyone through the more critical aspects of each week's readings, and to emphasize ideas that you should be thinking about as you develop your understanding of this course.

Discussion participation can't be a last minute activity each week. To earn full credit on discussions, it's important that you participate in a manner that supports an effective give-and-take dialogue. Typically, get your initial discussion posts posted by Wednesday evening so that they are available for others to read. Post your responses to others by early evening on Friday in order to give those learners an opportunity to see your responses and to formulate their responses to you. Continue your dialogues with others as they respond to your initial post and your replies through the rest of the weekend, with the discussions closing Sunday evening each week.

Each discussion topic is scored using a 40-point grading rubric that splits the score between your initial post (20 points) and your response posts (20 points). Unless otherwise noted in the topic posting, each topic requires at least two substantive responses as well as continuing dialogue with any learners who respond to your posts. It's fine to allow more of your postings to be less formal or scholarly. Encouraging or expressing agreement with your fellow learners is considered effective dialogue as long as some substantive responses are included among your postings. The rubric below focuses on the more substantive subset of anything you post in reply to others.

Discussion Participation Grading Rubric	
Initial Posting (20 points)	
0 points	The response post is missing, late, or isn't substantive. Substantive responses must directly address the topical themes and demonstrate critical thinking about the topic and the associated readings.
10 points	The posting addresses the topic, but doesn't seem to demonstrate any critical thinking about how the topic fits the unit theme, or how the unit readings support the topic.
20 points	The posting analyzes and applies course concepts in substantive ways, demonstrating thinking about the topic. Opinions expressed are grounded in the materials being discussed. The post is timely enough for other learners to respond within the deadlines, preferably before the mid-week.
Response Postings (20 points)	
0 points	The response posts are missing, late, or not effective. Effective responses must do more than simply agree with, or encourage, the original post, and they must be timely enough to allow continuing dialogue among learners within the unit deadlines.
10 points	The response addresses the content of the original post, but doesn't really include any thoughts regarding the topic or its fit in this class. Effective responses extend the conversation, allowing others to join in.
20 points	The responses do an effective job of drawing additional information from the original posters, or contribute additional substantive content to the original posts, or both. The posts are timely enough to allow the original posters to respond before the unit deadline, preferably before Friday afternoon. Responses are also made, when appropriate, to the responses received from others.

Each week, there will be an assignment due as well. Dates for opening, submitting, and closing of all assignments are defined within WebCourses@UCF modules. Each assignment will be 100 points. The purpose of the assignment is to determine the level of competence on the material assigned for the week.

VIII. Term Paper

Over the course of the entire 7-week class, you will develop and submit a graduate-level term paper.

The project aims to provide an opportunity for students to explore advanced topics in information technology and their application in management information systems in healthcare. Students are to provide an exploration and analysis of one or more advanced topics to a chosen application setting, and to submit the result in a scholarly written term paper according to the deadlines outlined below.

Advanced technologies are considered something that is not yet broadly adopted (e.g., due to technological barriers, market economics, human factors, or regulatory issues), but seem to have the potential to be adopted heavily in the future as the technologies or markets mature. Likewise, some previously advanced technologies that have become more mature in recent years might still be considered advanced in certain healthcare application settings. By these definitions, smart cards, RFID, or smart phones would NOT be considered advanced technologies today, although particular anticipated applications of these technologies could still be considered quite advanced.

This course project requires the evaluation and discussion of one or more fairly advanced technologies to a practical application scenario. A complete paper will include discussions of why the technologies are not yet mature, what is necessary to make them applicable or more appropriate to the chosen application, and what benefits or limitations can be expected in the chosen application area once adopted.

Your research for your term paper will be into one or more specific information technologies that would be considered innovative in their application in healthcare (i.e. avoid technologies that are already routinely applied across the healthcare sector). It should be something that is at least being attempted somewhere in healthcare (i.e. don't pick something that would be so novel that nobody is even attempting it yet), and it's fine if your choice

would be considered routine in other commercial or industrial sectors. Submit a description of the topical area you expect to focus your attention on. Your description should provide an overview and justification for your choice of topic, including an explanation about what makes the technology or application chosen truly innovative in healthcare, and how the topic fits with your broader understanding of outcomes of interest in industrial engineering.

IX. GRADING

Course grades are determined by a weighted aggregation of scores earned on each distinct component of the course, as follows:

Component	Impact
DISCUSSIONS	**40%**
ACTIVITIES	**30%**
TERM PAPER	**30%**

Final course grades will follow traditional UCF criteria: A > 90%, B > 80%, C > 70%, D > 60%, or F.

X. IMPORTANT DATES

TBD	Course opens in WebCourses@UCF
TBD	Classes officially begin
TBD	Drop/Swap Deadline
TBD	Class Add Deadline
TBD	Withdrawal Deadline
TBD	Last official day of class

XI. Policies

The following policies govern student participation and course grading and should be interpreted in the context of all applicable and current UCF policies and procedures:

1. Canvas discussions and e-mail/Inbox are the preferred mechanisms for all class communications.
2. E-mails to the instructor should only be used where personal privacy is required by law (e.g., by FERPA). Discussion posts are preferred (via the Ask Dr. Biehl thread in Canvas) to avoid having to answer many e-mails with the same or related questions.
3. Late assignments do not need to be communicated to the instructor. Informing the instructor of a planned absence or late submission does not constitute approval of that absence or late submission.
4. UCF policies on academic integrity will be **strictly enforced** in all discussions and assignments.
5. Any form of plagiarism or cheating shall result in a **Failing** grade in this class. Plagiarism includes any use of the materials of others as your own, including copying and pasting text from outside web pages or other sources as material in your discussion posts, term paper submissions, or examination essays.

XII. PROGRAM POLICIES & EXPECTATIONS

Students Rights and Responsibilities - Please know your rights and your responsibilities as a student. Go to the web site http://www.goldenrule.sdes.ucf.edu/ and read carefully THE UCF GOLDEN RULE. It is your responsibility and your right as well to be aware of it. Your academic behavior in the class should be based on the Golden Rule.

UCF Online Writing Tutors - Online students attending UCF can meet with tutors online from anywhere in the world through Adobe Connect, UCF's real-time, web-based consulting program. All online consultations are by appointment only. Please see their website for more information: https://uwc.cah.ucf.edu/attend-online/

Disability Access - Your success in this class is important to us and the University of Central Florida is committed to providing reasonable accommodations for all persons with disabilities. If there are aspects of this course that prevent you from learning or exclude you, please let us know as soon as possible at the start of the semester. Together we will develop strategies to meet both your needs and the requirements of the course. Students who need accommodations must be registered with Student Disability Services, Student Resource Center Room 132, phone (407) 823-2371, TTY/TDD only phone (407) 823-2116, before requesting accommodations from an instructor.

Ethics Statement - UCF faculty supports the UCF Creed. Integrity - practicing and defending academic and personal honesty - is the first tenet of the UCF Creed. This is in part a reflection of the second tenet: *Scholarship:* "I will cherish and honor learning as a fundamental purpose of membership in the UCF community." Course discussions, assignments, and activities are designed to have educational value; the process of preparing for and completing these exercises will help improve your skills and knowledge. Material presented to satisfy course requirements is therefore expected to be the result of your own original scholarly efforts.

Turnitin.com - Courses in this Program utilize ***turnitin.com***, an automated system that instructors can use to quickly and easily compare each student's assignment with billions of web sites as well as an enormous database of student papers that grows with each submission. Accordingly, you are expected to submit all assignments in electronic format only. After assignment processing, your instructor receives a report from turnitin.com that states if and how another author's work was used in any assignment. For a more detailed look at this process, visit http://www.turnitin.com.

Responses to Academic Dishonesty, Plagiarism, or Cheating - UCF faculty members have a responsibility for your education and the value of a UCF degree, and so seek to prevent unethical behavior and when necessary respond to infringements of academic integrity. Penalties can include a failing grade in an assignment or in the course, suspension or expulsion from the university, and/or a "Z Designation" on a student's official transcript indicating academic dishonesty, where the final grade for this course will be preceded by the letter Z. For more information about the Z Designation, see http://z.ucf.edu/. For more information about UCF's Rules of Conduct, see http://www.osc.sdes.ucf.edu/.

Diversity and Inclusion (Title IX) - The University of Central Florida considers the diversity of its students, faculty, and staff to be a strength and critical to its educational mission. UCF expects every member of the university community to contribute to an inclusive and respectful culture for all in its classrooms, work environments, and at campus events. Dimensions of diversity can include sex, race, age, national origin, ethnicity, gender identity and expression, intellectual and physical ability, sexual orientation, income, faith and non-faith perspectives, socio-economic class, political ideology, education, primary language, family status, military experience, cognitive style, and communication style. The individual intersection of these experiences and characteristics must be valued in our community. Title IX prohibits sex discrimination, including sexual misconduct, sexual violence, sexual harassment, and retaliation. If you or someone you know has been harassed or assaulted, you can find resources available to support the victim, including confidential resources and information concerning reporting options at www.shield.ucf.edu and http://cares.sdes.ucf.edu/. If there are aspects of the design, instruction, and/or experiences within this course that result in barriers to your inclusion or accurate assessment of achievement, please notify the instructor as soon as possible and/or contact Student Accessibility Services.

For more information on diversity and inclusion, Title IX, accessibility, or UCF's complaint processes contact:

- Title IX – EO/AA - http://www.eeo.ucf.edu/ & askanadvocate@ucf.edu
- Disability Accommodation – Student Accessibility Services - http://sas.sdes.ucf.edu/ & sas@ucf.edu
- Diversity and Inclusion Training and Events – www.diversity.ucf.edu
- Student Bias Grievances – Just Knights response team - http://jkrt.sdes.ucf.edu/
- UCF Compliance and Ethics Office - http://compliance.ucf.edu/ & complianceandethics@ucf.edu
- Ombuds Office - http://www.ombuds.ucf.edu

EIN - 6141 - Healthcare Systems Engineering Capstone

2018-2019 Graduate Course New

General Catalog Information

Read before you begin

1. TURN ON help text before starting this proposal by clicking in the top right corner of the heading.

2. FILL IN all fields required marked with an *. You will not be able to launch the proposal without completing required fields.

3. LAUNCH proposal by clicking in the top left corner.

Course additions must be accompanied by a course syllabus and rationale. Departments must also submit an electronic syllabus to the college curriculum person.

College*	College of Engineering and Computer Science
Unit / Department / College*	Department of Industrial Engineering and Management Systems
Approved Graduate Faculty/Scholars:*	Dr. Rick Beihl, Dr Vernet Lasrado, Dr. Ahmed Elshennawy
Prefix:*	EIN
Number:*	6141
Course Title:*	Healthcare Systems Engineering Capstone
30 Character Abbreviation:	Health Sys Engr Capstone
Course Description:*	Capstone course to depict role of a healthcare systems engineer with emphasis on project life cycle, quantitative and qualitative methods of cost, schedule, and performance.

Credit Hours:	3
Class Hours:	3
Lab and Field Work Hours:	0
Contact Hours:	
Variable Credit (1-99):	
Repeat for credit?	○ Yes ◉ No
If yes, indicate the total times the course may be used in the degree program.	
Repeat within same semester?	○ Yes ◉ No

NOTE: For a repeatable course, indicate in the syllabus what will remain the same and what will change when the course is repeated. Also indicate who approves content before a course is repeated.

Prerequisite(s):	Previous 9 courses of the HSE MS
Corequisite(s):	

Graded S/U? ○ Yes ◉ No

Split-Level Class: ○ Yes ◉ No

If offering a split-level class, complete this section even if it had been approved earlier for individual delivery.

List undergraduate split-level course:

NOTE: Both the graduate and the undergraduate split-level syllabi must be approved through the established university process for approving courses so that there are two separate and complete syllabi for each course. The graduate syllabus should clearly demonstrate more advanced subject matter, expectations, and rigor. Attach both undergraduate and graduate syllabi to this form.

Term of Offering

When will the course be offered? ☑ Odd Fall ☑ Even Fall ☐ Odd Spring ☐ Even Spring ☑ Odd Summer ☑ Even Summer ☐ Every Semester ☐ Occasional

Intended Utilization of Course

The course will be used primarily as: ◉ Required Course ○ Elective Course

New Field

New Materials and Supply Fees? * ○ Yes ◉ No

If yes, also complete the 2018-19 Graduate Materials and Supply Fee Request form.

Justification for Course Addition

What is the rationale for adding this course?

Primarily, the application of this topic to Healthcare Systems requires a different approach from the tradition IEMS class. All the material is specifically catered illustrate systems engineering principles in the Healthcare sector, more specifically, for health systems. For this class, a heavy emphasis is placed on a broad exposure to topics on the role of a healthcare systems engineer in the planning and execution for projects in health systems.

	Secondly, given the unique 7 week FULLY Online format of the classes in the HSE track, every class has to be customized. Hence, we are applying to have a unique course number so that students can easily differentiate between the regular semester long classes and the 7 week fully Online course specifically catered towards health systems.
What majors require or recommend this course for graduation?	IEMS Masters (Healthcare Systems Engineering Track)
If not a major requirement, what will be the source of students?	
What is the estimated annual enrollment?	15+ students

Possible duplications and conflicts with other departments or colleges should be discussed with appropriate parties. Please detail discussion you have had.

Detail Discussion	**PLEASE NOTE** -- Attached are the syllabus and the CAR form with the appoved signatures from the Department Chair, College Academic Standards, and College Dean. *The primary objective of this CAPSTONE course is to provide the student with a broad exposure to topics that cover the role of a healthcare systems engineer in the planning and execution of a systems engineering initiative via project management with emphasis on project life cycle, quantitative and qualitative methods of cost, schedule, and performance control.* This course is designed as a reflective practicum in which one learns to plan and manage projects by actually doing project planning and management. Throughout the course, emphasis will be placed on how the engineer as a project leader/member can balance fundamental concepts with cost, schedule and performance metrics to ensure successful project management and accomplishment. The course will emphasize a systems approach to planning, scheduling, and controlling for healthcare systems. This course consolidates the various Capstone Readiness assignments, occurring at the end of the previous nine classes in this Healthcare Systems Engineering program, into a project framework for a capstone project that targets annual savings of $50,000 or more. The project will likely not be completed by the end of this seven-week class, but should be on a glide path to success that will be acknowledged by project sponsors.

Attachment List

Please attach any required files by navigating to the Proposal Toolbox and clicking in the top right corner.

Check	☑ I have completed all relevant parts of the form.
Attached	☑ I have attached a course syllabus and rationale.
Smartfield Field	

Administration Use Only

Catalog Ownership:	
Course Type	
Status	○ Inactive-Hidden ○ Active-Visable

HEADING

University of Central Florida

Graduate Course Action Request Form

☑ Course Addition ☐ Course Revision ☐ Course Deletion

Forward to your college office

Course additions and course revisions must be accompanied by a course syllabus and rationale. Departments must also submit an electronic syllabus to the college curriculum person.

Course Information

College: CECS **Department:** IEMS

Department Chair: Dr. Waldemar Karwowski **Phone:** (407) 823-2204

Approved Graduate Faculty/Scholars: Dr. Rick Beihl, Dr Vernet Lasrado, Dr. Ahmad Elshennawy

	Course Prefix	Number	Title	Credit Hours Ex.: 3(3,0)
Current or New Course	EIN	6xxx	Healthcare Systems Engineering Capstone	3(3,0)
Proposed Course Revision				

30 Character Abbreviation: Health Sys Engr Capstone

Course Description (25 word limit)

Capstone course to depict role of a healthcare systems engineer with emphasis on project life cycle, quantitative and qualitative methods of cost, schedule, and performance.

New or revised Materials and Supply Fees? ☐ Yes ☑ No If yes, also complete the Materials and Supply Fee Request Form.

Repeat for credit? ☐ Yes ☑ No If yes, indicate the total times this course may be used in the degree program. _____

Repeat within same semester? ☐ Yes ☑ No

NOTE: For a repeatable course, indicate in the syllabus what will remain the same and what will change when the course is repeated. Also indicate who approves content before a course is repeated.

Prerequisite(s) and/or Corequisite(s): Prior 9 courses of the HSE MS program.

Graded S/U? ☐ Yes ☑ No

Split-Level Class: ☐ Yes ☑ No

If offering a split-level class, complete this section even if it had been approved earlier for individual delivery.

List undergraduate split-level course: _____

NOTE: Both the graduate and the undergraduate split-level syllabi must be approved through the established university process for approving courses so that there are two separate and complete syllabi for each course. The graduate syllabus should clearly demonstrate more advanced subject matter, expectations, and rigor. Attach both undergraduate and graduate syllabi to this form.

Term of Offering

When will the course be offered?

☑ Odd Fall ☐ Odd Spring ☑ Odd Summer ☐ Every Semester

☑ Even Fall ☐ Even Spring ☑ Even Summer ☐ Occasional

Intended Utilization of Course

The course will be used primarily as:

☑ Required Course ☐ Elective Course

Justification for Course Addition or Course Revision

What is the rationale for adding or revising this course?

Primarily, the application of this topic to Healthcare Systems requires a different approach from the tradition IEMS class. All the material is specifically catered illustrate systems engineering principles in the Healthcare sector, more specifically, for health systems. For this class, a heavy emphasis is placed on a broad exposure to topics on the role of a healthcare systems engineer in the planning and execution for projects in health systems.

Secondly, given the unique 7 week FULLY Online format of the classes in the HSE track, every class has to be customized. Hence, we are applying to have a unique course number so that students can easily differentiate between the regular semester long classes and the 7 week fully Online course specifically catered towards health systems.

What majors require or recommend this course for graduation? Industrial Engineering MS program (Healthcare Systems Engineering Track)

If not a major requirement, what will be the source of students? _____

What is the estimated annual enrollment? 15+ students

Possible duplications and conflicts with other departments or colleges should be discussed with appropriate parties. Please detail discussion you have had.

Justification for Course Deletion

Is this course a required course for graduation in a major or prerequisite? ☐ Yes ☐ No

If yes, have the involved major departments been informed, in writing, of proposed deletion? ☐ Yes ☐ No

If not, explain

Notes:

The primary objective of this CAPSTONE course is to provide the student with a broad exposure to topics that cover the role of a healthcare systems engineer in the planning and execution of a systems engineering initiative via project management with emphasis on project life cycle, quantitative and qualitative methods of cost, schedule, and performance control.

This course is designed as a reflective practicum in which one learns to plan and manage projects by actually doing project planning and management. Throughout the course, emphasis will be placed on how the engineer as a project leader/member can balance fundamental concepts with cost, schedule and performance metrics to ensure successful project management and accomplishment. The course will emphasize a systems approach to planning, scheduling, and controlling for healthcare systems. This course consolidates the various Capstone Readiness assignments, occurring at the end of the previous nine classes in this Healthcare Systems Engineering program, into a project framework for a capstone project that targets annual savings of $50,000 or more. The project will likely not be completed by the end of this seven-week class, but should be on a glide path to success that will be acknowledged by project sponsors.

Approval Signatures

Department Chair Waldemar Karwowski — Digitally signed by Waldemar Karwowski, DN: cn=Waldemar Karwowski, o, ou, email=wkarwowski@gmail.com, c=US, Date: 2018.03.09 14:49:37 -05'00' — **Date** _____

College Academic Standards _____ — **Date** 4/12/18

College Dean _____ — **Date** 4/17/18

Graduate Council _____ — **Date** _____

Vice President for Research and Dean of the College of Graduate Studies _____ — **Date** _____

EIN 6XXX: Healthcare Systems Engineering Capstone

Industrial Engineering & Management Systems Department
College of Engineering & Computer Science
University of Central Florida

COURSE SYLLABUS

Instructor:		Term:	Summer / Fall 20XX
Office:		Credits:	3
E-Mail:		Class Meeting Days:	Daily
Website:		Class Meeting Hours:	Continuous
Office Hours:		Class Location:	WebCourses@UCF

I. WELCOME & PURPOSE & GOALS

Welcome to Healthcare Systems Engineering Capstone (EIN 6XXX).

The primary objective of this CAPSTONE course is to provide the student with a broad exposure to topics that cover the role of a healthcare systems engineer in the planning and execution of a systems engineering initiative via project management with emphasis on project life cycle, quantitative and qualitative methods of cost, schedule, and performance control.

This course is designed as a reflective practicum in which one learns to plan and manage projects by actually doing project planning and management. Throughout the course, emphasis will be placed on how the engineer as a project leader/member can balance fundamental concepts with cost, schedule and performance metrics to ensure successful project management and accomplishment. The course will emphasize a systems approach to planning, scheduling, and controlling for healthcare systems. This course consolidates the various Capstone Readiness assignments, occurring at the end of the previous nine classes in this Healthcare Systems Engineering program, into a project framework for a capstone project that targets annual savings of $50,000 or more. The project will likely not be completed by the end of this seven-week class, but should be on a glide path to success that will be acknowledged by project sponsors.

II. COURSE DESCRIPTION (UCF Catalog)

Capstone course to depict role of a healthcare systems engineer with emphasis on project life cycle, quantitative and qualitative methods of cost, schedule, and performance.

III. COURSE PREREQUISITE

Prior 9 HSE Master's Courses.

IV. TEXTS AND MATERIALS

Nicholas, John M.; & Steyn, Herman (2012). *Project Management for Business Engineering and Technology*, 4th Edition. Routledge. 704 pages. ISBN 9780080967042.

Apker, Julike (2011). *Communication in Health Organizations*. Polity. 208 pages. ISBN 9780745647555.

Project Management Institute (2013). *A guide to the project management body of knowledge: (PMBOK guide)*. Fifth Edition. Newtown Square, PA: Project Management Institute, ISBN 9781935589679.

SOFTWARE & TOOLS:

- Microsoft Word, Excel, PowerPoint (or fully compatible suite)
- Internet access for Canvas, Internet, and UCF Library databases

V. LEARNING OBJECTIVES

- Differentiate planning requirements at the program, project, and personal levels, and describe how the impact of a systems engineering professional varies among these levels,
- Determine differences among healthcare systems project types and applications that impact project planning goals, activities, and outcomes,
- Differentiate the requirements for managing a project or initiative from the actual healthcare requirements that are being targeted by those projects and initiatives,
- Understand the sources of projects, including internal organizational goals or external regulatory constraints; and the way these factors must be accounted for in project planning,
- Propose project strategies for short and long-term systems initiatives in an organization, and gain management approval and commitment to plan the details of those strategies,
- Develop a project charter to define scope and manage initial project expectations, including roles and responsibilities with high-level timeframes,
- Address the issues of organization readiness and change management that impact most projects, particularly cross-organizational projects,
- Develop work breakdown structures for assigning deliverables-based activities among resources,
- Integrate the disciplines of quality, issue, and risk management into planning and management.
- Develop a comprehensive set of project planning artifacts for an informatics project,
- Conduct appropriate tracking and control of projects executing against such plans, and
- Describe the standards and professional guidelines that govern project management activities.

VI. COURSE SCHEDULE

This course uses readings, discussion, and assignments in WebCourses@UCF. Each week as described in the 'Learning Objectives' corresponds to a 'module' in WebCourses@UCF. Dates for opening, submitting, and closing of all assignments are defined within WedbCourses@UCF modules. Each week, students will be expects to complete the discussions, assignments, and any part of the course final project as described in the class schedule within the weekly WedbCourses@UCF modules. All work is intended to be completed solely by the individual enrolled in this course, working independently unless otherwise instructed.

Week 1 – Project Management Overview & Organizational Structures
Week 2 – Planning
Week 3 – Network Scheduling Techniques
Week 4 – Pricing, Estimating, and Cost Control
Week 5 – Trade-off Analysis and Risk Management
Week 6 – Organizational structures & Management Functions
Week 7 – Conflicts & the variables for Success

VII. WEEKLY READINGS, DISCUSSIONS, & ASSIGNMENT FRAMEWORK

Each weekly class unit includes a collection of readings and topical discussions. The discussion topics are designed to guide everyone through the more critical aspects of each week's readings, and to emphasize ideas that you should be thinking about as you develop your understanding of this course.

Discussion participation can't be a last minute activity each week. To earn full credit on discussions, it's important that you participate in a manner that supports an effective give-and-take dialogue. Typically, get your initial discussion posts posted by Wednesday evening so that they are available for others to read. Post your responses to others by early evening on Friday in order to give those learners an opportunity to see your responses and to formulate their responses to you. Continue your dialogues with others as they respond to your initial post and your replies through the rest of the weekend, with the discussions closing Sunday evening each week.

Each discussion topic is scored using a 40-point grading rubric that splits the score between your initial post (20 points) and your response posts (20 points). Unless otherwise noted in the topic posting, each topic requires at least two substantive responses as well as continuing dialogue with any learners who respond to your posts. It's fine to allow more of your postings to be less formal or scholarly. Encouraging or expressing agreement with your fellow learners is considered effective dialogue as long as some substantive responses are included among your postings. The rubric below focuses on the more substantive subset of anything you post in reply to others.

Discussion Participation Grading Rubric	
Initial Posting (20 points)	
0 points	The response post is missing, late, or isn't substantive. Substantive responses must directly address the topical themes and demonstrate critical thinking about the topic and the associated readings.
10 points	The posting addresses the topic, but doesn't seem to demonstrate any critical thinking about how the topic fits the unit theme, or how the unit readings support the topic.
20 points	The posting analyzes and applies course concepts in substantive ways, demonstrating thinking about the topic. Opinions expressed are grounded in the materials being discussed. The post is timely enough for other learners to respond within the deadlines, preferably before the mid-week.
Response Postings (20 points)	
0 points	The response posts are missing, late, or not effective. Effective responses must do more than simply agree with, or encourage, the original post, and they must be timely enough to allow continuing dialogue among learners within the unit deadlines.
10 points	The response addresses the content of the original post, but doesn't really include any thoughts regarding the topic or its fit in this class. Effective responses extend the conversation, allowing others to join in.
20 points	The responses do an effective job of drawing additional information from the original posters, or contribute additional substantive content to the original posts, or both. The posts are timely enough to allow the original posters to respond before the unit deadline, preferably before Friday afternoon. Responses are also made, when appropriate, to the responses received from others.

Each week, there will be an assignment due as well. Dates for opening, submitting, and closing of all assignments are defined within WedbCourses@UCF modules. Each assignment will be 100 points. The purpose of the assignment is to determine the level of competence on the material assigned for the week.

VIII. REFLECTION PROJECT

This course consolidates the various Capstone Readiness assignments, occurring at the end of the previous nine classes in this Healthcare Systems Engineering program, into a project framework for a capstone project that targets annual savings of $50,000 or more. The project will likely not be implemented by the end of this seven-week class, but should be on a glide path to success that will be acknowledged by project sponsors.

IX. GRADING

Course grades are determined by a weighted aggregation of scores earned on each distinct component of the course, as follows:

Component	Impact
DISCUSSIONS	**40%**
ACTIVITIES	**50%**
REFLECTION	**10%**

Final course grades will follow traditional UCF criteria: A > 90%, B > 80%, C > 70%, D > 60%, or F.

X. IMPORTANT DATES

TBD	Course opens in WebCourses@UCF
TBD	Classes officially begin
TBD	Drop/Swap Deadline
TBD	Class Add Deadline
TBD	Withdrawal Deadline
TBD	Last official day of class

XI. Policies

The following policies govern student participation and course grading and should be interpreted in the context of all applicable and current UCF policies and procedures:

1. Canvas discussions and e-mail/Inbox are the preferred mechanisms for all class communications.
2. E-mails to the instructor should only be used where personal privacy is required by law (e.g., by FERPA). Discussion posts are preferred (via the Ask Dr. Biehl thread in Canvas) to avoid having to answer many e-mails with the same or related questions.
3. Late assignments do not need to be communicated to the instructor. Informing the instructor of a planned absence or late submission does not constitute approval of that absence or late submission.
4. UCF policies on academic integrity will be **strictly enforced** in all discussions and assignments.
5. Any form of plagiarism or cheating shall result in a **Failing** grade in this class. Plagiarism includes any use of the materials of others as your own, including copying and pasting text from outside web pages or other sources as material in your discussion posts, term paper submissions, or examination essays.

XII. PROGRAM POLICIES & EXPECTATIONS

Students Rights and Responsibilities - Please know your rights and your responsibilities as a student. Go to the web site http://www.goldenrule.sdes.ucf.edu/ and read carefully THE UCF GOLDEN RULE. It is your responsibility and your right as well to be aware of it. Your academic behavior in the class should be based on the Golden Rule.

UCF Online Writing Tutors - Online students attending UCF can meet with tutors online from anywhere in the world through Adobe Connect, UCF's real-time, web-based consulting program. All online consultations are by appointment only. Please see their website for more information: https://uwc.cah.ucf.edu/attend-online/

Disability Access - Your success in this class is important to us and the University of Central Florida is committed to providing reasonable accommodations for all persons with disabilities. If there are aspects of this course that prevent you from learning or exclude you, please let us know as soon as possible at the start of the semester. Together we will develop strategies to meet both your needs and the requirements of the course. Students who need accommodations must be registered with Student Disability Services, Student Resource Center Room 132, phone (407) 823-2371, TTY/TDD only phone (407) 823-2116, before requesting accommodations from an instructor.

Ethics Statement - UCF faculty supports the UCF Creed. Integrity - practicing and defending academic and personal honesty - is the first tenet of the UCF Creed. This is in part a reflection of the second tenet: *Scholarship:* "I will cherish and honor learning as a fundamental purpose of membership in the UCF community." Course discussions, assignments, and activities are designed to have educational value; the process of preparing for and completing these exercises will help improve your skills and knowledge. Material presented to satisfy course requirements is therefore expected to be the result of your own original scholarly efforts.

Turnitin.com - Courses in this Program utilize ***turnitin.com***, an automated system that instructors can use to quickly and easily compare each student's assignment with billions of web sites as well as an enormous database of student papers that grows with each submission. Accordingly, you are expected to submit all assignments in electronic format only. After assignment processing, your instructor receives a report from turnitin.com that states if and how another author's work was used in any assignment. For a more detailed look at this process, visit http://www.turnitin.com.

Responses to Academic Dishonesty, Plagiarism, or Cheating - UCF faculty members have a responsibility for your education and the value of a UCF degree, and so seek to prevent unethical behavior and when necessary respond to infringements of academic integrity. Penalties can include a failing grade in an assignment or in the course, suspension or expulsion from the university, and/or a "Z Designation" on a student's official transcript indicating academic dishonesty, where the final grade for this course will be preceded by the letter Z. For more information about the Z Designation, see http://z.ucf.edu/. For more information about UCF's Rules of Conduct, see http://www.osc.sdes.ucf.edu/.

Diversity and Inclusion (Title IX) - The University of Central Florida considers the diversity of its students, faculty, and staff to be a strength and critical to its educational mission. UCF expects every member of the university community to contribute to an inclusive and respectful culture for all in its classrooms, work environments, and at campus events. Dimensions of diversity can include sex, race, age, national origin, ethnicity, gender identity and expression, intellectual and physical ability, sexual orientation, income, faith and non-faith perspectives, socio-economic class, political ideology, education, primary language, family status, military experience, cognitive style, and communication style. The individual intersection of these experiences and characteristics must be valued in our community. Title IX prohibits sex discrimination, including sexual misconduct, sexual violence, sexual harassment, and retaliation. If you or someone you know has been harassed or assaulted, you can find resources available to support the victim, including confidential resources and information concerning reporting options at www.shield.ucf.edu and http://cares.sdes.ucf.edu/. If there are aspects of the design, instruction, and/or experiences within this course that result in barriers to your inclusion or accurate assessment of achievement, please notify the instructor as soon as possible and/or contact Student Accessibility Services.

For more information on diversity and inclusion, Title IX, accessibility, or UCF's complaint processes contact:

- Title IX – EO/AA - http://www.eeo.ucf.edu/ & askanadvocate@ucf.edu
- Disability Accommodation – Student Accessibility Services - http://sas.sdes.ucf.edu/ & sas@ucf.edu
- Diversity and Inclusion Training and Events – www.diversity.ucf.edu
- Student Bias Grievances – Just Knights response team - http://jkrt.sdes.ucf.edu/
- UCF Compliance and Ethics Office - http://compliance.ucf.edu/ & complianceandethics@ucf.edu
- Ombuds Office - http://www.ombuds.ucf.edu

EIN - 6358 - Advanced Engineering Economics in Health Systems

2018-2019 Graduate Course New

General Catalog Information

Read before you begin

1. TURN ON help text before starting this proposal by clicking in the top right corner of the heading.

2. FILL IN all fields required marked with an *. You will not be able to launch the proposal without completing required fields.

3. LAUNCH proposal by clicking in the top left corner.

Course additions must be accompanied by a course syllabus and rationale. Departments must also submit an electronic syllabus to the college curriculum person.

College*	College of Engineering and Computer Science
Unit / Department / College*	Department of Industrial Engineering and Management Systems
Approved Graduate Faculty/Scholars:*	Dr. Ahmed Elshennawy, Dr. Richard Biehl
Prefix:*	EIN
Number:*	6358
Course Title:*	Advanced Engineering Economics in Health Systems
30 Character Abbreviation:	Adv Engr Econ in Health Sys
Course Description:*	Topics Include Grossman model on heallh economics, economics. economic oplimization, economic risk and uncerta inly, ulility funclions, and lhe allocalion of resources within hcallh systems.

Credit Hours:	3
Class Hours:	3
Lab and Field Work Hours:	0
Contact Hours:	
Variable Credit (1-99):	
Repeat for credit?	○ Yes ◉ No
If yes, indicate the total times the course may be used in the degree program.	
Repeat within same semester?	○ Yes ◉ No

NOTE: For a repeatable course, indicate in the syllabus what will remain the same and what will change when the course is repeated. Also indicate who approves content before a course is repeated.

Prerequisite(s):	Admission to the Healthcare Systems Engineering track of the Industrial Engineering MS program.
Corequisite(s):	

Graded S/U? ○ Yes ◉ No

Split-Level Class: ○ Yes ◉ No

If offering a split-level class, complete this section even if it had been approved earlier for individual delivery.

List undergraduate split-level course:

NOTE: Both the graduate and the undergraduate split-level syllabi must be approved through the established university process for approving courses so that there are two separate and complete syllabi for each course. The graduate syllabus should clearly demonstrate more advanced subject matter, expectations, and rigor. Attach both undergraduate and graduate syllabi to this form.

Term of Offering

When will the course be offered? ☐ Odd Fall ☐ Even Fall ☑ Odd Spring ☑ Even Spring ☐ Odd Summer ☐ Even Summer ☐ Every Semester ☐ Occasional

Intended Utilization of Course

The course will be used primarily as: ◉ Required Course ○ Elective Course

New Field

New Materials and Supply Fees? * ○ Yes ◉ No

If yes, also complete the 2018-19 Graduate Materials and Supply Fee Request form.

Justification for Course Addition

What is the rationale for adding this course?

Primarily, the application of this topic to Healthcare Systems requires a different approach from the tradition IEMS class. All the material is specifically catered illustrate systems engineering principles in the Healthcare sector, more specifically, for health systems. For this class, a heavy emphasis is placed on characterizing the economic concepts and variables that model interactions and relationships among engineered components of a social-scale health system.

Secondly, given the unique 7 week FULLY Online format of the classes in the HSE track, every class has to be customized. Hence, we are applying to have a unique course number so that students can easily differentiate between the regular semester long classes and the 7 week fully Online course specifically catered towards health systems.

What majors require or recommend this course for graduation?	IEMS Masters (Healthcare Systems Engineering Track)
If not a major requirement, what will be the source of students?	
What is the estimated annual enrollment?	15+ students

Possible duplications and conflicts with other departments or colleges should be discussed with appropriate parties. Please detail discussion you have had.

Detail Discussion	**PLEASE NOTE** -- Attached are the syllabus and the CAR form with the appoved signatures from the Department Chair, College Academic Standards, and College Dean. *The primary objective of this course is to provide the student with a solid understanding of the economic concepts and variables that model interactions and relationships among engineered components of a social-scale health system.* Engineering project analysis must optimize both financial return and health outcomes. Macroeconomic factors include dealing with a production possibilities curve that has no optimum solutions below a basic minimum level of health provision. Microeconomic factors include dealing with the ways that individuals and organizations discount future health risks, costs, and opportunities. These models carry implications for the system engineer in terms of project viability and service profitability or return on investment. This course will provide the necessary skills to make economic decisions for a health system using traditional economic and systems engineering principles. *(This course explicitly does not focus on engineering economics for government organizations nor non-profit enterprises.)*

Attachment List

Please attach any required files by navigating to the Proposal Toolbox and clicking in the top right corner.

Check	☑ I have completed all relevant parts of the form.
Attached	☑ I have attached a course syllabus and rationale.
Smartfield Field	

Administration Use Only

Catalog Ownership:	
Course Type	
Status	○ Inactive-Hidden ○ Active-Visable

HEADING

University of Central Florida

Graduate Course Action Request Form

☑ Course Addition ☐ Course Revision ☐ Course Deletion

Forward to your college office

Course additions and course revisions must be accompanied by a course syllabus and rationale. Departments must also submit an electronic syllabus to the college curriculum person.

Course Information

College: CECS **Department:** IEMS

Department Chair: Dr. Waldemar Karwowski **Phone:** (407) 823-2204

Approved Graduate Faculty/Scholars: Dr. Ahmed Elshennawy, Dr. Richard Biehl

	Course Prefix	Number	Title	Credit Hours Ex.: 3(3,0)
Current or New Course	EIN	6xxx	Advanced Engineering Economics in Health Systems	3(3,0)
Proposed Course Revision				

30 Character Abbreviation: Adv Engr Econ in Health Sys

Course Description (25 word limit)

Topics include Grossman model on health economics, economic worth, economic optimization, economic risk and uncertainty, utility functions, and the allocation of resources within health systems.

New or revised Materials and Supply Fees? ☐ Yes ☑ No If yes, also complete the Materials and Supply Fee Request Form.

Repeat for credit? ☐ Yes ☑ No If yes, indicate the total times this course may be used in the degree program. _____

Repeat within same semester? ☐ Yes ☑ No

NOTE: For a repeatable course, indicate in the syllabus what will remain the same and what will change when the course is repeated. Also indicate who approves content before a course is repeated.

Prerequisite(s) and/or Corequisite(s): Admission to the Healthcare Systems Engineering track of the Industrial Engineering MS program.

Graded S/U? ☐ Yes ☑ No

Split-Level Class: ☐ Yes ☑ No

If offering a split-level class, complete this section even if it had been approved earlier for individual delivery.

List undergraduate split-level course: _____

NOTE: Both the graduate and the undergraduate split-level syllabi must be approved through the established university process for approving courses so that there are two separate and complete syllabi for each course. The graduate syllabus should clearly demonstrate more advanced subject matter, expectations, and rigor. Attach both undergraduate and graduate syllabi to this form.

Term of Offering

When will the course be offered?

☐ Odd Fall ☑ Odd Spring ☐ Odd Summer ☐ Every Semester

☐ Even Fall ☑ Even Spring ☐ Even Summer ☐ Occasional

Intended Utilization of Course

The course will be used primarily as:

☑ Required Course ☐ Elective Course

Justification for Course Addition or Course Revision

What is the rationale for adding or revising this course?

Primarily, the application of this topic to Healthcare Systems requires a different approach from the tradition IEMS class. All the material is specifically catered illustrate systems engineering principles in the Healthcare sector, more specifically, for health systems. For this class, a heavy emphasis is placed on characterizing the economic concepts and variables that model interactions and relationships among engineered components of a social-scale health system.

Secondly, given the unique 7 week FULLY Online format of the classes in the HSE track, every class has to be customized. Hence, we are applying to have a unique course number so that students can easily differentiate between the regular semester long classes and the 7 week fully Online course specifically catered towards health systems.

What majors require or recommend this course for graduation? Industrial Engineering MS program (Healthcare Systems Engineering Track)

If not a major requirement, what will be the source of students? _____

What is the estimated annual enrollment? 15+ students

Possible duplications and conflicts with other departments or colleges should be discussed with appropriate parties. Please detail discussion you have had.

Justification for Course Deletion

Is this course a required course for graduation in a major or prerequisite? ☐ Yes ☐ No

If yes, have the involved major departments been informed, in writing, of proposed deletion? ☐ Yes ☐ No

If not, explain

Notes:

The primary objective of this course is to provide the student with a solid understanding of the economic concepts and variables that model interactions and relationships among engineered components of a social-scale health system.

Engineering project analysis must optimize both financial return and health outcomes. Macroeconomic factors include dealing with a production possibilities curve that has no optimum solutions below a basic minimum level of health provision. Microeconomic factors include dealing with the ways that individuals and organizations discount future health risks, costs, and opportunities. These models carry implications for the system engineer in terms of project viability and service profitability or return on investment. This course will provide the necessary skills to make economic decisions for a health system using traditional economic and systems engineering principles.

(This course explicitly does not focus on engineering economics for government organizations nor non-profit enterprises.)

Approval Signatures

Department Chair Waldemar Karwowski Digitally signed by Waldemar Karwowski DN: cn=Waldemar Karwowski, o, ou, email=wkarwowski@gmail.com, c=US Date: 2018.03.09 14:47:16 -05'00' **Date** _____

College Academic Standards _____ **Date** 4/12/18

College Dean _____ **Date** 4/17/18

Graduate Council _____ **Date** _____

Vice President for Research and Dean of the College of Graduate Studies _____ **Date** _____

EIN 6XXX: Advanced Engineering Economics in Health Systems

Industrial Engineering & Management Systems Department
College of Engineering & Computer Science
University of Central Florida

COURSE SYLLABUS

Instructor:		Term:	Spring 20XX
Office:		Credits:	3
E-Mail:		Class Meeting Days:	Daily
Website:		Class Meeting Hours:	Continuous
Office Hours:		Class Location:	WebCourses@UCF

I. WELCOME & PURPOSE & GOALS

Welcome to Advanced Engineering Economics in Health Systems (EIN 6XXX).

The primary objective of this course is to provide the student with a solid understanding of the economic concepts and variables that model interactions and relationships among engineered components of a social-scale health system.

Engineering project analysis must optimize both financial return and health outcomes. Macroeconomic factors include dealing with a production possibilities curve that has no optimum solutions below a basic minimum level of health provision. Microeconomic factors include dealing with the ways that individuals and organizations discount future health risks, costs, and opportunities. These models carry implications for the system engineer in terms of project viability and service profitability or return on investment. This course will provide the necessary skills to make economic decisions for a health system using traditional economic and systems engineering principles.

(This course explicitly does not focus on engineering economics for government organizations nor non-profit enterprises.)

II. COURSE DESCRIPTION (UCF Catalog)

Topics include Grossman model on health economics, economic worth, economic optimization, economic risk and uncertainty, utility functions, and the allocation of resources within health systems.

III. COURSE PREREQUISITE

Admission to the Healthcare Systems Engineering track of the Industrial Engineering MS program.

IV. TEXTS AND MATERIALS

Sullivan, William G.; Wicks, Elin M.; & Koelling, C. Patrick (2014). *Engineering Economy*, 16th Edition. Pearson. ISBN: 9780133439274.

Bhattacharya, Jay; Hyde, Timothy; & Tu, Peter (2013). *Health Economics*. Palgrave Macmillan. ISBN: 9781137029966.

Moriates, Christopher; Arora, Vineet; & Shah, Neel (2015). *Understanding Value-Based Healthcare*, 1st Edition. McGraw-Hill Education / Medical. ISBN: 9780071816984.

SOFTWARE & TOOLS:

- Microsoft Word, Excel, PowerPoint (or fully compatible suite)
- Internet access for Canvas, Internet, and UCF Library databases

V. LEARNING OBJECTIVES

Week 1 – Economics Viewpoints

- Understand the principles and general thought processes of engineering economics.
- Differentiate the various types and elements of cost of interest to the engineer, particularly as they pertain to the identification of break-even points and zones for cost and revenue scenarios.
- Identify elements and examples of the growing cost-quality gap in healthcare, particularly with respect to categories of systemic waste that can serve as focus points for our systems engineering.
- Understand, and be able to explain and illustrate, the concept and elements of price elasticity of demand; including the importance to our engineering that healthcare exhibit a downward-sloping demand curve.
- Explain the components and dynamics of the Grossman model for healthcare demand, and be able to adapt that model to larger organizational (rather than only individual) contexts.

Week 2 – Trade-Offs

- Understand the economic barriers and opportunities that drive workforce levels in healthcare, particularly the choices of becoming a physician or other highly skilled professional.
- Uncover the implications of the historical relationship between hospitals and the providers they serve, including the emerging role of the hospitalist as part of the hospital organization.
- Explain the impact of competitive issues among hospitals, and the price and quality issues that drive competition across different areas of clinical specialization.

- Explain the elements of the time value of money, including the impacts of interest, inflation, and depreciation (for non-monetary goods) on the value of cash or asset flows.
- Understand how multiple cash flow patterns that look very different can have a financial equivalence.

Week 3 – Evaluating Options

- Understand the demand for health insurance as the balancing of the marginal utility of income against the uncertainty of risk and the utility of risk aversion.
- Evaluate the economic viability of projects using a wide variety of time-sensitive modeling techniques.
- Appreciate that single-project evaluation is very sensitive to what are to be considered the financial flows associated with the project, and the timing against which such cash flows are anticipated to occur.
- Explore the implications of the commonly-used payback period for ensuring project viability, recognizing that the method is about politics as much as economics.

Week 4 – Trade-Offs in the System

- Explore the production possibilities interaction of health outcomes and expenditures, and generalize the expected sub-optimization of these possibilities in any healthcare system.
- Define how quality-adjusted life years can provide a criterion for choosing among alternatives that present at differing levels of cost-effectiveness, after some alternatives are ruled-out because they are dominated by other alternatives.
- Understand the dynamics that affect researching and offering of pharmaceutical products in the global market generally, and the United States market specifically.
- Adapt the constructs of acceptable and unacceptable variation to a generalized strategy of managing utilization of resources and outcomes achieved to minimize risks associated with both underuse and overuse (and basically, misuse) of processes and resources.

Week 5 – Trade-Offs Beyond the System

- Compare aspects of different healthcare systems and model around the world, and consider these models evolve or how practices could be adapted from one type of system into another.
- Explore the implications of using quality-adjusted life years as a central metric for evaluating healthcare utility.
- Understand the ways in which the economics of depreciation, price changes, taxes, and exchange rates can impact the viability of projects and initiatives.
- Recognize that even not-for-profit institutions can end up doing many things that end up being taxable as for-profit initiatives.
- Evaluate the trade-offs that occur when considering costs for marginal case investments versus costs on average, acknowledging that the choice of population and outcome metrics effect any interpretation of the differences.

Week 6 – External Factors

- Explore the distinctions created by externalities that create differences between the objectives and outcomes of personal versus public health.
- Identify trade-off options for aligning objectives and behaviors in both public health and engineering project domains.

- Understand the impact of variation that drives the need for sensitivity analysis within any improvement rationalization at the project or public health levels.

Week 7 – Risk & Decision-Making

- Discover the ways in which behavioral economics generally, and Prospect Theory specifically, help explain aspects of decision-making that can appear irrational in any strict sense by identifying common and key variations in strict probability and value estimation and selection.
- Deploy the concepts of time sensitivity to understanding why individual and organizational choices and behaviors can be completely rational despite appearing irrational to others; and use those distinctions to anticipate issues we'll face in implementing change.
- Explore some of the planning attributes and parameters that are needed to adequately and sufficiently model key performance variables that will become important during our engineering efforts. In particular, discover common tools for handling the variation needed in our models as a result of our uncertainty regarding the future of our variables.
- Highlight several positive healthcare system improvements that are gaining visibility in terms of their positive potential economic impact.

VI. COURSE SCHEDULE

This course uses readings, discussion, and assignments in WebCourses@UCF. Each week as described in the 'Learning Objectives' corresponds to a 'module' in WebCourses@UCF. Dates for opening, submitting, and closing of all assignments are defined within WedbCourses@UCF modules. Each week, students will be expects to complete the discussions, assignments, and any part of the course final project as described in the class schedule within the weekly WedbCourses@UCF modules. All work is intended to be completed solely by the individual enrolled in this course, working independently unless otherwise instructed.

VII. WEEKLY READINGS, DISCUSSIONS, & ASSIGNMENT FRAMEWORK

Each weekly class unit includes a collection of readings and topical discussions. The discussion topics are designed to guide everyone through the more critical aspects of each week's readings, and to emphasize ideas that you should be thinking about as you develop your understanding of this course.

Discussion participation can't be a last minute activity each week. To earn full credit on discussions, it's important that you participate in a manner that supports an effective give-and-take dialogue. Typically, get your initial discussion posts posted by Wednesday evening so that they are available for others to read. Post your responses to others by early evening on Friday in order to give those learners an opportunity to see your responses and to formulate their responses to you. Continue your dialogues with others as they respond to your initial post and your replies through the rest of the weekend, with the discussions closing Sunday evening each week.

Each discussion topic is scored using a 40-point grading rubric that splits the score between your initial post (20 points) and your response posts (20 points). Unless otherwise noted in the topic posting, each topic requires at least two substantive responses as well as continuing dialogue with any learners who respond to your posts. It's fine to allow more of your postings to be less formal or scholarly. Encouraging or expressing agreement with your fellow learners is considered effective dialogue as long as some substantive responses are included among your postings. The rubric below focuses on the more substantive subset of anything you post in reply to others.

Discussion Participation Grading Rubric	
Initial Posting (20 points)	
0 points	The response post is missing, late, or isn't substantive. Substantive responses must directly address the topical themes and demonstrate critical thinking about the topic and the associated readings.
10 points	The posting addresses the topic, but doesn't seem to demonstrate any critical thinking about how the topic fits the unit theme, or how the unit readings support the topic.
20 points	The posting analyzes and applies course concepts in substantive ways, demonstrating thinking about the topic. Opinions expressed are grounded in the materials being discussed. The post is timely enough for other learners to respond within the deadlines, preferably before the mid-week.
Response Postings (20 points)	
0 points	The response posts are missing, late, or not effective. Effective responses must do more than simply agree with, or encourage, the original post, and they must be timely enough to allow continuing dialogue among learners within the unit deadlines.
10 points	The response addresses the content of the original post, but doesn't really include any thoughts regarding the topic or its fit in this class. Effective responses extend the conversation, allowing others to join in.
20 points	The responses do an effective job of drawing additional information from the original posters, or contribute additional substantive content to the original posts, or both. The posts are timely enough to allow the original posters to respond before the unit deadline, preferably before Friday afternoon. Responses are also made, when appropriate, to the responses received from others.

Each week, there will be an assignment due as well. Dates for opening, submitting, and closing of all assignments are defined within WedbCourses@UCF modules. Each assignment will be 100 points. The purpose of the assignment is to determine the level of competence on the material assigned for the week.

VIII. REFLECTION PROJECT

Your written project in this class is intended to allow you to apply advanced engineering economics principals to healthcare economics, using a perspective that supports your interest. You'll conduct some extra readings or research, and write a small paper on your topical reflections. Some *engineering economic* perspectives on healthcare economics that would be acceptable for your reflective writing:

- Effect of government involvement in healthcare
- Competitive impacts among large-scale healthcare organizations
- Impacts of the pharmaceutical and medical device sectors
- Alternative healthcare delivery models and structures
- A world in which everyone was much healthier than today
- National or global system integration of healthcare records

You are welcome to choose one of these as your topic area, or select something else of your choosing that is comparable and has your interest. The extra reading or research that you do throughout the latter half of class is to explore your chosen perspective, attempting to use the various models and discussions throughout this class as organizing principles for your reflection. You will explore your chosen perspective either very broadly, or through some more specific avenue in which you might have an interest.

IX. GRADING

Course grades are determined by a weighted aggregation of scores earned on each distinct component of the course, as follows:

Component	Impact
DISCUSSIONS	**40%**
ACTIVITIES	**50%**
REFLECTION	**10%**

Final course grades will follow traditional UCF criteria: A > 90%, B > 80%, C > 70%, D > 60%, or F.

X. IMPORTANT DATES

TBD	Course opens in WebCourses@UCF
TBD	Classes officially begin
TBD	Drop/Swap Deadline
TBD	Class Add Deadline
TBD	Last official day of class

XI. Policies

The following policies govern student participation and course grading and should be interpreted in the context of all applicable and current UCF policies and procedures:

1. Canvas discussions and e-mail/Inbox are the preferred mechanisms for all class communications.
2. E-mails to the instructor should only be used where personal privacy is required by law (e.g., by FERPA). Discussion posts are preferred (via the Ask Dr. Biehl thread in Canvas) to avoid having to answer many e-mails with the same or related questions.
3. Late assignments do not need to be communicated to the instructor. Informing the instructor of a planned absence or late submission does not constitute approval of that absence or late submission.
4. UCF policies on academic integrity will be **strictly enforced** in all discussions and assignments.
5. Any form of plagiarism or cheating shall result in a **Failing** grade in this class. Plagiarism includes any use of the materials of others as your own, including copying and pasting text from outside web pages or other sources as material in your discussion posts, term paper submissions, or examination essays.

XII. PROGRAM POLICIES & EXPECTATIONS

Students Rights and Responsibilities - Please know your rights and your responsibilities as a student. Go to the web site http://www.goldenrule.sdes.ucf.edu/ and read carefully THE UCF GOLDEN RULE. It is your responsibility and your right as well to be aware of it. Your academic behavior in the class should be based on the Golden Rule.

UCF Online Writing Tutors - Online students attending UCF can meet with tutors online from anywhere in the world through Adobe Connect, UCF's real-time, web-based consulting program. All online consultations are by appointment only. Please see their website for more information: https://uwc.cah.ucf.edu/attend-online/

Disability Access - Your success in this class is important to us and the University of Central Florida is committed to providing reasonable accommodations for all persons with disabilities. If there are aspects of this course that prevent you from learning or exclude you, please let us know as soon as possible at the start of the semester. Together we will develop strategies to meet both your needs and the requirements of the course. Students who need accommodations must be registered with Student Disability Services, Student Resource Center Room 132, phone (407) 823-2371, TTY/TDD only phone (407) 823-2116, before requesting accommodations from an instructor.

Ethics Statement - UCF faculty supports the UCF Creed. Integrity - practicing and defending academic and personal honesty - is the first tenet of the UCF Creed. This is in part a reflection of the second tenet: *Scholarship:* "I will cherish and honor learning as a fundamental purpose of membership in the UCF community." Course discussions, assignments, and activities are designed to have educational value; the process of preparing for and completing these exercises will help improve your skills and knowledge. Material presented to satisfy course requirements is therefore expected to be the result of your own original scholarly efforts.

Turnitin.com - Courses in this Program utilize ***turnitin.com***, an automated system that instructors can use to quickly and easily compare each student's assignment with billions of web sites as well as an enormous database of student papers that grows with each submission. Accordingly, you are expected to submit all assignments in electronic format only. After assignment processing, your instructor receives a report from turnitin.com that states if and how another author's work was used in any assignment. For a more detailed look at this process, visit http://www.turnitin.com.

Responses to Academic Dishonesty, Plagiarism, or Cheating - UCF faculty members have a responsibility for your education and the value of a UCF degree, and so seek to prevent unethical behavior and when necessary respond to infringements of academic integrity. Penalties can include a failing grade in an assignment or in the course, suspension or expulsion from the university, and/or a "Z Designation" on a student's official transcript indicating academic dishonesty, where the final grade for this course will be preceded by the letter Z. For more information about the Z Designation, see http://z.ucf.edu/. For more information about UCF's Rules of Conduct, see http://www.osc.sdes.ucf.edu/.

Diversity and Inclusion (Title IX) - The University of Central Florida considers the diversity of its students, faculty, and staff to be a strength and critical to its educational mission. UCF expects every member of the university community to contribute to an inclusive and respectful culture for all in its classrooms, work environments, and at campus events. Dimensions of diversity can include sex, race, age, national origin, ethnicity, gender identity and expression, intellectual and physical ability, sexual orientation, income, faith and non-faith perspectives, socio-economic class, political ideology, education, primary language, family status, military experience, cognitive style, and communication style. The individual intersection of these experiences and characteristics must be valued in our community. Title IX prohibits sex discrimination, including sexual misconduct, sexual violence, sexual harassment, and retaliation. If you or someone you know has been harassed or assaulted, you can find resources available to support the victim, including confidential resources and information concerning reporting options at www.shield.ucf.edu and http://cares.sdes.ucf.edu/. If there are aspects of the design, instruction, and/or experiences within this course that result in barriers to your inclusion or accurate assessment of achievement, please notify the instructor as soon as possible and/or contact Student Accessibility Services.

For more information on diversity and inclusion, Title IX, accessibility, or UCF's complaint processes contact:

- Title IX – EO/AA - http://www.eeo.ucf.edu/ & askanadvocate@ucf.edu
- Disability Accommodation – Student Accessibility Services - http://sas.sdes.ucf.edu/ & sas@ucf.edu
- Diversity and Inclusion Training and Events – www.diversity.ucf.edu
- Student Bias Grievances – Just Knights response team - http://jkrt.sdes.ucf.edu/
- UCF Compliance and Ethics Office - http://compliance.ucf.edu/ & complianceandethics@ucf.edu
- Ombuds Office - http://www.ombuds.ucf.edu

ESI - 5218 - Statistics in Health Systems

2018-2019 Graduate Course New

General Catalog Information

Read before you begin

1. TURN ON help text before starting this proposal by clicking in the top right corner of the heading.

2. FILL IN all fields required marked with an *. You will not be able to launch the proposal without completing required fields.

3. LAUNCH proposal by clicking in the top left corner.

Course additions must be accompanied by a course syllabus and rationale. Departments must also submit an electronic syllabus to the college curriculum person.

College*	College of Engineering and Computer Science
Unit / Department / College*	Department of Industrial Engineering and Management Systems
Approved Graduate Faculty/Scholars:*	Dr. Ahmed Elshennawy, Dr. Richard Biehl, Dr. Vernet Lasrado, Dr. Ibrahim Zeini
Prefix:*	ESI
Number:*	5218
Course Title:*	Statistics in Health Systems
30 Character Abbreviation:	Statistics in Health Systems
Course Description:*	Data collection, descriptive statistics, discrete and continuous probability distributions, sampling techniques, statistical estimation, hypothesis testing, regression, nonparametric stats and ANOVA applied to Health Systems.

Credit Hours:	3
Class Hours:	3
Lab and Field Work Hours:	0
Contact Hours:	
Variable Credit (1-99):	
Repeat for credit?	○ Yes ◉ No
If yes, indicate the total times the course may be used in the degree program.	
Repeat within same semester?	○ Yes ◉ No

NOTE: For a repeatable course, indicate in the syllabus what will remain the same and what will change when the course is repeated. Also indicate who approves content before a course is repeated.

Prerequisite(s):	Admission to the Healthcare Systems Engineering track of the Industrial Engineering MS Program.
Corequisite(s):	

Graded S/U? ○ Yes ◉ No

Split-Level Class: ○ Yes ◉ No

If offering a split-level class, complete this section even if it had been approved earlier for individual delivery.

List undergraduate split-level course:

NOTE: Both the graduate and the undergraduate split-level syllabi must be approved through the established university process for approving courses so that there are two separate and complete syllabi for each course. The graduate syllabus should clearly demonstrate more advanced subject matter, expectations, and rigor. Attach both undergraduate and graduate syllabi to this form.

Term of Offering

When will the course be offered? ☑ Odd Fall ☑ Even Fall ☐ Odd Spring ☐ Even Spring ☑ Odd Summer ☑ Even Summer ☐ Every Semester ☐ Occasional

Intended Utilization of Course

The course will be used primarily as: ◉ Required Course ○ Elective Course

New Field

New Materials and Supply Fees? * ○ Yes ◉ No

If yes, also complete the 2018-19 Graduate Materials and Supply Fee Request form.

Justification for Course Addition

What is the rationale for adding this course?

Primarily, the application of this topic to Healthcare Systems requires a different approach from the tradition IEMS class. All the material is specifically catered illustrate systems engineering principles in the Healthcare sector, more specifically, for health systems. For this class, a heavy emphasis is placed on characterizing the distribution of random variables that will be used to simulate processes or predict outcomes in health systems.

	Secondly, given the unique 7 week FULLY Online format of the classes in the HSE track, every class has to be customized. Hence, we are applying to have a unique course number so that students can easily differentiate between the regular semester long classes and the 7 week fully Online course specifically catered towards health systems.

What majors require or recommend this course for graduation?	IEMS Masters (Healthcare Systems Engineering Track)

If not a major requirement, what will be the source of students?	

What is the estimated annual enrollment?	15+ students

Possible duplications and conflicts with other departments or colleges should be discussed with appropriate parties. Please detail discussion you have had.

Detail Discussion	**PLEASE NOTE** -- Attached are the syllabus and the CAR form with the appoved signatures from the Department Chair, College Academic Standards, and College Dean. *The primary objective of this course is to provide the student with a solid understanding of fundamental probability and statistical principles, their underlying assumptions, the procedures for implementing them, and how to interpret them in the context of health systems.* Discrete and continuous probability distributions, hypothesis testing, regression, nonparametric stats and ANOVA illustrated with applications in health systems. The course starts with a brief overview of data collection and presentation, descriptive statistics, sampling techniques and theory, statistical estimation and hypothesis testing. The course will emphasize characterizing the distribution of random variables that will be used to simulate processes or predict outcomes with an application to health systems. The primary objective of this course is to provide a solid understanding of fundamental probability and statistical principles, their underlying assumptions, the procedures for implementing them, and how to interpret them. A heavy emphasis is placed on characterizing the distribution of random variables that will be used to simulate processes or predict outcomes in health systems.

Attachment List

Please attach any required files by navigating to the Proposal Toolbox and clicking in the top right corner.

Check	☑ I have completed all relevant parts of the form.
Attached	☑ I have attached a course syllabus and rationale.
Smartfield Field	

Administration Use Only

Catalog Ownership:	
Course Type	
Status	○ Inactive-Hidden ○ Active-Visable

HEADING

University of Central Florida

Graduate Course Action Request Form

☑ Course Addition ☐ Course Revision ☐ Course Deletion

Forward to your college office

Course additions and course revisions must be accompanied by a course syllabus and rationale. Departments must also submit an electronic syllabus to the college curriculum person.

Course Information

College: CECS **Department:** IEMS

Department Chair: Dr. Waldemar Karwowski **Phone:** (407) 823-2204

Approved Graduate Faculty/Scholars: Dr. Ahmed Elshennawy

	Course Prefix	Number	Title	Credit Hours Ex.: 3(3,0)
Current or New Course	ESI	5XXX	Statistics in Health Systems	3(3,0)
Proposed Course Revision				

30 Character Abbreviation: Statistics in Health Systems

Course Description (25 word limit)

Data collection, descriptive statistics, discrete and continuous probability distributions, sampling techniques, statistical estimation, hypothesis testing, regression, nonparametric stats and ANOVA applied to Health Systems.

New or revised Materials and Supply Fees? ☐ Yes ☑ No If yes, also complete the Materials and Supply Fee Request Form.

Repeat for credit? ☐ Yes ☑ No If yes, indicate the total times this course may be used in the degree program. _____

Repeat within same semester? ☐ Yes ☑ No

NOTE: For a repeatable course, indicate in the syllabus what will remain the same and what will change when the course is repeated. Also indicate who approves content before a course is repeated.

Prerequisite(s) and/or Corequisite(s): Admission to the Healthcare Systems Engineering track of the Industrial Engineering MS program.

Graded S/U? ☐ Yes ☑ No

Split-Level Class: ☐ Yes ☑ No

If offering a split-level class, complete this section even if it had been approved earlier for individual delivery.

List undergraduate split-level course: _____

NOTE: Both the graduate and the undergraduate split-level syllabi must be approved through the established university process for approving courses so that there are two separate and complete syllabi for each course. The graduate syllabus should clearly demonstrate more advanced subject matter, expectations, and rigor. Attach both undergraduate and graduate syllabi to this form.

Term of Offering

When will the course be offered?

☑ Odd Fall ☐ Odd Spring ☑ Odd Summer ☐ Every Semester

☑ Even Fall ☐ Even Spring ☑ Even Summer ☐ Occasional

Intended Utilization of Course

The course will be used primarily as:

☑ Required Course ☐ Elective Course

Justification for Course Addition or Course Revision

What is the rationale for adding or revising this course?

Primarily, the application of this topic to Healthcare Systems requires a different approach from the tradition IEMS class. All the material is specifically catered illustrate systems engineering principles in the Healthcare sector, more specifically, for health systems. For this class, a heavy emphasis is placed on characterizing the distribution of random variables that will be used to simulate processes or predict outcomes in health systems.

Secondly, given the unique 7 week FULLY Online format of the classes in the HSE track, every class has to be customized. Hence, we are applying to have a unique course number so that students can easily differentiate between the regular semester long classes and the 7 week fully Online course specifically catered towards health systems.

What majors require or recommend this course for graduation? Industrial Engineering MS program (Healthcare Systems Engineering Track)

If not a major requirement, what will be the source of students? _____

What is the estimated annual enrollment? 15+ students

Possible duplications and conflicts with other departments or colleges should be discussed with appropriate parties. Please detail discussion you have had.

Justification for Course Deletion

Is this course a required course for graduation in a major or prerequisite? ☐ Yes ☐ No

If yes, have the involved major departments been informed, in writing, of proposed deletion? ☐ Yes ☐ No

If not, explain

Notes:

The primary objective of this course is to provide the student with a solid understanding of fundamental probability and statistical principles, their underlying assumptions, the procedures for implementing them, and how to interpret them in the context of health systems.

Discrete and continuous probability distributions, hypothesis testing, regression, nonparametric stats and ANOVA illustrated with applications in health systems. The course starts with a brief overview of data collection and presentation, descriptive statistics, sampling techniques and theory, statistical estimation and hypothesis testing. The course will emphasize characterizing the distribution of random variables that will be used to simulate processes or predict outcomes with an application to health systems. The primary objective of this course is to provide a solid understanding of fundamental probability and statistical principles, their underlying assumptions, the procedures for implementing them, and how to interpret them. A heavy emphasis is placed on characterizing the distribution of random variables that will be used to simulate processes or predict outcomes in health systems.

Approval Signatures

Department Chair Waldemar Karwowski — Digitally signed by Waldemar Karwowski, DN: cn=Waldemar Karwowski, o, ou, email=wkarwowski@gmail.com, c=US, Date: 2018.03.09 14:48:33 -05'00' — **Date** _____

College Academic Standards _____ — **Date** 4/12/18

College Dean _____ — **Date** 4/17/18

Graduate Council _____ — **Date** _____

Vice President for Research and Dean of the College of Graduate Studies _____ — **Date** _____

ESI 5XXX: Statistics in Health Systems

Industrial Engineering & Management Systems Department
College of Engineering & Computer Science
University of Central Florida

COURSE SYLLABUS

Instructor:		Term:	Fall / Summer 20XX
Office:		Credits:	3
E-Mail:		Class Meeting Days:	Daily
Website:		Class Meeting Hours:	Continuous
Office Hours:		Class Location:	WebCourses@UCF

I. WELCOME & PURPOSE & GOALS

Welcome to Statistics in Health Systems (ESI 6XXX).

The primary objective of this course is to provide the student with a solid understanding of fundamental probability and statistical principles, their underlying assumptions, the procedures for implementing them, and how to interpret them in the context of health systems.

Discrete and continuous probability distributions, hypothesis testing, regression, nonparametric stats and ANOVA illustrated with applications in health systems. The course starts with a brief overview of data collection and presentation, descriptive statistics, sampling techniques and theory, statistical estimation and hypothesis testing. The course will emphasize characterizing the distribution of random variables that will be used to simulate processes or predict outcomes with an application to health systems. The primary objective of this course is to provide a solid understanding of fundamental probability and statistical principles, their underlying assumptions, the procedures for implementing them, and how to interpret them. A heavy emphasis is placed on characterizing the distribution of random variables that will be used to simulate processes or predict outcomes in health systems.

II. COURSE DESCRIPTION (UCF Catalog)

Data collection, descriptive statistics, discrete and continuous probability distributions, sampling techniques, statistical estimation, hypothesis testing, regression, nonparametric stats and ANOVA applied to Health Systems.

III. COURSE PREREQUISITE

Admission to the Healthcare Systems Engineering track of the Industrial Engineering MS program.

Each week, there will be an assignment due as well. Dates for opening, submitting, and closing of all assignments are defined within WedCourses@UCF modules. Each assignment will be 100 points. The purpose of the assignment is to determine the level of competence on the material assigned for the week.

VIII. Data Analysis PROJECT

Locate and download the two (or more) healthcare-related datasets you will be using for your analysis in this project. HealthData.gov, healthcarequalitydata.org, healthdata.org, and Data.Medicare.gov are excellent sources of interesting datasets, so you should look around all of them for data that interests you. The datasets must contain multiple quantitative clinical, financial, metric, or administrative columns that can be analyzed statistically in your analysis, and they must contain one or more data attributes that can be used to connect the data across the datasets (e.g., geographic indicators like city, state, or zip; diagnostic or procedural codes; organizational or provider identifiers). The datasets are likely be at different grains (i.e., levels of detail), and that's okay. One might present details while another might present aggregated summaries. The point is to choose datasets that are complex enough to warrant the various kinds of statistical analyses you'll be carrying out over the remaining five weeks of class.

Create an initial shell Microsoft Word document for your entire project (e.g., Introduction, Literature Review, Methodology, Results, Conclusion, Appendices) and use it to document your selected datasets. You can choose how and where to provide this documentation in your document, but the typical expectation is that the Introduction will include a brief description of the datasets (i.e. think of it as demographic more than statistical at this point), and an Appendix will provide a column-by-column definition of all of the relevant columns of each dataset. Somewhere in there, you should describe the grain of each dataset, and how the data across the datasets can be connected for analysis.

IX. GRADING

Course grades are determined by a weighted aggregation of scores earned on each distinct component of the course, as follows:

Component	Impact
DISCUSSIONS	**40%**
ACTIVITIES	**30%**
Project	**30%**

Final course grades will follow traditional UCF criteria: A > 90%, B > 80%, C > 70%, D > 60%, or F.

X. IMPORTANT DATES

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XI. Policies

The following policies govern student participation and course grading and should be interpreted in the context of all applicable and current UCF policies and procedures:

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XII. PROGRAM POLICIES & EXPECTATIONS

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UCF Online Writing Tutors - Online students attending UCF can meet with tutors online from anywhere in the world through Adobe Connect, UCF's real-time, web-based consulting program. All online consultations are by appointment only. Please see their website for more information: https://uwc.cah.ucf.edu/attend-online/

Disability Access - Your success in this class is important to us and the University of Central Florida is committed to providing reasonable accommodations for all persons with disabilities. If there are aspects of this course that prevent you from learning or exclude you, please let us know as soon as possible at the start of the semester. Together we will develop strategies to meet both your needs and the requirements of the course. Students who need accommodations must be registered with Student Disability Services, Student Resource Center Room 132, phone (407) 823-2371, TTY/TDD only phone (407) 823-2116, before requesting accommodations from an instructor.

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- Disability Accommodation – Student Accessibility Services - http://sas.sdes.ucf.edu/ & sas@ucf.edu
- Diversity and Inclusion Training and Events – www.diversity.ucf.edu
- Student Bias Grievances – Just Knights response team - http://jkrt.sdes.ucf.edu/
- UCF Compliance and Ethics Office - http://compliance.ucf.edu/ & complianceandethics@ucf.edu
- Ombuds Office - http://www.ombuds.ucf.edu

ESI - 5534 - Discrete Event Simulation in Health Systems

2018-2019 Graduate Course New

General Catalog Information

Read before you begin

1. TURN ON help text before starting this proposal by clicking in the top right corner of the heading.

2. FILL IN all fields required marked with an *. You will not be able to launch the proposal without completing required fields.

3. LAUNCH proposal by clicking in the top left corner.

Course additions must be accompanied by a course syllabus and rationale. Departments must also submit an electronic syllabus to the college curriculum person.

College*	College of Engineering and Computer Science
Unit / Department / College*	Department of Industrial Engineering and Management Systems
Approved Graduate Faculty/Scholars:*	Dr. Richard Biehl, Dr. Luis Rabello, Dr. Vernet Lasrado
Prefix:*	ESI
Number:*	5534
Course Title:*	Discrete Event Simulation in Health Systems
30 Character Abbreviation:	Dist Evnt Simu in Health Sys
Course Description:*	Topics include operational modeling of patient flow, provider assignment, facility and asset utilization, care protocol planning, and optimization through Health Technology Assessment in Health Systems.

Credit Hours:	3
Class Hours:	3
Lab and Field Work Hours:	0
Contact Hours:	
Variable Credit (1-99):	
Repeat for credit?	○ Yes ◉ No
If yes, indicate the total times the course may be used in the degree program.	
Repeat within same semester?	○ Yes ◉ No

NOTE: For a repeatable course, indicate in the syllabus what will remain the same and what will change when the course is repeated. Also indicate who approves content before a course is repeated.

Prerequisite(s):	ESI 5219 (or equivalent statistics course)
Corequisite(s):	

Graded S/U? ○ Yes ◉ No

Split-Level Class: ○ Yes ◉ No

If offering a split-level class, complete this section even if it had been approved earlier for individual delivery.

List undergraduate split-level course:

NOTE: Both the graduate and the undergraduate split-level syllabi must be approved through the established university process for approving courses so that there are two separate and complete syllabi for each course. The graduate syllabus should clearly demonstrate more advanced subject matter, expectations, and rigor. Attach both undergraduate and graduate syllabi to this form.

Term of Offering

When will the course be offered? ☑ Odd Fall ☑ Even Fall ☐ Odd Spring ☐ Even Spring ☐ Odd Summer ☐ Even Summer ☐ Every Semester ☐ Occasional

Intended Utilization of Course

The course will be used primarily as: ◉ Required Course ○ Elective Course

New Field

New Materials and Supply Fees? * ○ Yes ◉ No

If yes, also complete the 2018-19 Graduate Materials and Supply Fee Request form.

Justification for Course Addition

What is the rationale for adding this course?

Primarily, the application of this topic to Healthcare Systems requires a different approach from the tradition IEMS class. All the material is specifically catered illustrate systems engineering principles in the Healthcare sector, more specifically, for health systems. For this class, a heavy emphasis is placed on the use of discrete event simulation to uncover system dynamics at different layers of a health system.

	Secondly, given the unique 7 week FULLY Online format of the classes in the HSE track, every class has to be customized. Hence, we are applying to have a unique course number so that students can easily differentiate between the regular semester long classes and the 7 week fully Online course specifically catered towards health systems.

What majors require or recommend this course for graduation?	IEMS Masters (Healthcare Systems Engineering Track)

If not a major requirement, what will be the source of students?	

What is the estimated annual enrollment?	15+ students

Possible duplications and conflicts with other departments or colleges should be discussed with appropriate parties. Please detail discussion you have had.

Detail Discussion	**PLEASE NOTE** -- Attached are the syllabus and the CAR form with the appoved signatures from the Department Chair, College Academic Standards, and College Dean. *The primary objective of this course is to provide the student with a solid understanding of the implementation and the use of discrete event simulation to uncover system dynamics at different layers of a health system.* Methods for performing discrete systems simulation, including network modeling, will be treated with an application to healthcare systems. Developing such simulations requires modeling systems and dealing with the inherent uncertainties of multiple variables and interactions in health systems. Input variables and data will require alignment with common probabilistic distributions, as well a variety of influence and interaction modeling perspectives. Topics include operational modeling of patient flow, provider assignment, facility and asset utilization, care protocol planning, and optimization through Health Technology Assessment in Health Systems.

Attachment List

Please attach any required files by navigating to the Proposal Toolbox and clicking in the top right corner.

Check	☑ I have completed all relevant parts of the form.
Attached	☑ I have attached a course syllabus and rationale.
Smartfield Field	

Administration Use Only

Catalog Ownership:	
Course Type	
Status	○ Inactive-Hidden ○ Active-Visable

HEADING

University of Central Florida

Graduate Course Action Request Form

☑ Course Addition ☐ Course Revision ☐ Course Deletion

Forward to your college office

Course additions and course revisions must be accompanied by a course syllabus and rationale. Departments must also submit an electronic syllabus to the college curriculum person.

Course Information

College: CECS **Department:** IEMS

Department Chair: Dr. Waldemar Karwowski **Phone:** (407) 823-2204

Approved Graduate Faculty/Scholars: Dr. Richard Biehl, Dr. Luis Rabello

	Course Prefix	Number	Title	Credit Hours Ex.: 3(3,0)
Current or New Course	ESI	5xxx	Discrete Event Simulation in Health Systems	3(3,0)
Proposed Course Revision				

30 Character Abbreviation: Dist Evnt Simu in Health Sys

Course Description (25 word limit)

Topics include operational modeling of patient flow, provider assignment, facility and asset utilization, care protocol planning, and optimization through Health Technology Assessment in Health Systems.

New or revised Materials and Supply Fees? ☐ Yes ☑ No If yes, also complete the Materials and Supply Fee Request Form.

Repeat for credit? ☐ Yes ☑ No If yes, indicate the total times this course may be used in the degree program. _____

Repeat within same semester? ☐ Yes ☑ No

NOTE: For a repeatable course, indicate in the syllabus what will remain the same and what will change when the course is repeated. Also indicate who approves content before a course is repeated.

Prerequisite(s) and/or Corequisite(s): Admission to the Healthcare Systems Engineering track of the Industrial Engineering MS program.

Graded S/U? ☐ Yes ☑ No

Split-Level Class: ☐ Yes ☑ No

If offering a split-level class, complete this section even if it had been approved earlier for individual delivery.

List undergraduate split-level course: _____

NOTE: Both the graduate and the undergraduate split-level syllabi must be approved through the established university process for approving courses so that there are two separate and complete syllabi for each course. The graduate syllabus should clearly demonstrate more advanced subject matter, expectations, and rigor. Attach both undergraduate and graduate syllabi to this form.

Term of Offering

When will the course be offered?

☑ Odd Fall ☐ Odd Spring ☐ Odd Summer ☐ Every Semester

☑ Even Fall ☐ Even Spring ☐ Even Summer ☐ Occasional

Intended Utilization of Course

The course will be used primarily as:

☑ Required Course ☐ Elective Course

Justification for Course Addition or Course Revision

What is the rationale for adding or revising this course?

Primarily, the application of this topic to Healthcare Systems requires a different approach from the tradition IEMS class. All the material is specifically catered illustrate systems engineering principles in the Healthcare sector, more specifically, for health systems. For this class, a heavy emphasis is placed on the use of discrete event simulation to uncover system dynamics at different layers of a health system.

Secondly, given the unique 7 week FULLY Online format of the classes in the HSE track, every class has to be customized. Hence, we are applying to have a unique course number so that students can easily differentiate between the regular semester long classes and the 7 week fully Online course specifically catered towards health systems.

What majors require or recommend this course for graduation? Industrial Engineering MS program (Healthcare Systems Engineering Track)

If not a major requirement, what will be the source of students? _____

What is the estimated annual enrollment? 15+ students

Possible duplications and conflicts with other departments or colleges should be discussed with appropriate parties. Please detail discussion you have had.

Justification for Course Deletion

Is this course a required course for graduation in a major or prerequisite? ☐ Yes ☐ No

If yes, have the involved major departments been informed, in writing, of proposed deletion? ☐ Yes ☐ No

If not, explain

Notes:

The primary objective of this course is to provide the student with a solid understanding of the implementation and the use of discrete event simulation to uncover system dynamics at different layers of a health system.

Methods for performing discrete systems simulation, including network modeling, will be treated with an application to healthcare systems. Developing such simulations requires modeling systems and dealing with the inherent uncertainties of multiple variables and interactions in health systems. Input variables and data will require alignment with common probabilistic distributions, as well a variety of influence and interaction modeling perspectives. Topics include operational modeling of patient flow, provider assignment, facility and asset utilization, care protocol planning, and optimization through Health Technology Assessment in Health Systems.

Approval Signatures

Department Chair Waldemar Karwowski Digitally signed by Waldemar Karwowski DN: cn=Waldemar Karwowski, o, ou, email=wkarwowski@gmail.com, c=US Date: 2018.03.09 14:48:54 -05'00' **Date** _____

College Academic Standards _____ **Date** 4/12/18

College Dean _____ **Date** 4/17/18

Graduate Council _____ **Date** _____

Vice President for Research and Dean of the College of Graduate Studies _____ **Date** _____

ESI 5XXX: Discrete Event Simulation Modeling in Health Systems

Industrial Engineering & Management Systems Department
College of Engineering & Computer Science
University of Central Florida

COURSE SYLLABUS

Instructor:		Term:	Fall 20XX
Office:		Credits:	3
E-Mail:		Class Meeting Days:	Daily
Website:		Class Meeting Hours:	Continuous
Office Hours:		Class Location:	WebCourses@UCF

I. WELCOME & PURPOSE & GOALS

Welcome to Discrete Event Simulation Modeling in Health Systems (ESI 5XXX).

The primary objective of this course is to provide the student with a solid understanding of the implementation and the use of discrete event simulation modelling to uncover system dynamics at different layers of a health system.

Methods for performing discrete systems simulation, including network modeling, will be treated with an application to healthcare systems. Developing such simulations requires modeling systems and dealing with the inherent uncertainties of multiple variables and interactions in health systems. Input variables and data will require alignment with common probabilistic distributions, as well a variety of influence and interaction modeling perspectives. Topics include operational modeling of patient flow, provider assignment, facility and asset utilization, care protocol planning, and optimization through Health Technology Assessment in Health Systems.

II. COURSE DESCRIPTION (UCF Catalog)

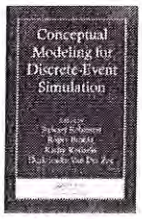
Topics include operational modeling of patient flow, provider assignment, facility and asset utilization, care protocol planning, and optimization through Health Technology Assessment in Health Systems.

III. COURSE PREREQUISITE

Admission to the Healthcare Systems Engineering track of the Industrial Engineering MS program.

IV. TEXTS AND MATERIALS

Caro, J. Jaime; Möller, Jörgen; Karnon, Jonathan; Stahl, James; & Ishak, Jack (2015). *Discrete Event Simulation for Health Technology Assessment*. Chapman and Hall/CRC. 374 pages. ISBN 978-1482218244.



Robinson, Stewart; Brooks, Roger; Kotaidis, Kathy; & Van Der Zee, Durk-Jouke (Editors) (2011). *Conceptual Modeling for Discrete-Event Simulation*. CRC Press. 527 pages. ISBN 9781439810378.

Smith, Jeffery; Sturrock, David, & Kelton, David (2017). *Simio and Simulation: Modeling, Analysis, Applications: 4th Edition - Economy*. CreateSpace Independent Publishing Platform. 462 pages. ISBN 9781546461920.

SOFTWARE & TOOLS:

- Microsoft Word, Excel, PowerPoint (or fully compatible suite)
- Simio

V. LEARNING OBJECTIVES

The primary objective of this course is to provide the student with a solid understanding of the implementation and the use of discrete event simulation modelling to uncover system dynamics at different layers of a health system.

- Develop complex simulation models of real or conceptual systems subject to risk
- Design an effective simulation experiment to be run on the model
- Analyze, interpret and communicant the simulation results
- Manage simulation projects
- Identify Systems & models
- Discover Queueing Systems Structure
- Evaluate Little's Law
- Analyze Input Data
- Work with Data Tables
- Determine schedule modelling
- Discover Types of Simulation analyses
- Explore automatic batching of output
- Identify pitfalls in output analysis and how to avoid them
- Develop and Design discrete event simulation models for Health Technology assessment

VI. COURSE SCHEDULE

This course uses readings, discussion, and assignments in WebCourses@UCF. Each week as described in the 'Learning Objectives' corresponds to a 'module' in WebCourses@UCF. Dates for opening, submitting, and closing of all assignments are defined within WebCourses@UCF modules. Each week, students will be expects to complete the discussions, assignments, and any part of the course final project as described in the class schedule within the weekly WebCourses@UCF modules. All work is intended to be completed solely by the individual enrolled in this course, working independently unless otherwise instructed.

Week 1 – Basic Simulation Modeling
Week 2 – Modeling Complex Systems
Week 3 – Output Analysis
Week 4 – Comparing Alternative Systems
Week 5 – Experimental Design and Optimization
Week 6 – Healthcare Simulations 1
Week 7 – Healthcare Simulations 2

VII. WEEKLY READINGS, DISCUSSIONS, & ASSIGNMENT FRAMEWORK

Each weekly class unit includes a collection of readings and topical discussions. The discussion topics are designed to guide everyone through the more critical aspects of each week's readings, and to emphasize ideas that you should be thinking about as you develop your understanding of this course.

Discussion participation can't be a last minute activity each week. To earn full credit on discussions, it's important that you participate in a manner that supports an effective give-and-take dialogue. Typically, get your initial discussion posts posted by Wednesday evening so that they are available for others to read. Post your responses to others by early evening on Friday in order to give those learners an opportunity to see your responses and to formulate their responses to you. Continue your dialogues with others as they respond to your initial post and your replies through the rest of the weekend, with the discussions closing Sunday evening each week.

Each discussion topic is scored using a 40-point grading rubric that splits the score between your initial post (20 points) and your response posts (20 points). Unless otherwise noted in the topic posting, each topic requires at least two substantive responses as well as continuing dialogue with any learners who respond to your posts. It's fine to allow more of your postings to be less formal or scholarly. Encouraging or expressing agreement with your fellow learners is considered effective dialogue as long as some substantive responses are included among your postings. The rubric below focuses on the more substantive subset of anything you post in reply to others.

Discussion Participation Grading Rubric	
Initial Posting (20 points)	
0 points	The response post is missing, late, or isn't substantive. Substantive responses must directly address the topical themes and demonstrate critical thinking about the topic and the associated readings.
10 points	The posting addresses the topic, but doesn't seem to demonstrate any critical thinking about how the topic fits the unit theme, or how the unit readings support the topic.
20 points	The posting analyzes and applies course concepts in substantive ways, demonstrating thinking about the topic. Opinions expressed are grounded in the materials being discussed. The post is timely enough for other learners to respond within the deadlines, preferably before the mid-week.
Response Postings (20 points)	
0 points	The response posts are missing, late, or not effective. Effective responses must do more than simply agree with, or encourage, the original post, and they must be timely enough to allow continuing dialogue among learners within the unit deadlines.
10 points	The response addresses the content of the original post, but doesn't really include any thoughts regarding the topic or its fit in this class. Effective responses extend the conversation, allowing others to join in.
20 points	The responses do an effective job of drawing additional information from the original posters, or contribute additional substantive content to the original posts, or both. The posts are timely enough to allow the original posters to respond before the unit deadline, preferably before Friday afternoon. Responses are also made, when appropriate, to the responses received from others.

Each week, there will be an assignment due as well. Dates for opening, submitting, and closing of all assignments are defined within WebCourses@UCF modules. Each assignment will be 100 points. The purpose of the assignment is to determine the level of competence on the material assigned for the week.

VIII. PROJECT

Each student will be required to complete a semester-long course project. Each student will be responsible for completing project deliverables including a written report summarizing project and a potential conference/journal submission. Suggested topics are listed below:

- Health Technology Assessment – outcome improve across different scenarios
- Bed management – optimization of facilities, equipment, and storage
- Patient management – optimization of flow and capacity
- Disease management – outbreak modeling and prediction
- Protocol management – effectiveness and benefit comparisons and assessments
- Order vs. Outcome modeling; process vs. health

An acceptable project must demonstrate:

- **Academic Presentation** - The project uses a clean consistent organizational structure, sound academic writing style, and an effective balance of text and figures.
- **Project Soundness** - The presented discussion includes all required themes, including the appropriate description and summarization of the required application domain for the technology's use.
- **Comprehensive Coverage** - The project includes a complete and thorough coverage of the subject matter, as would be expected by someone already knowledgeable about technical topical area.
- **Scholarly Grounding** - The project materials are well grounded in the academic and public literature of the field, and those resources are synthesized and paraphrased into the project appropriately.

Details of each specific assignment will be found in the Assignment area of WebCourses as each assignment is released by the instructor.

IX. GRADING

Course grades are determined by a weighted aggregation of scores earned on each distinct component of the course, as follows:

Component	Impact
DISCUSSIONS	**30%**
ACTIVITIES	**30%**
Project	**40%**

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UCF Online Writing Tutors - Online students attending UCF can meet with tutors online from anywhere in the world through Adobe Connect, UCF's real-time, web-based consulting program. All online consultations are by appointment only. Please see their website for more information: https://uwc.cah.ucf.edu/attend-online/

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For more information on diversity and inclusion, Title IX, accessibility, or UCF's complaint processes contact:

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- Disability Accommodation – Student Accessibility Services - http://sas.sdes.ucf.edu/ & sas@ucf.edu
- Diversity and Inclusion Training and Events – www.diversity.ucf.edu
- Student Bias Grievances – Just Knights response team - http://jkrt.sdes.ucf.edu/
- UCF Compliance and Ethics Office - http://compliance.ucf.edu/ & complianceandethics@ucf.edu
- Ombuds Office - http://www.ombuds.ucf.edu

ESI - 6226 - Quality Management in Health Systems

2018-2019 Graduate Course New

General Catalog Information

Read before you begin

1. TURN ON help text before starting this proposal by clicking in the top right corner of the heading.

2. FILL IN all fields required marked with an *. You will not be able to launch the proposal without completing required fields.

3. LAUNCH proposal by clicking in the top left corner.

Course additions must be accompanied by a course syllabus and rationale. Departments must also submit an electronic syllabus to the college curriculum person.

College*	College of Engineering and Computer Science
Unit / Department / College*	Department of Industrial Engineering and Management Systems
Approved Graduate Faculty/Scholars:*	Dr. Rick Biehl, Dr. Ibrahim Zeini, Dr. Ahmed Elshennawy
Prefix:*	ESI
Number:*	6226
Course Title:*	Quality Management in Health Systems
30 Character Abbreviation:	Qlty Mgmt in Health Sys
Course Description:*	Topics include quality management in health systems, engineering roles for organization, quality costing, quality auditing, and corrective action activities; including tools and techniques for improvement

Credit Hours:	3
Class Hours:	3
Lab and Field Work Hours:	0
Contact Hours:	
Variable Credit (1-99):	
Repeat for credit?	○ Yes ◉ No
If yes, indicate the total times the course may be used in the degree program.	
Repeat within same semester?	○ Yes ◉ No

NOTE: For a repeatable course, indicate in the syllabus what will remain the same and what will change when the course is repeated. Also indicate who approves content before a course is repeated.

Prerequisite(s):	Risk Assessment & Management in Health Systems Advanced Engineering Economics in Health Systems
Corequisite(s):	

Graded S/U? ○ Yes ◉ No

Split-Level Class: ○ Yes ◉ No

If offering a split-level class, complete this section even if it had been approved earlier for individual delivery.

List undergraduate split-level course:

NOTE: Both the graduate and the undergraduate split-level syllabi must be approved through the established university process for approving courses so that there are two separate and complete syllabi for each course. The graduate syllabus should clearly demonstrate more advanced subject matter, expectations, and rigor. Attach both undergraduate and graduate syllabi to this form.

Term of Offering

When will the course be offered? ☐ Odd Fall ☐ Even Fall ☑ Odd Spring ☑ Even Spring ☐ Odd Summer ☐ Even Summer ☐ Every Semester ☐ Occasional

Intended Utilization of Course

The course will be used primarily as: ◉ Required Course ○ Elective Course

New Field

New Materials and Supply Fees? * ○ Yes ◉ No

If yes, also complete the 2018-19 Graduate Materials and Supply Fee Request form.

Justification for Course Addition

What is the rationale for adding this course?

Primarily, the application of this topic to Healthcare Systems requires a different approach from the tradition IEMS class. All the material is specifically catered illustrate systems engineering principles in the Healthcare sector, more specifically, for health systems. For this class, a heavy emphasis is placed on topics in quality management principles and the management of quality systems, in addition to the basic technical issues, tools, and techniques applied to health systems.

Secondly, given the unique 7 week FULLY Online format of the classes in the HSE track, every class has to be customized. Hence, we are applying to have a unique course number so that students can easily differentiate between the regular semester long classes and the 7 week fully Online course specifically catered towards health systems.

What majors require or recommend this course for graduation?	IEMS Masters (Healthcare Systems Engineering Track)
If not a major requirement, what will be the source of students?	
What is the estimated annual enrollment?	15+ students

Possible duplications and conflicts with other departments or colleges should be discussed with appropriate parties. Please detail discussion you have had.

Detail Discussion	**PLEASE NOTE** -- Attached are the syllabus and the CAR form with the appoved signatures from the Department Chair, College Academic Standards, and College Dean. *The primary objective of this course is to provide the student with a solid understanding of topics in quality management principles and the management of quality systems, in addition to the basic technical issues, tools, and techniques applied to health systems.* This course covers the philosophy and concepts of quality management, emphasizing engineering roles for organization, quality costing, quality auditing, and corrective action activities; including tools and techniques for improvement with an application to health systems. Essential concepts, practices, and methods of modern quality management are presented to achieve solid knowledge that is applied to various types of organizations for improved quality and higher productivity in health systems.

Attachment List

Please attach any required files by navigating to the Proposal Toolbox and clicking in the top right corner.

Check	☑ I have completed all relevant parts of the form.

Attached ☑ I have attached a course syllabus and rationale.

Smartfield Field

Administration Use Only

Catalog Ownership:

Course Type

Status ○ Inactive-Hidden ○ Active-Visable

HEADING

University of Central Florida

Graduate Course Action Request Form

☑ Course Addition ☐ Course Revision ☐ Course Deletion

Forward to your college office

Course additions and course revisions must be accompanied by a course syllabus and rationale. Departments must also submit an electronic syllabus to the college curriculum person.

Course Information

College: CECS **Department:** IEMS

Department Chair: Dr. Waldemar Karwowski **Phone:** (407) 823-2204

Approved Graduate Faculty/Scholars: Dr. Rick Biehl, Dr. Ibrahim Zeini, Dr. Ahmed Elshennawy

	Course Prefix	Number	Title	Credit Hours Ex.: 3(3,0)
Current or New Course	ESI	6xxx	Quality Management in Health Systems	3(3,0)
Proposed Course Revision				

30 Character Abbreviation: Qlty Mgmt in Health Sys

Course Description (25 word limit)

Topics include quality management in health systems, engineering roles for organization, quality costing, quality auditing, and corrective action activities; including tools and techniques for improvement

New or revised Materials and Supply Fees? ☐ Yes ☑ No If yes, also complete the Materials and Supply Fee Request Form.

Repeat for credit? ☐ Yes ☑ No If yes, indicate the total times this course may be used in the degree program. _____

Repeat within same semester? ☐ Yes ☑ No

NOTE: For a repeatable course, indicate in the syllabus what will remain the same and what will change when the course is repeated. Also indicate who approves content before a course is repeated.

Prerequisite(s) and/or Corequisite(s): Admission to the Healthcare Systems Engineering track of the Industrial Engineering MS program.

Graded S/U? ☐ Yes ☑ No

Split-Level Class: ☐ Yes ☑ No

If offering a split-level class, complete this section even if it had been approved earlier for individual delivery.

List undergraduate split-level course: _____

NOTE: Both the graduate and the undergraduate split-level syllabi must be approved through the established university process for approving courses so that there are two separate and complete syllabi for each course. The graduate syllabus should clearly demonstrate more advanced subject matter, expectations, and rigor. Attach both undergraduate and graduate syllabi to this form.

Term of Offering

When will the course be offered?

☐ Odd Fall ☑ Odd Spring ☐ Odd Summer ☐ Every Semester

☐ Even Fall ☑ Even Spring ☐ Even Summer ☐ Occasional

Intended Utilization of Course

The course will be used primarily as:

☑ Required Course ☐ Elective Course

Justification for Course Addition or Course Revision

What is the rationale for adding or revising this course?

Primarily, the application of this topic to Healthcare Systems requires a different approach from the tradition IEMS class. All the material is specifically catered illustrate systems engineering principles in the Healthcare sector, more specifically, for health systems. For this class, a heavy emphasis is placed on topics in quality management principles and the management of quality systems, in addition to the basic technical issues, tools, and techniques applied to health systems.

Secondly, given the unique 7 week FULLY Online format of the classes in the HSE track, every class has to be customized. Hence, we are applying to have a unique course number so that students can easily differentiate between the regular semester long classes and the 7 week fully Online course specifically catered towards health systems.

What majors require or recommend this course for graduation? Industrial Engineering MS program (Healthcare Systems Engineering Track)

If not a major requirement, what will be the source of students? _____

What is the estimated annual enrollment? 15+ students

Possible duplications and conflicts with other departments or colleges should be discussed with appropriate parties. Please detail discussion you have had.

Justification for Course Deletion

Is this course a required course for graduation in a major or prerequisite? ☐ Yes ☐ No

If yes, have the involved major departments been informed, in writing, of proposed deletion? ☐ Yes ☐ No

If not, explain

Notes:

The primary objective of this course is to provide the student with a solid understanding of topics in quality management principles and the management of quality systems, in addition to the basic technical issues, tools, and techniques applied to health systems.

This course covers the philosophy and concepts of quality management, emphasizing engineering roles for organization, quality costing, quality auditing, and corrective action activities; including tools and techniques for improvement with an application to health systems. Essential concepts, practices, and methods of modern quality management are presented to achieve solid knowledge that is applied to various types of organizations for improved quality and higher productivity in health systems.

Approval Signatures

Department Chair Waldemar Karwowski — Digitally signed by Waldemar Karwowski DN: cn=Waldemar Karwowski, o, ou, email=wkarwowski@gmail.com, c=US Date: 2018.03.09 14:49:15 -05'00' — **Date** _____

College Academic Standards _____ — **Date** 4/12/18

College Dean _____ — **Date** 4/17/18

Graduate Council _____ — **Date** _____

Vice President for Research and Dean of the College of Graduate Studies _____ — **Date** _____

ESI 6XXX: Quality Management in Health Systems

Industrial Engineering & Management Systems Department
College of Engineering & Computer Science
University of Central Florida

COURSE SYLLABUS

Instructor:		Term:	Spring 20XX
Office:		Credits:	3
E-Mail:		Class Meeting Days:	Daily
Website:		Class Meeting Hours:	Continuous
Office Hours:		Class Location:	WebCourses@UCF

I. WELCOME & PURPOSE & GOALS

Welcome to Quality Management in Health Systems (ESI 6XXX).

The primary objective of this course is to provide the student with a solid understanding of topics in quality management principles and the management of quality systems, in addition to the basic technical issues, tools, and techniques applied to health systems.

This course covers the philosophy and concepts of quality management, emphasizing engineering roles for organization, quality costing, quality auditing, and corrective action activities; including tools and techniques for improvement with an application to health systems. Essential concepts, practices, and methods of modern quality management are presented to achieve solid knowledge that is applied to various types of organizations for improved quality and higher productivity in health systems.

II. COURSE DESCRIPTION (UCF Catalog)

Topics include quality management in health systems, engineering roles for organization, quality costing, quality auditing, and corrective action activities; including tools and techniques for improvement.

III. COURSE PREREQUISITE

Admission to the Healthcare Systems Engineering track of the Industrial Engineering MS program.

IV. TEXTS AND MATERIALS

Defeo, Joseph A. (2016). *Juran's Quality Handbook: The Complete Guide to Performance Excellence*. Seventh edition. McGraw-Hill. ISBN 9781259643613.

Evans, James R.; & Lindsey, William M. (2014). *Managing for Quality and Performance Excellence*, 9th Edition. Cengage Learning. ISBN: 978-1-285-06946-3.

SOFTWARE & TOOLS:

- Microsoft Word, Excel, PowerPoint (or fully compatible suite)
- Internet access for Canvas, Internet, and UCF Library databases

V. LEARNING OBJECTIVES

The purpose of this course is to provide a broad exposure to topics in quality management principles and the management of quality systems, in addition to the basic technical issues, tools, and techniques. Specifically, the course is intended to focus on the development of tools for the management of quality in different organizations.

Essential concepts, practices, and methods of modern quality management are presented to achieve solid knowledge that is applied to various types of organizations for improved quality and higher productivity. Case studies and quality improvement stories will be provided as an effective format for enhancing classroom learning and working on organizational improvement systems and models. It is expected that course coverage should allow the participants to design, develop, and implement an effective quality management system for any manufacturing or service organization. At the end of the course the student will have a firm grasp on:

- Foundations of Quality,
- The Baldrige Framework,
- Strategy & Performance,
- Data & Knowledge Management,
- Process Leadership,
- Statistical Methods & Design for Quality,
- Performance Excellence,
- Measuring & Controlling Quality,
- Process Improvement,
- Lean Six Sigma,
- and Building & Sustaining Quality

VI. COURSE SCHEDULE

This course uses readings, discussion, and assignments in WebCourses@UCF. Each week as described in the 'Learning Objectives' corresponds to a 'module' in WebCourses@UCF. Dates for opening, submitting, and closing of all assignments are defined within WebCourses@UCF modules. Each week, students will be expects to complete

the discussions, assignments, and any part of the course final project as described in the class schedule within the weekly WebCourses@UCF modules. All work is intended to be completed solely by the individual enrolled in this course, working independently unless otherwise instructed.

Week 1 – Foundations of Quality
Week 2 – Data & Knowledge Managemen
Week 3 – Statistical Methods & Design for Quality
Week 4 – Measuring & Controlling Quality
Week 5 – Process Improvement
Week 6 – Lean Six Sigma
Week 7 – Building & Sustaining Quality

VII. WEEKLY READINGS, DISCUSSIONS, & ASSIGNMENT FRAMEWORK

Each weekly class unit includes a collection of readings and topical discussions. The discussion topics are designed to guide everyone through the more critical aspects of each week's readings, and to emphasize ideas that you should be thinking about as you develop your understanding of this course.

Discussion participation can't be a last minute activity each week. To earn full credit on discussions, it's important that you participate in a manner that supports an effective give-and-take dialogue. Typically, get your initial discussion posts posted by Wednesday evening so that they are available for others to read. Post your responses to others by early evening on Friday in order to give those learners an opportunity to see your responses and to formulate their responses to you. Continue your dialogues with others as they respond to your initial post and your replies through the rest of the weekend, with the discussions closing Sunday evening each week.

Each discussion topic is scored using a 40-point grading rubric that splits the score between your initial post (20 points) and your response posts (20 points). Unless otherwise noted in the topic posting, each topic requires at least two substantive responses as well as continuing dialogue with any learners who respond to your posts. It's fine to allow more of your postings to be less formal or scholarly. Encouraging or expressing agreement with your fellow learners is considered effective dialogue as long as some substantive responses are included among your postings. The rubric below focuses on the more substantive subset of anything you post in reply to others.

Each week, there will be an assignment due as well. Dates for opening, submitting, and closing of all assignments are defined within WebCourses@UCF modules. Each assignment will be 100 points. The purpose of the assignment is to determine the level of competence on the material assigned for the week.

Discussion Participation Grading Rubric	
Initial Posting (20 points)	
0 points	The response post is missing, late, or isn't substantive. Substantive responses must directly address the topical themes and demonstrate critical thinking about the topic and the associated readings.
10 points	The posting addresses the topic, but doesn't seem to demonstrate any critical thinking about how the topic fits the unit theme, or how the unit readings support the topic.
20 points	The posting analyzes and applies course concepts in substantive ways, demonstrating thinking about the topic. Opinions expressed are grounded in the materials being discussed. The post is timely enough for other learners to respond within the deadlines, preferably before the mid-week.
Response Postings (20 points)	
0 points	The response posts are missing, late, or not effective. Effective responses must do more than simply agree with, or encourage, the original post, and they must be timely enough to allow continuing dialogue among learners within the unit deadlines.
10 points	The response addresses the content of the original post, but doesn't really include any thoughts regarding the topic or its fit in this class. Effective responses extend the conversation, allowing others to join in.
20 points	The responses do an effective job of drawing additional information from the original posters, or contribute additional substantive content to the original posts, or both. The posts are timely enough to allow the original posters to respond before the unit deadline, preferably before Friday afternoon. Responses are also made, when appropriate, to the responses received from others.

VIII. PROJECT

The semester project in this class is the planning and carrying out of an informal Baldrige assessment against an organization that each student must choose. Details of each specific assignment will be found in the Assignment area of Canvas as each assignment is released by the instructor. Create a Microsoft Excel spreadsheet that you can use to record your scores and document results when you do an assessment of an organization using the Baldrige Criteria for Performance Excellence. This spreadsheet should be sufficiently detailed to allow all of the scoring categories and subcategories to be scored, and should be sufficiently ordered and structured to serve as a scorecard for briefing management on on-going or completed results of the assessment.

The project will be assessed in 4 parts:

1. Baldrige Scoring Tool
2. Organizational Assessment Plan
3. Preliminary Assessment Scoring
4. Final Assessment Report

An acceptable project must demonstrate:

- **Academic Presentation** - The project uses a clean consistent organizational structure, sound academic writing style, and an effective balance of text and figures.
- **Project Soundness** - The presented discussion includes all required themes, including the appropriate description and summarization of the required application domain for the technology's use.
- **Comprehensive Coverage** - The project includes a complete and thorough coverage of the subject matter, as would be expected by someone already knowledgeable about technical topical area.
- **Scholarly Grounding** - The project materials are well grounded in the academic and public literature of the field, and those resources are synthesized and paraphrased into the project appropriately.

Details of each specific assignment will be found in the Assignment area of WebCourses as each assignment is released by the instructor.

IX. GRADING

Course grades are determined by a weighted aggregation of scores earned on each distinct component of the course, as follows:

Component	Impact
DISCUSSIONS	**30%**
ACTIVITIES	**30%**
Project	**40%**

Final course grades will follow traditional UCF criteria: A > 90%, B > 80%, C > 70%, D > 60%, or F.

X. IMPORTANT DATES

TBD	Course opens in WebCourses@UCF
TBD	Classes officially begin
TBD	Drop/Swap Deadline
TBD	Class Add Deadline
TBD	Withdrawal Deadline
TBD	Last official day of class

XI. Policies

The following policies govern student participation and course grading and should be interpreted in the context of all applicable and current UCF policies and procedures:

1. Canvas discussions and e-mail/Inbox are the preferred mechanisms for all class communications.
2. E-mails to the instructor should only be used where personal privacy is required by law (e.g., by FERPA). Discussion posts are preferred (via the Ask Dr. Biehl thread in Canvas) to avoid having to answer many e-mails with the same or related questions.
3. Late assignments do not need to be communicated to the instructor. Informing the instructor of a planned absence or late submission does not constitute approval of that absence or late submission.
4. UCF policies on academic integrity will be **strictly enforced** in all discussions and assignments.
5. Any form of plagiarism or cheating shall result in a **Failing** grade in this class. Plagiarism includes any use of the materials of others as your own, including copying and pasting text from outside web pages or other sources as material in your discussion posts, term paper submissions, or examination essays.

XII. PROGRAM POLICIES & EXPECTATIONS

Students Rights and Responsibilities - Please know your rights and your responsibilities as a student. Go to the web site http://www.goldenrule.sdes.ucf.edu/ and read carefully THE UCF GOLDEN RULE. It is your responsibility and your right as well to be aware of it. Your academic behavior in the class should be based on the Golden Rule.

UCF Online Writing Tutors - Online students attending UCF can meet with tutors online from anywhere in the world through Adobe Connect, UCF's real-time, web-based consulting program. All online consultations are by appointment only. Please see their website for more information: https://uwc.cah.ucf.edu/attend-online/

Disability Access - Your success in this class is important to us and the University of Central Florida is committed to providing reasonable accommodations for all persons with disabilities. If there are aspects of this course that prevent you from learning or exclude you, please let us know as soon as possible at the start of the semester. Together we will develop strategies to meet both your needs and the requirements of the course. Students who need accommodations must be registered with Student Disability Services, Student Resource Center Room 132, phone (407) 823-2371, TTY/TDD only phone (407) 823-2116, before requesting accommodations from an instructor.

Ethics Statement - UCF faculty supports the UCF Creed. Integrity - practicing and defending academic and personal honesty - is the first tenet of the UCF Creed. This is in part a reflection of the second tenet: *Scholarship:* "I will cherish and honor learning as a fundamental purpose of membership in the UCF community." Course discussions, assignments, and activities are designed to have educational value; the process of preparing for and completing these exercises will help improve your skills and knowledge. Material presented to satisfy course requirements is therefore expected to be the result of your own original scholarly efforts.

Turnitin.com - Courses in this Program utilize ***turnitin.com***, an automated system that instructors can use to quickly and easily compare each student's assignment with billions of web sites as well as an enormous database of student papers that grows with each submission. Accordingly, you are expected to submit all assignments in electronic format only. After assignment processing, your instructor receives a report from turnitin.com that states if and how another author's work was used in any assignment. For a more detailed look at this process, visit http://www.turnitin.com.

Responses to Academic Dishonesty, Plagiarism, or Cheating - UCF faculty members have a responsibility for your education and the value of a UCF degree, and so seek to prevent unethical behavior and when necessary respond to infringements of academic integrity. Penalties can include a failing grade in an assignment or in the course, suspension or expulsion from the university, and/or a "Z Designation" on a student's official transcript indicating academic dishonesty, where the final grade for this course will be preceded by the letter Z. For more information about the Z Designation, see http://z.ucf.edu/. For more information about UCF's Rules of Conduct, see http://www.osc.sdes.ucf.edu/.

Diversity and Inclusion (Title IX) - The University of Central Florida considers the diversity of its students, faculty, and staff to be a strength and critical to its educational mission. UCF expects every member of the university community to contribute to an inclusive and respectful culture for all in its classrooms, work environments, and at campus events. Dimensions of diversity can include sex, race, age, national origin, ethnicity, gender identity and expression, intellectual and physical ability, sexual orientation, income, faith and non-faith perspectives, socio-economic class, political ideology, education, primary language, family status, military experience, cognitive style, and communication style. The individual intersection of these experiences and characteristics must be valued in our community. Title IX prohibits sex discrimination, including sexual misconduct, sexual violence, sexual harassment, and retaliation. If you or someone you know has been harassed or assaulted, you can find resources available to support the victim, including confidential resources and information concerning reporting options at www.shield.ucf.edu and http://cares.sdes.ucf.edu/. If there are aspects of the design, instruction, and/or experiences within this course that result in barriers to your inclusion or accurate assessment of achievement, please notify the instructor as soon as possible and/or contact Student Accessibility Services.

For more information on diversity and inclusion, Title IX, accessibility, or UCF's complaint processes contact:

- Title IX – EO/AA - http://www.eeo.ucf.edu/ & askanadvocate@ucf.edu
- Disability Accommodation – Student Accessibility Services - http://sas.sdes.ucf.edu/ & sas@ucf.edu
- Diversity and Inclusion Training and Events – www.diversity.ucf.edu
- Student Bias Grievances – Just Knights response team - http://jkrt.sdes.ucf.edu/
- UCF Compliance and Ethics Office - http://compliance.ucf.edu/ & complianceandethics@ucf.edu
- Ombuds Office - http://www.ombuds.ucf.edu

ESI - 6352 - Risk Assessment & Management in Health Systems

2018-2019 Graduate Course New

General Catalog Information

Read before you begin

1. TURN ON help text before starting this proposal by clicking in the top right corner of the heading.

2. FILL IN all fields required marked with an *. You will not be able to launch the proposal without completing required fields.

3. LAUNCH proposal by clicking in the top left corner.

Course additions must be accompanied by a course syllabus and rationale. Departments must also submit an electronic syllabus to the college curriculum person.

College*	College of Engineering and Computer Science
Unit / Department / College*	Department of Industrial Engineering and Management Systems
Approved Graduate Faculty/Scholars:*	Dr. Ahmed Elshennawy, Dr. Richard Biehl
Prefix:*	ESI
Number:*	6352
Course Title:*	Risk Assessment & Management in Health Systems
30 Character Abbreviation:	Risk Asmt & Mgmt in Health Sys
Course Description:*	Topics include risk assessment, management, spectrum of risks for near miss and adverse event management. Selected methodologies are illustrated through realistic applications in Health systems.

Credit Hours:	3
Class Hours:	3
Lab and Field Work Hours:	0
Contact Hours:	
Variable Credit (1-99):	
Repeat for credit?	○ Yes ◉ No
If yes, indicate the total times the course may be used in the degree program.	
Repeat within same semester?	○ Yes ◉ No

NOTE: For a repeatable course, indicate in the syllabus what will remain the same and what will change when the course is repeated. Also indicate who approves content before a course is repeated.

Prerequisite(s):	Admission to the Healthcare Systems Engineering track of the MS in Industrial Engineering program in the UCF College of Engineering and Computer Science.
Corequisite(s):	

Graded S/U? ○ Yes ◉ No

Split-Level Class: ○ Yes ◉ No

If offering a split-level class, complete this section even if it had been approved earlier for individual delivery.

List undergraduate split-level course:

NOTE: Both the graduate and the undergraduate split-level syllabi must be approved through the established university process for approving courses so that there are two separate and complete syllabi for each course. The graduate syllabus should clearly demonstrate more advanced subject matter, expectations, and rigor. Attach both undergraduate and graduate syllabi to this form.

Term of Offering

When will the course be offered? ☐ Odd Fall ☐ Even Fall ☑ Odd Spring ☑ Even Spring ☐ Odd Summer ☐ Even Summer ☐ Every Semester ☐ Occasional

Intended Utilization of Course

The course will be used primarily as: ◉ Required Course ○ Elective Course

New Field

New Materials and Supply Fees? * ○ Yes ◉ No

If yes, also complete the 2018-19 Graduate Materials and Supply Fee Request form.

Justification for Course Addition

What is the rationale for adding this course?

Primarily, the application of this topic to Healthcare Systems requires a different approach from the tradition IEMS class. All the material is specifically catered illustrate systems engineering principles in the Healthcare sector, more specifically, for health systems. For this class, a heavy emphasis is placed on characterizing the problems and complexities involved in risk assessment and management where selected methodologies are illustrated through realistic applications in the context of Health Systems.

Secondly, given the unique 7 week FULLY Online format of the classes in the HSE track, every class has to be customized. Hence, we are applying to have a unique course number so that students can easily differentiate between the regular semester long classes and the 7 week fully Online course specifically catered towards health systems.

What majors require or recommend this course for graduation?	IEMS Masters (Healthcare Systems Engineering Track)
If not a major requirement, what will be the source of students?	
What is the estimated annual enrollment?	15+ students

Possible duplications and conflicts with other departments or colleges should be discussed with appropriate parties. Please detail discussion you have had.

Detail Discussion	**PLEASE NOTE** -- Attached are the syllabus and the CAR form with the appoved signatures from the Department Chair, College Academic Standards, and College Dean. *The primary objective of this course is to provide the student with a solid understanding of the problems and complexities involved in risk assessment and management where selected methodologies are illustrated through realistic applications in the context of Health Systems.* Topics include risk assessment, management, spectrum of risks for near miss and adverse event management. Selected methodologies are illustrated through realistic applications in Health systems. In particular, this course covers the spectrum of risks exemplified by near miss and adverse event management. The risks of interest occur at several key system levels and the engineering thought processes and tools for managing this risk are explored in this course. Covered domains of interests include strategic, financial, human capital, technology, operational, safety, legal/regulatory, and hazard risks all in the context of health systems.

Attachment List

Please attach any required files by navigating to the Proposal Toolbox and clicking in the top right corner.

Check	☑ I have completed all relevant parts of the form.
Attached	☑ I have attached a course syllabus and rationale.
Smartfield Field	

Administration Use Only

Catalog Ownership:	
Course Type	
Status	○ Inactive-Hidden ○ Active-Visable

HEADING

University of Central Florida

Graduate Course Action Request Form

☑ Course Addition ☐ Course Revision ☐ Course Deletion

Forward to your college office

Course additions and course revisions must be accompanied by a course syllabus and rationale. Departments must also submit an electronic syllabus to the college curriculum person.

Course Information

College: CECS **Department:** IEMS

Department Chair: Dr. Waldemar Karwowski **Phone:** (407) 823-2204

Approved Graduate Faculty/Scholars: Dr. Ahmed Elshennawy, Dr. Richard Biehl

	Course Prefix	Number	Title	Credit Hours Ex.: 3(3,0)
Current or New Course	ESI	6XXX	Risk Assessment & Management in Health Systems	3(3,0)
Proposed Course Revision				

30 Character Abbreviation: Risk Asmt & Mgmt in Health Sys

Course Description (25 word limit)

Topics include risk assessment, management, spectrum of risks for near miss and adverse event management. Selected methodologies are illustrated through realistic applications in Health systems.

New or revised Materials and Supply Fees? ☐ Yes ☑ No If yes, also complete the Materials and Supply Fee Request Form.

Repeat for credit? ☐ Yes ☑ No If yes, indicate the total times this course may be used in the degree program. _____

Repeat within same semester? ☐ Yes ☑ No

NOTE: For a repeatable course, indicate in the syllabus what will remain the same and what will change when the course is repeated. Also indicate who approves content before a course is repeated.

Prerequisite(s) and/or Corequisite(s): Admission to the Healthcare Systems Engineering track of the Industrial Engineering MS program.

Graded S/U? ☐ Yes ☑ No

Split-Level Class: ☐ Yes ☑ No

If offering a split-level class, complete this section even if it had been approved earlier for individual delivery.

List undergraduate split-level course: _____

NOTE: Both the graduate and the undergraduate split-level syllabi must be approved through the established university process for approving courses so that there are two separate and complete syllabi for each course. The graduate syllabus should clearly demonstrate more advanced subject matter, expectations, and rigor. Attach both undergraduate and graduate syllabi to this form.

Term of Offering

When will the course be offered?

☐ Odd Fall ☑ Odd Spring ☐ Odd Summer ☐ Every Semester

☐ Even Fall ☑ Even Spring ☐ Even Summer ☐ Occasional

Intended Utilization of Course

The course will be used primarily as:

☑ Required Course ☐ Elective Course

Justification for Course Addition or Course Revision

What is the rationale for adding or revising this course?

Primarily, the application of this topic to Healthcare Systems requires a different approach from the tradition IEMS class. All the material is specifically catered illustrate systems engineering principles in the Healthcare sector, more specifically, for health systems. For this class, a heavy emphasis is placed on characterizing the problems and complexities involved in risk assessment and management where selected methodologies are illustrated through realistic applications in the context of Health Systems.

Secondly, given the unique 7 week FULLY Online format of the classes in the HSE track, every class has to be customized. Hence, we are applying to have a unique course number so that students can easily differentiate between the regular semester long classes and the 7 week fully Online course specifically catered towards health systems.

What majors require or recommend this course for graduation? Industrial Engineering MS program (Healthcare Systems Engineering Track)

If not a major requirement, what will be the source of students? _____

What is the estimated annual enrollment? 15+ students

Possible duplications and conflicts with other departments or colleges should be discussed with appropriate parties. Please detail discussion you have had.

Justification for Course Deletion

Is this course a required course for graduation in a major or prerequisite? ☐ Yes ☐ No

If yes, have the involved major departments been informed, in writing, of proposed deletion? ☐ Yes ☐ No

If not, explain

Notes:

The primary objective of this course is to provide the student with a solid understanding of the problems and complexities involved in risk assessment and management where selected methodologies are illustrated through realistic applications in the context of Health Systems.

Topics include risk assessment, management, spectrum of risks for near miss and adverse event management. Selected methodologies are illustrated through realistic applications in Health systems. In particular, this course covers the spectrum of risks exemplified by near miss and adverse event management. The risks of interest occur at several key system levels and the engineering thought processes and tools for managing this risk are explored in this course. Covered domains of interests include strategic, financial, human capital, technology, operational, safety, legal/regulatory, and hazard risks all in the context of health systems.

Approval Signatures

Waldemar Karwowski
Digitally signed by Waldemar Karwowski
DN: cn=Waldemar Karwowski, o, ou, email=wkarwowski@gmail.com, c=US
Date: 2018.03.09 14:47:45 -05'00'

Department Chair _____ **Date** _____

College Academic Standards _____ **Date** 4/12/18

College Dean _____ **Date** 4/17/18

Graduate Council _____ **Date** _____

Vice President for Research and Dean of the College of Graduate Studies _____ **Date** _____

ESI 6XXX: Risk Assessment & Management in Health Systems

Industrial Engineering & Management Systems Department
College of Engineering & Computer Science
University of Central Florida

COURSE SYLLABUS

Instructor:		Term:	Spring 20XX
Office:		Credits:	3
E-Mail:		Class Meeting Days:	Daily
Website:		Class Meeting Hours:	Continuous
Office Hours:		Class Location:	WebCourses@UCF

I. WELCOME & PURPOSE & GOALS

Welcome to Risk Assessment & Management in Health Systems (ESI 6XXX).

The primary objective of this course is to provide the student with a solid understanding of the problems and complexities involved in risk assessment and management where selected methodologies are illustrated through realistic applications in the context of Health Systems.

In particular, this course covers the spectrum of risks exemplified by near miss and adverse event management. The risks of interest occur at several key system levels and the engineering thought processes and tools for managing this risk are explored in this course. Covered domains of interests include strategic, financial, human capital, technology, operational, safety, legal/regulatory, and hazard risks all in the context of health systems.

II. COURSE DESCRIPTION (UCF Catalog)

Topics include risk assessment, management, spectrum of risks for near miss and adverse event management. Selected methodologies are illustrated through realistic applications in Health systems.

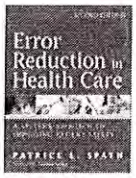
III. COURSE PREREQUISITE

Admission to the Healthcare Systems Engineering track of the Industrial Engineering MS program.

IV. TEXTS AND MATERIALS

Herrmann, Jeffrey W. (2015). *Engineering Decision Making and Risk Management*, 1st Edition. Wiley. ISBN13: 9781118919330.

American Society for Healthcare Risk Management (ASHRM); & Roberta Carroll (Editor) (2009). *Risk Management Handbook for Health Care Organizations*, 5th Edition. Jossey-Bass. ISBN13: 9780470300176.



Spath, Patrice L. (Editor)(2011). *Error Reduction in Health Care: A Systems Approach to Improving Patient Safety*, 2nd Edition. Jossey-Bass. ISBN: 9780470502402.

SOFTWARE & TOOLS:

- Microsoft Word, Excel, PowerPoint (or fully compatible suite)
- Internet access for Canvas, Internet, and UCF Library databases

V. LEARNING OBJECTIVES

Week 1 – Introduction to Risk

- Identify the range of risks, in terms of both breadth and depth
- Differentiate the role of people and the systems in which they operate, including the different ways that mistakes and errors emerge from their interaction, when exploring errors and risks.

Week 2 – Incidents & Reliability

- Explore some of the common models for understanding errors and accidents that occur, emphasizing the interrelatedness of processes over time in causes or not preventing incidents that cause harm.
- Introduce multi-criteria and group decision-making techniques that will be applicable in evaluating and making decisions around the numerous types and categories of data that will be collected and analyzed in new processes that collect and analyze incident data and risk.

Week 3 – Targeting Improvements

- Categorize the different domains of risk and evaluate how they might be prioritized differently at different organizational scales of planning.
- Evaluate and interpret ways in which uncertainty can impact or influence decision-making or planning around risks and incidents, wit hall of the values we would typically capture about risks and incidents always having a fuzzy aspect brought on by that uncertainty.

Week 4 – Risk to Decision

- Describe the role that information technology can play in managing or reducing risks within the institution, unfortunately while often also introducing new risks into the organization.
- Consider some of the sequence dependencies among sub-process areas of risk management, including the need to be able to identify and manage risks generally before attempting to developed advanced capabilities for causal analysis and resolution of common risks.

Week 5 – Improving Processes

- Understand the role and value of recording information when both certainty and uncertainty exist.
- Explore approaches to engineering improved processes that better prevent or mitigate known risks.

Week 6 – Outside Factors

- Identify the role that standards can play in building a knowledge-base for systems engineering in any organization by embodying readily-accepted industry or professional knowledge that can jump-start any systems initiative.
- Explore the ways in which all social systems are actually decision-making systems in some form, particularly with respect to allowing stakeholders to vary their types and levels of participation in these systems.

Week 7 – Safety-Focused Initiatives

- Explore the special case of regulation enforcement as a form of standards adoption (sometimes an *involuntary* adoption) that carries distinct and expanded risk for the organization.
- Compare and evaluate some of the engineering or process diagramming techniques that support our role as system engineers responsible for contributing the organization's risk management competencies.

VI. COURSE SCHEDULE

This course uses readings, discussion, and assignments in WebCourses@UCF. Each week as described in the 'Learning Objectives' corresponds to a 'module' in WebCourses@UCF. Dates for opening, submitting, and closing of all assignments are defined within WebCourses@UCF modules. Each week, students will be expects to complete the discussions, assignments, and any part of the course final project as described in the class schedule within the weekly WebCourses@UCF modules. All work is intended to be completed solely by the individual enrolled in this course, working independently unless otherwise instructed.

VIII. REFLECTION PROJECT

Over the course of the entire 7-week class, you will develop and submit a Business & Functional Requirements Specification for a collection of organizational processes that can be collectively referred to as an Incident Management System. The final specification is due in Unit 7 with five interim deliverables due on a weekly basis beginning in Unit 2. Each deliverable includes all previous deliverables, and so the complete project emerges from the accumulation of content over the entire class.

Individual assignments are graded and count toward your final score (except the Unit 6 draft which does not count toward the final grade). Resubmissions are allowed on any assignment to improve scores. In fact, because each deliverable tends to build on previous deliverables, resubmitting work products for improved scores before moving on to the next assignment is highly recommended to ensure that each work product provides the best positive impact possible on the next deliverable.

While the deliverables are primarily viewed as engineering products, they are also academic products. (This should be true of all products you create in your career – not just this one because it is part of a school class.) As such, citations and references to any outside literature or materials must be included. The project assignments and documents produced will ultimately follow a general systems engineering lifecycle. However, the emphasis in grading these assignments is not on your demonstration of any particular systems engineering knowledge. Grading is primarily based on your demonstrated thinking about, and development of, the underlying risk management concepts and principles in your engineering.

IX. GRADING

Course grades are determined by a weighted aggregation of scores earned on each distinct component of the course, as follows:

Component	Impact
DISCUSSIONS	**30%**
ACTIVITIES	**20%**
REFLECTION	**50%**

Final course grades will follow traditional UCF criteria: A > 90%, B > 80%, C > 70%, D > 60%, or F.

X. IMPORTANT DATES

TBD	Course opens in WebCourses@UCF
TBD	Classes officially begin
TBD	Drop/Swap Deadline
TBD	Class Add Deadline
TBD	Withdrawal Deadline
TBD	Last official day of class

XI. Policies

The following policies govern student participation and course grading and should be interpreted in the context of all applicable and current UCF policies and procedures:

1. Canvas discussions and e-mail/Inbox are the preferred mechanisms for all class communications.
2. E-mails to the instructor should only be used where personal privacy is required by law (e.g., by FERPA). Discussion posts are preferred (via the Ask Dr. Biehl thread in Canvas) to avoid having to answer many e-mails with the same or related questions.
3. Late assignments do not need to be communicated to the instructor. Informing the instructor of a planned absence or late submission does not constitute approval of that absence or late submission.
4. UCF policies on academic integrity will be **strictly enforced** in all discussions and assignments.
5. Any form of plagiarism or cheating shall result in a **Failing** grade in this class. Plagiarism includes any use of the materials of others as your own, including copying and pasting text from outside web pages or other sources as material in your discussion posts, term paper submissions, or examination essays.

XII. PROGRAM POLICIES & EXPECTATIONS

Students Rights and Responsibilities - Please know your rights and your responsibilities as a student. Go to the web site http://www.goldenrule.sdes.ucf.edu/ and read carefully THE UCF GOLDEN RULE. It is your responsibility and your right as well to be aware of it. Your academic behavior in the class should be based on the Golden Rule.

UCF Online Writing Tutors - Online students attending UCF can meet with tutors online from anywhere in the world through Adobe Connect, UCF's real-time, web-based consulting program. All online consultations are by appointment only. Please see their website for more information: https://uwc.cah.ucf.edu/attend-online/

Disability Access - Your success in this class is important to us and the University of Central Florida is committed to providing reasonable accommodations for all persons with disabilities. If there are aspects of this course that prevent you from learning or exclude you, please let us know as soon as possible at the start of the semester. Together we will develop strategies to meet both your needs and the requirements of the course. Students who need accommodations must be registered with Student Disability Services, Student Resource Center Room 132, phone (407) 823-2371, TTY/TDD only phone (407) 823-2116, before requesting accommodations from an instructor.

Ethics Statement - UCF faculty supports the UCF Creed. Integrity - practicing and defending academic and personal honesty - is the first tenet of the UCF Creed. This is in part a reflection of the second tenet: *Scholarship:* "I will cherish and honor learning as a fundamental purpose of membership in the UCF community." Course discussions, assignments, and activities are designed to have educational value; the process of preparing for and completing these exercises will help improve your skills and knowledge. Material presented to satisfy course requirements is therefore expected to be the result of your own original scholarly efforts.

Turnitin.com - Courses in this Program utilize ***turnitin.com***, an automated system that instructors can use to quickly and easily compare each student's assignment with billions of web sites as well as an enormous database of student papers that grows with each submission. Accordingly, you are expected to submit all assignments in electronic format only. After assignment processing, your instructor receives a report from turnitin.com that states if and how another author's work was used in any assignment. For a more detailed look at this process, visit http://www.turnitin.com.

Responses to Academic Dishonesty, Plagiarism, or Cheating - UCF faculty members have a responsibility for your education and the value of a UCF degree, and so seek to prevent unethical behavior and when necessary respond to infringements of academic integrity. Penalties can include a failing grade in an assignment or in the course, suspension or expulsion from the university, and/or a "Z Designation" on a student's official transcript indicating academic dishonesty, where the final grade for this course will be preceded by the letter Z. For more information about the Z Designation, see http://z.ucf.edu/. For more information about UCF's Rules of Conduct, see http://www.osc.sdes.ucf.edu/.

Diversity and Inclusion (Title IX) - The University of Central Florida considers the diversity of its students, faculty, and staff to be a strength and critical to its educational mission. UCF expects every member of the university community to contribute to an inclusive and respectful culture for all in its classrooms, work environments, and at campus events. Dimensions of diversity can include sex, race, age, national origin, ethnicity, gender identity and expression, intellectual and physical ability, sexual orientation, income, faith and non-faith perspectives, socio-economic class, political ideology, education, primary language, family status, military experience, cognitive style, and communication style. The individual intersection of these experiences and characteristics must be valued in our community. Title IX prohibits sex discrimination, including sexual misconduct, sexual violence, sexual harassment, and retaliation. If you or someone you know has been harassed or assaulted, you can find resources available to support the victim, including confidential resources and information concerning reporting options at www.shield.ucf.edu and http://cares.sdes.ucf.edu/. If there are aspects of the design, instruction, and/or experiences within this course that result in barriers to your inclusion or accurate assessment of achievement, please notify the instructor as soon as possible and/or contact Student Accessibility Services.

For more information on diversity and inclusion, Title IX, accessibility, or UCF's complaint processes contact:

- Title IX – EO/AA - http://www.eeo.ucf.edu/ & askanadvocate@ucf.edu
- Disability Accommodation – Student Accessibility Services - http://sas.sdes.ucf.edu/ & sas@ucf.edu
- Diversity and Inclusion Training and Events – www.diversity.ucf.edu
- Student Bias Grievances – Just Knights response team - http://jkrt.sdes.ucf.edu/
- UCF Compliance and Ethics Office - http://compliance.ucf.edu/ & complianceandethics@ucf.edu
- Ombuds Office - http://www.ombuds.ucf.edu

Graduate Course Revisions

Committee	**Graduate Curriculum Committee**
Notes	
Total Proposals	**3**

EEL - 5245 - Power Electronics

2018-2019 Graduate Course Revision

General Catalog Information

Read before you begin

1. TURN ON help text before starting this proposal by clicking in the top right corner of the heading.

2. FILL IN all fields required marked with an *. You will not be able to launch the proposal without completing required fields.

3. LAUNCH proposal by clicking in the top left corner.

Course revisions must be accompanied by a course syllabus and rationale. Departments must also submit an electronic syllabus to the college curriculum person.

College / Department*	Department of Electrical and Computer Engineering
Prefix*	EEL
Code*	5245
Name*	Power Electronics
30 Character Abbreviation:	
Course Description*	

Principles of power electronics, power semiconductor devices, inverter topologies, switch-mode and resonant dc-to-dc converters, cyclo-converters, applications.

Credit Hours:	3
Class Hours:	3
Lab and Field Work Hours:	0
Contact Hours:	3
Repeat for credit?	○ Yes ◉ No
If yes, indicate the total times the course may be used in the degree program.	
Repeat within same semester?	○ Yes ◉ No

NOTE: For a repeatable course, indicate in the syllabus what will remain the same and what will change when the course is repeated. Also indicate who approves content before a course is repeated.

Prerequisite(s):	EEE 4309C.
Corequisite(s):	

Prerequisite(s) or Corequisite(s):

Graded S/U? ○ Yes ○ No

Graded S/U:

Split-Level Class: ○ Yes ○ No

If offering a split-level class, complete this section even if it had been approved earlier for individual delivery.

List undergraduate split-level course:

NOTE: Both the graduate and the undergraduate split-level syllabi must be approved through the established university process for approving courses so that there are two separate and complete syllabi for each course. The graduate syllabus should clearly demonstrate more advanced subject matter, expectations, and rigor. Attach both undergraduate and graduate syllabi to this form.

Term of Offering

When will the course be offered? ☑ Odd Fall ☑ Even Fall ☐ Odd Spring ☐ Even Spring ☐ Odd Summer ☐ Even Summer ☐ Every Semester ☐ Occasional

Intended Utilization of Course

The course will be used primarily as:	○ Required Course ◉ Elective Course

Justification for Course Revision

What is the rationale for revising this course?	The contact hours are being changed as the course currently has only lecture and no labs or discussion sessions.
What majors require or recommend this course for graduation?	Electrical and Computer Engineering students
If not a major requirement, what will be the source of students?	
What is the estimated annual enrollment?	20

Possible duplications and conflicts with other departments or colleges should be discussed with appropriate parties. Please detail discussion you have had.

Detail Discussion	n/a

Attachment List

Please attach any required files by navigating to the Proposal Toolbox and clicking in the top right corner.

Check ☑ I have completed all relevant parts of the form.

Attached ☑ I have attached a course syllabus and rationale.

Administration Use Only

Catalog Ownership: Department of Electrical and Computer Engineering

Course OID 15032

Course Type Engineering: Electrical

Status ◉ Active-Visible ○ Inactive-Hidden

University of Central Florida

Course Action Request Form

☐ Course Addition ■ Course Revision ☐ Course Deletion

Forward to your college office

Course Information NOTE: *Course additions and course revisions must be accompanied by a course syllabus and rationale.*
Note: Departments must also submit an electronic syllabus to the college curriculum person.

College: CECS **Department:** ECE

Department Chair: Zhihua Qu **Phone:** 3-5976

Academic Affairs Approved Instructor: Issa Batarseh

	Course Prefix	Number	Title	Credit Hours Ex.: 3(3,0)
Course Prefix	EEL	5245C		
New or Proposed Revision	EEL	5245		3(3,0)

30 Char. Abbreviation:

Course Description (25 word limit) (If course revision, underscore changes.):

Same.

Will lab fees be charged? ☐ Yes ■ No

Repeat for credit? ☐ Yes ■ No If yes, indicate the total times this course may be used in the degree program.

Repeat within same semester? ☐ Yes ■ No

NOTE: For a repeatable course, indicate in the syllabus what will remain the same and what will change when the course is repeated. Also indicate who approves content before a course is repeated.

Prerequisite(s) and/or Corequisite(s): Same. **Graded S/U?** ☐ Yes ■ No

Split-Level Class: ☐ Yes ■ No

If offering a split-level class, complete this section even if it had been approved earlier for individual delivery.

List undergraduate split-level course:

NOTE: *Both the graduate and the undergraduate split-level syllabi must be approved through the established university process for approving courses so that there are two separate and complete syllabi for each course. The graduate syllabus should clearly demonstrate more advanced subject matter, expectations, and rigor. Attach both undergraduate and graduate syllabi to this form.*

Term of Offering
When will course be offered?

■ Odd Fall ☐ Odd Spring ☐ Odd Summer ☐ Every Semester

■ Even Fall ☐ Even Spring ☐ Even Summer ☐ Occasional

Intended Utilization of Course
The course will be used primarily as:

☐ Required Courses ■ Elective Courses

Justification for Course Addition or Course Revision

What is the rationale for adding/changing this course?

The contact hours are being changed as the course currently has only lectures and no labs or discussion sessions.

What majors require or recommend this course for graduation? _____

If not a major requirement, what will be the source of students? Electrical and Computer Engineering students.

What is the estimated annual enrollment? 20

Possible duplications and conflicts with other departments or colleges should be discussed with appropriate parties. Please detail discussion you have had.

N/A

Justification for Course Deletion

Is this course a required course for graduation in a major or prerequisite? ☐ Yes ☐ No

If yes, have the involved major departments been informed, in writing, of proposed deletion? ☐ Yes ☐ No

If not, explain:Course Description (25 word limit) (If course revision, underscore changes.):

Notes:

Approval Signatures

Department Chair _____ **Date** 12/04/17

College Academic Standards _____ **Date** 2/12/18

College Dean _____ **Date** 2/14/18

Graduate Council _____ **Date** _____

Graduate Dean _____ **Date** _____

POWER ELECTRONICS
EEL 5245

Instructor: Dr. Issa Batarseh
Office: HEC 204
Office Hours: TBD
Phone: Work: 407-823-0185
Cell: 407-962-8630
Email: issa.batarseh@ucf.edu

TA: TBD

Class Hours: TBD

Class Room: TBD

Textbook: ***Power Electronic Circuits***, by I. Batarseh and H. Harb, Springer, 2017 (electronic copy available)

References:
1. ***Fundamentals of Power Electronics***, Erickson and Maksimovic, 2001
3. ***Power Electronics: Converters, Applications and Design***, Mohan, Undeland and Robbins

Catalog Description: Principles of power electronics, power semiconductor devices, inverter topologies, switch-mode and resonant dc-to-dc converters, cyclo-converters, applications.

Objective: The objective of this course is to present the principles of power electronics and its applications. This includes power electronics circuits, power semiconductor devices, and converter topologies. The student will learn analysis and design techniques for switch-mode converters using the buck, boost, and buck-boost topologies. The course will emphasize complex theoretical analysis and computer simulation tools as course project.

Prerequisites: Electronics II - EEE 4309C.

Course Content:
Engineering Design: 1 credit hours
Engineering Science: 2 credit hours

Homework: Homework will be assigned at various times throughout the semester and should be turned in via email on the due date.

Covered Topics:

Introduction (Chapter 1)
- 1.1 What is Power Electronics?
- 1.3 The Need for Power Conversion
- 1.4 Power Electronics Systems
- 1.5 Applications of Power Electronics
- 1.6 Future Trends

Switching Concepts and Overview of Power Semiconductor Devices (Chapter 2)

2.1 The Need for Switching in Power Electronic Circuits
2.2 Switching Characteristics
2.4 Types of Switches
2.5 Available Semiconductor Switching Devices
2.6 Comparison of Switching Devices
2.7 Future Trends in Power Devices
2.8 Snubber Circuits

Switching Circuits, Power Computations and Component Concepts (Chapter 3)

3.1 Diode Switching Circuits
3.2 Basic Power and Harmonic Concepts for Sinusoidal and Non-sinusoidal Waveforms

Non-isolated DC-DC Converters (Chapter 4)

4.1 Power supply applications
4.2 DC-DC Converter Topologies-Continuous Conduction Mode (CCM)
4.3 DC-DC Converter Topologies-Discontinuous Conduction Mode (DCM)
4.4 Non-ideal Effects
4.5 Switch Utilization Factor

Isolated DC-DC Converters (Chapter 5)

Buck- and Boost-derived isolated DC-DC converters.
Power supply applications

Converter Dynamics and Control (Additional Material if time permits)

Homework: Homework assignments will be based on the textbook by the instructor.

Project: Each student will be required to choose a topic and submit 10 to 15 pages report at the end of the semester. You may select any topic in power electronics, provided it has appreciative level of theoretical complexity and must have simulation results to prove theory. Any simulation software is acceptable. However, list of suggested topics will be given to you later on in the course. This class project is important assignment and will carry 20% of the final grade.

Grading:

In Class-Exam	25%
Final	35%
Class Project	25%
Home Work	15%

	100%

Student Academic Activities:

As of Fall 2014, all faculty members are required to document students' academic activity at the beginning of each course. In order to document that you began this course, you must attend the first week and sign the attendance sheet. For students who are off campus, please review the first two lecture and send Dr. Batarseh email stating that you have watched the lecture online. This academic assignment (signing attendance sheet) must be done no later than _____. Failure to do so will result in a delay in the disbursement of your financial aid.

For more info, please visit:

http://teach.ucf.edu/support/

ABET Course Learning Outcomes and Expected Performance Criteria:

Outcome 1:
A passing student will be able to analyze power semiconductor devices and their applications. Performance Criteria: 70% correct score in midterm exam 1.

Outcome 2:
A passing student will be able to analyze switching circuits, their operation mechanism and power consumption. Performance Criteria: 70% correct score in midterm exam 1.

Outcome 3:
A passing student will be able to analyze and design non-isolated dc-dc converters, CCM and DCM modes, non-ideal converters, fourth-order converters. Performance Criteria: 70% correct score in midterm exam 2.

Outcome 4:
A passing student will be able to calculate the power losses of switching converters and estimate the conversion efficiency. Performance Criteria: 70% correct score in final exam.

Outcome 5:
A passing student will be able to analyze the dynamics of switching converters, perform frequency analysis and design stable closed loop control. Performance Criteria: 70% correct score in final exam.

EEL - 5439C - RF and Microwave Active Circuits

2018-2019 Graduate Course Revision

General Catalog Information

Read before you begin

1. TURN ON help text before starting this proposal by clicking in the top right corner of the heading.

2. FILL IN all fields required marked with an *. You will not be able to launch the proposal without completing required fields.

3. LAUNCH proposal by clicking in the top left corner.

Course revisions must be accompanied by a course syllabus and rationale. Departments must also submit an electronic syllabus to the college curriculum person.

College / Department*	Department of Electrical and Computer Engineering
Prefix*	EEL
Code*	5439C
Name*	RF and Microwave Active Circuits
30 Character Abbreviation:	RF Microwave Active Circuits
Course Description*	Transmission line, microwave network theory, impedance matching, noise, power gain amplifier, low noise amplifier, power amplifier, oscillator, mixer and microwave communication system.
Credit Hours:	4
Class Hours:	3

Lab and Field Work Hours:	3
Contact Hours:	6
Repeat for credit?	○ Yes ◉ No
If yes, indicate the total times the course may be used in the degree program.	
Repeat within same semester?	○ Yes ◉ No

NOTE: For a repeatable course, indicate in the syllabus what will remain the same and what will change when the course is repeated. Also indicate who approves content before a course is repeated.

Prerequisite(s):	EEL 4436C or EEL 5437c or equivalent.
Corequisite(s):	
Prerequisite(s) or Corequisite(s):	

Graded S/U? ○ Yes ◉ No

Graded S/U:

Split-Level Class: ○ Yes ◉ No

If offering a split-level class, complete this section even if it had been approved earlier for individual delivery.

List undergraduate split-level course:

NOTE: Both the graduate and the undergraduate split-level syllabi must be approved through the established university process for approving courses so that there are two separate and complete syllabi for each course. The graduate syllabus should clearly demonstrate more advanced subject matter, expectations, and rigor. Attach both undergraduate and graduate syllabi to this form.

Term of Offering

When will the course be offered? ☐ Odd Fall ☐ Even Fall ☑ Odd Spring ☑ Even Spring ☐ Odd Summer ☐ Even Summer ☐ Every Semester ☐ Occasional

Intended Utilization of Course

The course will be used primarily as: ○ Required Course ◉ Elective Course

Justification for Course Revision

What is the rationale for revising this course? The title and description of this course are outdated. The new course title and description fit the content of the course much better. Also updating the prerequisites to reflect the dual courses EEL 4436C/EEL 5437C.

What majors require or recommend this course for graduation?	Electrical Engineering
If not a major requirement, what will be the source of students?	
What is the estimated annual enrollment?	20

Possible duplications and conflicts with other departments or colleges should be discussed with appropriate parties. Please detail discussion you have had.

Detail Discussion	N/A

Attachment List

Please attach any required files by navigating to the Proposal Toolbox and clicking in the top right corner.

Check	☑ I have completed all relevant parts of the form.
Attached	☑ I have attached a course syllabus and rationale.

Administration Use Only

Catalog Ownership:	Department of Electrical and Computer Engineering
Course OID	15038

Course Type Engineering: Electrical

Status (•) Active-Visible ( ) Inactive-Hidden

University of Central Florida

Course Action Request Form

☐ Course Addition ■ Course Revision ☐ Course Deletion

Forward to your college office

Course Information NOTE: *Course additions and course revisions must be accompanied by a course syllabus and rationale.*
Note: Departments must also submit an electronic syllabus to the college curriculum person.

College: CECS **Department:** ECE

Department Chair: Zhihua Qu **Phone:** 3-5976

Academic Affairs Approved Instructor: Xun Gong

	Course Prefix	Number	Title	Credit Hours Ex.: 3(3,0)
Course Prefix	EEL	5439C	RF and Microwave Communications	4(3,3)
New or Proposed Revision	EEL	5439C	RF and Microwave Active Circuits	4(3,3)

30 Char. Abbreviation: RF and Microwave Active Circuits

Course Description (25 word limit) (If course revision, underscore changes.):

Transmission line, microwave network theory, impedance matching, noise, power gain amplifier, low noise amplifier, power amplifier, oscillator, mixer and microwave communication system.

Will lab fees be charged? ■ Yes ☐ No

Repeat for credit? ☐ Yes ■ No If yes, indicate the total times this course may be used in the degree program. _____

Repeat within same semester? ☐ Yes ■ No

NOTE: For a repeatable course, indicate in the syllabus what will remain the same and what will change when the course is repeated. Also indicate who approves content before a course is repeated.

Prerequisite(s) and/or Corequisite(s): EEL 4436C or EEL 5437C or Equivalent **Graded S/U?** ☐ Yes ■ No

Split-Level Class: ☐ Yes ■ No

If offering a split-level class, complete this section even if it had been approved earlier for individual delivery.

List undergraduate split-level course: _____

NOTE: *Both the graduate and the undergraduate split-level syllabi must be approved through the established university process for approving courses so that there are two separate and complete syllabi for each course. The graduate syllabus should clearly demonstrate more advanced subject matter, expectations, and rigor. Attach both undergraduate and graduate syllabi to this form.*

Term of Offering
When will course be offered?

☐ Odd Fall ■ Odd Spring ☐ Odd Summer ☐ Every Semester

☐ Even Fall ■ Even Spring ☐ Even Summer ☐ Occasional

Intended Utilization of Course
The course will be used primarily as:

☐ Required Courses ■ Elective Courses

RECEIVED
APR 26 2018
BY: CtS

Justification for Course Addition or Course Revision

What is the rationale for adding/changing this course?

The title and description of this course are outdated. The new course title and description fit the content of the course much better. Also updating the prerequisites to reflect the dual courses EEL 4436C/EEL 5437C.

What majors require or recommend this course for graduation? Electrical Engineering

If not a major requirement, what will be the source of students? _____

What is the estimated annual enrollment? 20

Possible duplications and conflicts with other departments or colleges should be discussed with appropriate parties. Please detail discussion you have had.

N/A

Justification for Course Deletion

Is this course a required course for graduation in a major or prerequisite? ☐ Yes ☒ No

If yes, have the involved major departments been informed, in writing, of proposed deletion? ☐ Yes ☐ No

If not, explain:Course Description (25 word limit) (If course revision, underscore changes.):

Notes:

Approval Signatures

Department Chair _____ **Date** 4/6/2018

College Academic Standards _____ **Date** 4/25/18

College Dean _____ **Date** 5/2/18

Graduate Council _____ **Date** _____

Graduate Dean _____ **Date** _____

EEL 5439C: RF and Microwave Active Circuits

Department of Electrical and Computer Engineering
College of Engineering and Computer Science, University of Central Florida

COURSE SYLLABUS

Instructor:	Xun Gong	Term:	
Office:	Harris Corp. Engineering Center (HEC) 426	Class Meeting Days:	TBD
Phone:	3-5762	Class Meeting Hours:	TBD
E-Mail:	xun.gong@ucf.edu	Class Location:	TBD
Website:	Webcourses	Lab Location:	TBD
Office Hours:	TBD		

I. Welcome!

This course is designed to give electrical engineers the specialized training that they need to achieve competence in RF and wireless engineering. It first reviews the fundamental theory of transmission lines. Once this foundation is complete, students learn practical skills, such as design of amplifiers, mixers, and oscillators. Labs and projects are designed to strengthen the understanding and to provide hands-on experience. This course also introduces some of the current challenges and trends in RF technology and research, such as packaging, antenna, and integrated wireless transceivers.

II. University Course Catalog Description

RF and Microwave Communications: PR: EEL 4436C or EEL5437C or Equivalent. Transmission line, microwave network theory, impedance matching, noise, power gain amplifier, low noise amplifier, power amplifier, oscillator, mixer, microwave communication system. May be repeated for credit. *Spring*. M&S fee $40.00

III. Course Overview

Passive Components
Transmission Line and Microwave Network Theory
Matching Techniques
Noise and Microwave System Design Considerations
Amplifiers (Power Gain Amplifier, Low-Noise Amplifier, and Power Amplifier)
Microwave Oscillators
Microwave Mixers
RF Packaging Techniques
Antennas
Microwave Communication System Design
Measurement Techniques for Characterizing Amplifiers, Noise, and Nonlinearity
Simulation Tools (ADS, Designer, and HFSS)

IV. Course Objectives

By the end of this course, students will be able to

1. Use Smith Chart to design impedance matching network in lumped elements or transmission lines
2. Understand scattering parameters and use them to evaluate the performance of microwave circuits
3. Design microwave active components such as specified gain amplifiers, low noise amplifier, broadband amplifiers, power amplifiers, oscillators, and mixers
4. Design biasing networks for active circuits
5. Use commercial software Keysight ADS and ANSYS HFSS to analyze and design microwave circuits

V. Course Prerequisites

EEL4436C or EEL5437C or equivalent course approved by the instructor

VI. Course Credits

4 (3, 3)

VII. Required Texts and Materials

Guillermo Gonzalez, "Microwave Transistor Amplifiers – Analysis and Design," 2nd edition, 1997, Prentice-Hall

VIII. Supplementary (Optional) Texts and Materials

David M. Pozar, "Microwave Engineering," 4th edition, 2011, Wiley

Inder J. Bahl, "Fundamentals of RF and Microwave Transistor Amplifiers," 2009, Wiley

IX. Basis for Final Grade

Assessment	Percent of Final Grade
Homework	10%
Lab	60%
Final Project	30%
	100%

Grading Scale (%)
A
A-
B+
B
B-
C+
C
C-
D
F

The grades of the class will be curved up if needed.

X. Grade Dissemination

Graded homework and lab reports will be returned to the students. Graded tests in this course will be returned individually only by request. You can access your scores at any time using the Grade Book function of Webcourses. Please note that scores returned mid-semester are unofficial grades.

XI. Course Policies: Grades

Late Work Policy:
No late homework or lab reports will be collected.

Extra Credit Policy:
There are no extra credits for this course. Please pay attention to the diversified assessments at the beginning of the semester.

Grades of "Incomplete":
The current university policy concerning incomplete grades will be followed in this course. Incomplete grades are given only in situations where unexpected emergencies prevent a student from completing the course and the remaining work can be completed the next semester. Your instructor is the final authority on whether you qualify for an incomplete. Incomplete work must be finished by the end of the subsequent semester or the "I" will automatically be recorded as an "F" on your transcript.

XII. Course Policies: Technology and Media

Webcourses: Syllabus, homework questions and solutions, lab instructions, lecture notes, and unofficial grades will be posted on webcourses periodically. The students are expected to check the webcourses at least twice a week.

XIII. Course Policies: Student Expectations

Exam Policy:

1. All exams are closed book and closed notes
2. Formula sheets will be provided in the exams by the instructor if necessary
3. Calculators are allowed in the exams.
4. Failure to show up in exams will result in receiving no credits for that exam.

Disability Access:
The University of Central Florida is committed to providing reasonable accommodations for all persons with disabilities. This syllabus is available in alternate formats upon request. Students with disabilities who need accommodations in this course must contact the professor at the beginning of the semester to discuss needed accommodations. No accommodations will be provided until the student has met with the professor to request accommodations. Students who need accommodations must be registered with Student Disability Services, Student Resource Center Room 132, phone (407) 823-2371, TTY/TDD only phone (407) 823-2116, before requesting accommodations from the professor.

Attendance Policy: At the end of each lecture, the attendance will be recorded. Missing 25% of the lectures without approval from the instructor automatically fails this course. Missing any lab without approval from the TA and instructor automatically fails this course.

Professionalism Policy:
Per university policy and classroom etiquette; mobile phones, iPods, *etc.* **must be silenced** during all classroom and lab lectures. Those not heeding this rule will be asked to leave the classroom/lab immediately so as to not disrupt the learning environment. Please arrive on time for all class meetings. Students who habitually disturb the class by talking, arriving late, *etc.*, and have been warned may suffer a reduction in their final class grade.

Academic Conduct Policy:
Academic dishonesty in any form will not be tolerated. If you are uncertain as to what constitutes academic dishonesty, please consult The Golden Rule, the University of Central Florida's Student Handbook (http://www.goldenrule.sdes.ucf.edu/) for further details. As in all University courses, The Golden Rule Rules of Conduct will be applied. Violations of these rules will result in a record of the infraction being placed in your file and receiving a zero on the work in question AT A MINIMUM. At the instructor's discretion, you may also receive a failing grade for the course. Confirmation of such incidents can also result in expulsion from the University

EIN - 5248 - Ergonomics

2018-2019 Graduate Course Revision

General Catalog Information

Read before you begin

1. TURN ON help text before starting this proposal by clicking in the top right corner of the heading.

2. FILL IN all fields required marked with an *. You will not be able to launch the proposal without completing required fields.

3. LAUNCH proposal by clicking in the top left corner.

Course revisions must be accompanied by a course syllabus and rationale. Departments must also submit an electronic syllabus to the college curriculum person.

College / Department*	Department of Industrial Engineering and Management Systems
Prefix*	EIN
Code*	5248
Name*	Ergonomics
30 Character Abbreviation:	Ergonomics
Course Description*	Applications of anthropometry, functional anatomy, mechanics, and physiology of musculo-skeletal system concepts in the design of industrial tools, equipments, and workstations.
Credit Hours:	3
Class Hours:	3

Lab and Field Work Hours:	0
Contact Hours:	3
Repeat for credit?	○ Yes ◉ No
If yes, indicate the total times the course may be used in the degree program.	
Repeat within same semester?	○ Yes ◉ No

NOTE: For a repeatable course, indicate in the syllabus what will remain the same and what will change when the course is repeated. Also indicate who approves content before a course is repeated.

Prerequisite(s):	EIN 4360 or C.I.
Corequisite(s):	
Prerequisite(s) or Corequisite(s):	

Graded S/U? ○ Yes ◉ No

Graded S/U:

Split-Level Class: ○ Yes ◉ No

If offering a split-level class, complete this section even if it had been approved earlier for individual delivery.

List undergraduate split-level course:

NOTE: Both the graduate and the undergraduate split-level syllabi must be approved through the established university process for approving courses so that there are two separate and complete syllabi for each course. The graduate syllabus should clearly demonstrate more advanced subject matter, expectations, and rigor. Attach both undergraduate and graduate syllabi to this form.

Term of Offering

When will the course be offered? ☑ Odd Fall ☑ Even Fall ☐ Odd Spring ☐ Even Spring ☐ Odd Summer ☐ Even Summer ☐ Every Semester ☐ Occasional

Intended Utilization of Course

The course will be used primarily as: ○ Required Course ◉ Elective Course

Justification for Course Revision

What is the rationale for revising this course? Deleting the laboratory requirements since many available expert system/simulation softwares can replace laboratory experimentations.

What majors require or recommend this course for graduation?	Industrial Engineering
If not a major requirement, what will be the source of students?	
What is the estimated annual enrollment?	40-50

Possible duplications and conflicts with other departments or colleges should be discussed with appropriate parties. Please detail discussion you have had.

Detail Discussion	No duplication or conflicts with other departments or colleges.

Attachment List

Please attach any required files by navigating to the Proposal Toolbox and clicking in the top right corner.

Check	☑ I have completed all relevant parts of the form.
Attached	☑ I have attached a course syllabus and rationale.

Administration Use Only

Catalog Ownership:	**Department of Industrial Engineering and Management Systems**
Course OID	15142

Course Type Industrial Engineering

Status (•) Active-Visible ( ) Inactive-Hidden

University of Central Florida

Graduate Course Action Request Form

☐ Course Addition ☑ Course Revision ☐ Course Deletion

Forward to your college office

Course additions and course revisions must be accompanied by a course syllabus and rationale. Departments must also submit an electronic syllabus to the college curriculum person.

Course Information

College: CECS Department: IEMS

Department Chair: Dr. Waldemar Karwowski Phone: 2-2204

Approved Graduate Faculty/Scholars: Dr. Gene lee

	Course Prefix	Number	Title	Credit Hours Ex.: 3(3,0)
Current or New Course	EIN	5248C	Ergonomics	3(2,2)
Proposed Course Revision	EIN	5248	Ergonomics	3(3,0)

30 Character Abbreviation: Ergonomics

Course Description (25 word limit)

Application of anthropometry, functional anatomy, mechanics, and physiology of musculo-skeletal system concepts in the design of industrial tools, equipments, and workstations

New or revised Materials and Supply Fees? ☐ Yes ☑ No If yes, also complete the Materials and Supply Fee Request Form.

Repeat for credit? ☐ Yes ☑ No If yes, indicate the total times this course may be used in the degree program. _____

Repeat within same semester? ☐ Yes ☑ No

NOTE: For a repeatable course, indicate in the syllabus what will remain the same and what will change when the course is repeated. Also indicate who approves content before a course is repeated.

Prerequisite(s) and/or Corequisite(s): EIN 4360 or Consent of Instructor (CI)

Graded S/U? ☐ Yes ☑ No

Split-Level Class: ☐ Yes ☑ No

If offering a split-level class, complete this section even if it had been approved earlier for individual delivery.

List undergraduate split-level course: _____

NOTE: Both the graduate and the undergraduate split-level syllabi must be approved through the established university process for approving courses so that there are two separate and complete syllabi for each course. The graduate syllabus should clearly demonstrate more advanced subject matter, expectations, and rigor. Attach both undergraduate and graduate syllabi to this form.

Term of Offering

When will the course be offered?

☑ Odd Fall ☐ Odd Spring ☐ Odd Summer ☐ Every Semester

☑ Even Fall ☐ Even Spring ☐ Even Summer ☐ Occasional

Intended Utilization of Course

The course will be used primarily as:

☐ Required Course ☑ Elective Course

Justification for Course Addition or Course Revision

What is the rationale for adding or revising this course?

Deleting the laboratory requirements since many available expert system/simulation softwares can replace laboratory experimentations

What majors require or recommend this course for graduation? Industrial Engineering

If not a major requirement, what will be the source of students? _____

What is the estimated annual enrollment? 40-50

Possible duplications and conflicts with other departments or colleges should be discussed with appropriate parties. Please detail discussion you have had.

No duplication or conflicts with other departments or colleges

Justification for Course Deletion

Is this course a required course for graduation in a major or prerequisite? ☐ Yes ☑ No

If yes, have the involved major departments been informed, in writing, of proposed deletion? ☐ Yes ☐ No

If not, explain

Notes:

Approval Signatures

Department Chair — Waldemar Karwowski — Digitally signed by Waldemar Karwowski DN: cn=Waldemar Karwowski, o, ou, email=wkarwowski@gmail.com, c=US Date: 2018.02.20 11:51:24 -05'00' — Date _____

College Academic Standards — Date 2/28/18

College Dean — Date 3/5/18

Graduate Council — Date _____

Vice President for Research and Dean of the College of Graduate Studies — Date _____

EIN 5248 ERGONOMICS
Fall 2017
Th 10:30 – 13:20
ENG2 103

Dr. Gene Lee
Office: ENG2, Rm. 420
phone: (407) 823-2308
fax (407) 823-3413
email: glee@ucf.edu

COURSE DESCRIPTION :
Ergonomics: PR : C.I. Applications of anthropometry, functional anatomy, mechanics, and physiology of musculoskeletal system concepts in the engineering design of industrial tools, equipments, and workstations

COURSE OBJECTIVES:
To familiarize students with the concepts of anthropometry, functional anatomy, mechanics and physiology of the musculo-skeletal system of the body in order to apply the above mentioned concepts in the design of industrial tools, equipment, and workplaces. This course will provide the students with the necessary foundation for advanced studies in the field of applied ergonomics.

The material covered in the course will include several supplements to the prior mentioned text and the class reading assignments. Several case studies will be evaluated throughout the semester to enhance the understanding of the application of ergonomic principles. A semester project will be assigned. Project topics will be discussed early in the course and you are encouraged to do projects that are relevant to your employment, research interests, or areas of interest.

TEXT:
Fitting the Human, K.H.E. Kroemer, 7th Edition, CRC Press

OFFICE HOURS
Tuesdays & Thursdays 8:30 –10:30 am

GRADING POLICY:

Exam I & II	80%
Semester Project	20%

GRADING SCALE:

90–100	A
80 - 89	B
70 - 79	C
60 - 69	D
< 60	F

As a general policy, **I will not post grades**, with or without permission of the student with the exception of posting on WebCourse; nor will I give out grades over the telephone. I will not discuss a student's grade between completion of the final exam and the student's receipt of official university semester grades in the mail.
All faculty members are required to document students' academic activity at the beginning of each course. In order to document that you began this course, please complete the following academic activity by the end of the first week of classes, or as soon as possible after adding the course, but no later than August 28. Failure to do so will result in a delay in the disbursement of your financial aid.

In order to satisfy the above requirement, you are asked to submit a brief introductory memo of yourself including academic/professional background, reasons you are taking this course and what you would like to learn/get from this course. Again, this requirement should be satisfied no later than August 28, 2017.

EIN 5248 ERGONOMICS
***Tentative* Course Schedule**

DATE	TOPIC(S)	CHAPTER(S)
August 24	Course overview/ Introduction to Human Engineering/Ergonomics	
August 31	The Anatomical and Mechanical Structure of the Human Body	1,2
September 7	How the Human Body Works	3,4
September 14	How the Mind Works	5,6
September 21	Human Senses	7
September 28	How the Body Interacts with the Environment	8
October 5	Physical Work	10,11
October 12	Body Rhythms and Work Schedule	15,16
October 19	**Exam I (Chapters 1-11)**	
October 26	No Class	
November 2	The Office Workstation Design	18
November 9	Controls & Displays	19
November 16	The Workplace Design	20
November 23	Thanksgiving Holiday	
November 30	Handling Loads	21
December 7	**Exam II (Chapters 15-21)**	