Graduate Council Curriculum Committee
September 6, 2017
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. Addition of Non-Thesis track in the CGS Nanotechnology MS program
4. Inactivation of the CGS Nanotechnology PSM program
5. Inactivation of the CGS Conservation Biology PSM program
6. Courses
7. Adjournment

Members of the Graduate Council Curriculum Committee

Charles Kelliher, Chair, CBA
Jim Moharam, Steering Liaison, COP
Kerry Purmensky, CAH
Elsie Olan, CEHP
Jennifer Sandoval, COS
Cheyenne Ro, RCHM
Art Weeks, CECS
Diane Andrews, CON
Steven Ebert, COM
Mercedeh Khajavikhan, COP
Terrie Sypolt, LIB
Joshua Troche, COHPA
Andrea Pulido, GSA
Devon Jensen, CGS Liaison
Graduate Program Recommendation Form - ADDITIONS ONLY

This form is to be used to ADD degree programs, tracks, or certificate programs. If there are tracks being added to the program, one form may be used for both the program and the track(s).

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

Checklist of items to be attached with completed form:

☐ Complete and current Graduate Catalog copy (www.gradcatalog.ucf.edu), including description, curriculum, contact information, application requirements, and application deadlines.

☐ A list of faculty who will participate in the program, track or certificate and their credentials.

☐ If applicable, a written agreement from all involved units that they are in support of, will provide courses to, or will participate in the program, track, or certificate.

☐ Course Action Request forms, as needed.

☐ Library assessment of resources.

College/Unit(s) Submitting Proposal: College of Graduate Studies

Proposed Effective Term/Year: Spring 2018

Unit(s) Housing Program: NanoScience Technology Center

Name of program, track and/or certificate: Master of Science in Nanotechnology Non-Thesis Track

Please check all that apply. This action affects: □ Program □ Track □ Certificate

DELIVERY: Program will be delivered: □ Face to Face □ UCF Online □ Mixed Delivery

Will the program be a market tuition rate program? □ Yes □ No

Will the program be a cost recovery program? □ Yes □ No

Brief description of program and rationale for the addition: Do not add complete catalog copy here.

NanoScience Technology Center currently hosts two graduate programs: PSM in Nanotechnology and MSc in Nanotechnology. The current MSc program has a thesis requirement. From Spring 2018, we will inactivate the PSM program (a separate form for discontinuing the PSM program is submitted simultaneously). A most rational substitute for the PSM program and that will benefit the students the most is to add a non-thesis track to the current MSc Nanotechnology program. Students who do not wish to complete thesis research, but still want to take nanotechnology-related courses and research training in nanoscience and technology can take the non-thesis option.
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:

Current students in the PSM nanotechnology program will have the option to move to this new track.

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 the addition of a program, track or certificate?

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. Also, complete the following table.

In the past, we have a significant number of applicants and students who are interested in the graduate program in nanotechnology. However, some students are not ready to conduct thesis research. Some of them want to take some business courses as part of their professional training. We have had quite a large number of PSM students in the past. After discontinuing the PSM program, these students will have the option to take the non-thesis MSc option and get a MSc degree in nanotechnology.

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Indicate likely career or student outcomes upon completion: (What will students do? What will their job titles be?)

Students graduated with a Master degree in nanotechnology will have the opportunities to work in industry and businesses that are involved in nanotechnology product development and commercialization as laboratory researcher, technician, lab or business manager, sales representative, business consultants, or pursue advanced degree, such as Ph.D, M.D., Pharm. D.

Please complete the following table on financial support:
( Specify all forms of support – assistantships, fellowships, and tuition remission.)

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Signatures

Recommend Approval (all approval levels must be signed)

Graduate Faculty Program Coordinator:
Print: Qun Huo  Signature: __________________________ Date: 8/18/2017

Department Chair / Director
Print: Lei Zhai  Signature: __________________________ Date: 8/18/2017

College Academic Standards
Print: __________________________ Signature: __________________________ Date: __________

College Dean
Print: __________________________ Signature: __________________________ Date: __________

Graduate Council
Print: __________________________ Signature: __________________________ Date: __________

Vice President for Research and Dean of the College of Graduate Studies:
Print: __________________________ Signature: __________________________ Date: __________

Approval

Provost and Executive Vice President:
Print: __________________________ Signature: __________________________ 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 Nanotechnology – Non- Thesis Track

PROGRAM DESCRIPTION

The Master of Science in Nanotechnology Non-Thesis Track program provides students with scientific knowledge and research training in nanoscience and nanotechnology. The program prepares students for seeking employment in industry and academia involved in nanotechnology research, product development and commercialization, or to pursue advanced PhD degrees in related areas.

CURRICULUM

The Nanotechnology MS Non-Thesis Track program consists of 30 credit hours of graduate courses including 12 credit hours of required core courses in nanotechnology, 3 credit hours of independent study, 6 credit hours of required elective courses in physics, engineering, chemistry, biology, or biomedical-related science, and 9 credit hours of open elective courses in science, engineering, or business related field.

From the core courses in nanotechnology and elective courses in related science/engineering areas, students will gain basic and broader understanding of the most advanced techniques, developments and applications of nanoscale materials and devices. From the independent study training, the students will gain hands-on experiences to work on problems and product development involving nanoscience and nanotechnology.

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

**Required Courses—21 Credit Hours**

**Core Courses—12 Credit Hours**

Select four courses from the following list of courses.

- IDS 6250 Introduction to Nanoscience and Nanotechnology (3 credit hours)
- IDS 6254 Nanofabrication and Characterization (3 credit hours)
- IDS 6252 Biomedical Nanotechnology (3 credit hours)
- IDS 6255 Nanotechnology in Energy and Sustainability (3 credit hours)
- IDS 6253 Bioanalytical Technology (3 credit hours)

**Independent Study—3 Credit Hours**

Students will receive basic training under the supervision of a NanoScience Technology Center faculty to conduct research, including ethical training, safety training, attending seminar
presentations, conducting a literature survey, and using various instrumentation techniques for research.

- IDS 6908 Independent Study (3 credit hours)

**Required Elective Courses—6 Credit Hours**

Elective courses may be chosen from the following recommended course list. Core courses taken beyond the 4-core course requirement may be used to satisfy the elective course requirement. Other courses may be taken as elective courses upon the approval of your graduate program director.

- EMA 5586 Photovoltaic Solar Energy Materials (3 credit hours)
- EMA 5060 Polymer Science and Engineering (3 credit hours)
- EMA 6518 Transmission Electron Microscopy (3 credit hours)
- EMA 5505 Scanning Electron Microscopy (3 credit hours)
- EMA 6605 Materials Processing Techniques (3 credit hours)
- EMA 5587C Characterization and Reliability of PV Cells (3 credit hours)
- PHY 5704 Physics of Nanoelectronic Devices (3 credit hours)
- OSE 5312 Light Matter Interaction (3 credit hours)
- OSE 6938 ST: Photonic Polymer Materials (3 credit hours)
- IDS 5127 Foundation of Bio-Imaging Science (3 credit hours)
- MCB 5225 Molecular Biology of Disease (3 credit hours)
- PCB 5238 Immunobiology (3 credit hours)
- PCB 5236 Cancer Biology (3 credit hours)
- IDS 6251 Computation, Simulation and Modeling in Nanotechnology (3 credit hours)

**Open Elective Courses—9 Credit Hours**

As part of completing programmatic requirements, students must also select an additional 9 credits hours of open elective courses in the general field of science, engineering, or business. These courses must be at the graduate level and be approved by the Program Director before registration. To be noted, one of these open electives could also be another 3 credit hours of Independent Study to continue research training under the supervision of a faculty.

**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.

It is preferred that applicants should have obtained an undergraduate degree in one of the following areas: physics, chemistry, biology, or engineering.

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
• Résumé or Curriculum Vitae
• Goal Statement
  o The goal statement should discuss all relevant professional background and any
    previous research and/or teaching experience. The statement should explain the
    motivation behind the pursuit of a Professional Science Master’s degree in
    Nanotechnology. Future career goals after the completion of the applicant’s
    master study should be discussed.
  o The goal statement should between 500 and 1,000 words.
• Two to three letters of recommendation
• Applicants applying to this program who have attended a college/university outside the
  United States must provide a course-by-course credential evaluation with GPA
  calculation. Credential evaluations are accepted from World Education Services (WES)
  or Josef Silny and Associates, Inc., only.

The acceptance decision will be based on the assessment of the applicant's GPA from previous
college/university, past work experience, recommendation letters and the statement of interest
and objectives. Additionally, the committee will evaluate other academic indicators such as
having completed a senior thesis, authorship on publications, internship, involvement in
scientific research projects, and/or presentations at major scientific meetings and non-academic
indicators such as evidence of leadership, extracurricular activities, work or military experience,
and/or volunteer activities. For applicants that already have had working experiences in STEM
(Science, Technology, Engineering, Mathematics) fields, emphasis will be placed on their past
experiences and recommendation letters.

Readmission

Applicants who are applying for readmission need not resubmit transcripts if the transcripts are
previously on file with UCF. However, the following application requirements do need to be
current for the new readmission application:

• Résumé/Curriculum Vitae
• Goal Statement
• Letters of Recommendation

Application Deadlines

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*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.
Core Faculty

Aman Behal, Ph.D., Associate Professor
Joint appointments in Electrical Engineering and Computer Science and NanoScience Technology Center

**Research focus:** Rehabilitation Robotics, Systems Biology, Visual Servoing, System Identification

Debashis Chanda, Ph.D., Associate Professor
Joint appointments in NanoScience Technology Center, Physics and Center for Research & Education in Optics & Lasers

**Research focus:** Thin-film solar cells, study of light-matter interactions in artificially structured metal/dielectric structures (metamaterials, plasmonic nanostructures), transformation optics for display/camouflage, printed optics/opto-electronics components, strong coupling between photonic and plasmonic resonances, biological/chemical sensors

Yajie Dong, Ph.D., Assistant Professor
Joint appointments in NanoScience Technology Center, Center for Research and Education in Optics and Lasers, and Materials Science & Engineering

**Research focus:** Semiconductor nanomaterials for information and energy applications, Quantum dot light emitting devices and organic-inorganic hybrid solar cells

Romain Gaume, Ph.D., Assistant Professor
Joint appointments in Center for Research and Education in Optics & Lasers, Townes Laser Institute, Materials Science and Engineering, NanoScience Technology Center

**Research focus:** Transparent polycrystalline materials offering novel functionalities for laser physics, defense, sensing, nuclear surveillance and medical applications

Andre J. Gesquiere, Ph.D., Associate Professor
Joint appointments in NanoScience Technology Center, Center for Research and Education in Optics and Lasers, Materials Science & Engineering, Chemistry

**Research focus:** Imaging and spectroscopy of nanoscale materials and biological systems
James J. Hickman, Ph.D., Professor
Joint appointments in NanoScience Technology Center, Chemistry, Materials Science & Engineering, Electrical & Computer Engineering, Physics, and Burnett School of Biomedical Sciences (2nd)

**Research focus:** Hybrid systems for biological computation and fundamental investigations in neuroscience and cell biology

Qun "Treen" Huo, Ph.D., Associate Professor

Joint appointments in NanoScience Technology Center, Chemistry, Materials Science & Engineering

**Research focus:** Synthesis, property studies, and application development of nanoparticle materials

Masahiro Ishigami, Ph.D., Assistant Professor

Joint appointments in NanoScience Technology Center, Physics

**Research focus:** Electronic transport measurements on novel nanoscale materials, scanning tunneling microscopy and spectroscopy of nanoscale thermal/mechanical/electronic devices, and nanomaterials synthesis

Yeonwoong (Eric) Jung, Ph.D., Assistant Professor

Joint appointments in NanoScience Technology Center, Materials Science & Engineering

**Research focus:** Low-dimensional electronic materials (nanowires and 2D materials), Nanoscale structure-property relationships, in-situ transmission electron microscopy, energy and electronic technologies

Hyeran Kang, Ph.D., Assistant Professor

Joint appointments in NanoScience Technology Center, Materials Science & Engineering, Burnett School of Biomedical Sciences

**Research focus:** Biophysics of cytoskeletal protein assembly and dynamics, biopolymer and cell mechanics, molecular mechanism of mechano-sensing

Saiful I. Khondaker, Ph.D., Professor

Joint appointments in NanoScience Technology Center and Physics

**Research focus:** Electron transport properties of nanoscale materials
**Michael N. Leuenberger**, Ph.D., Professor

Joint appointments in NanoScience Technology Center and Physics

**Research focus:** Quantum information, quantum mechanics, spintronics and opto-spintronics, nonlinear optical phenomena, semiconductor physics, molecular magnets, quantum many-body physics

**Arkadiy Lyakh**, Ph.D., Assistant Professor

Joint appointments in NanoScience Technology Center, Center for Research & Education in Optics & Lasers, Physics

**Research focus:** Physics of intersubband transitions and carrier transport through multi-layered semiconductor structures, low dimensional semiconductor devices, monolithic sensors, infrared spectroscopy

**Artêm E. Masunov**, Ph.D., Associate Professor

Joint appointments in NanoScience Technology Center, Chemistry, Physics

**Research focus:** Computational Molecular and Nanomaterials, Theoretical Chemistry, and Molecular Physics

**Swaminathan Rajaraman**, Ph.D., Assistant Professor


**Research focus:** Micro/Nanofabrication Technologies; Neuroengineering; Micro/Nanofabrication on Plastics, Paper, Biomaterials and other novel materials; Flexible Electronics Fabrication Technologies; Implantable MEMS/NEMS Devices; Wearable MEMS Devices; Microfluidics; Packaging - Microelectronic and Biomedical Devices; Microneedles for painless drug delivery; Advanced Micro/Nano-Materials Development; Micro/Nano-Manipulation

**Tania Roy**, Ph.D., Assistant Professor


**Research focus:** Development of electronic and optoelectronic devices with novel functional materials, high power electronics with wide band gap semiconductors, reliability of semiconductor devices.
Swadeshmukul Santra, Ph.D., Professor
Joint appointments in NanoScience Technology Center, Chemistry, Materials Science & Engineering, Burnett School of Biomedical Sciences (2nd)

Research focus: Quantum Dot Nanotechnology; Nanomedicine; Agricultural Biocides; Environmental Nanotoxicology; Nanofiltration

Sudipta Seal, Ph.D., Pegasus Professor, University Distinguished Professor
Director, NanoScience Technology Center and Advanced Materials Processing & Analysis Center
Nano Initiative Coordinator at UCF
Director of Surface Engineering & Nanotech Lab, DURIP Nanomanufacturing Lab

Joint appointments in NanoScience Technology Center, Advanced Materials Processing & Analysis Center, Materials Science & Engineering, Burnett School of Biomedical Sciences (2nd)

Research focus: Functionals Materials Processing including Nano/Micro, Bulk Nanomanufacturing, Nanobiotechnology, Surface Engineering, Coatings, Nanoeenergetics, Nanotoxicity, and Advanced Analytical Tools

Laurene Tetard, Ph.D., Assistant Professor
Joint appointments in NanoScience Technology Center, Physics, Materials Science & Engineering

Research focus: Development of high resolution microscopy and spectroscopy tools to advance the level of understanding of the behavior of materials and complex systems based on morphological, subsurface, physical and chemical properties at the nanoscale

Jayan Thomas, Ph.D., Associate Professor
Joint appointments in NanoScience Technology Center, Materials Science & Engineering, and Center for Research and Education in Optics and Lasers

Research focus: Nanostructured Supercapacitors and Li-ion batteries, nanoarchitected light trapping solar cells, photorefractive polymers for 3D display applications, nonlinear optical materials, plasmonic structures and printed optical and photonic devices

Yang Yang, Ph.D., Assistant Professor
Joint appointments in Nanoscience Technology Center, Materials Science & Engineering

Research focus: Advanced materials and nanotechnology for renewable energy devices, environmental science and smart electronics
Lei Zhai, Ph.D., Professor

Joint appointments in NanoScience Technology Center and Chemistry

**Research focus:** Polyelectrolyte multilayer films for sensing and tissue engineering, smart surfaces, and conductive polymer nanowires and composites
College of Graduate Studies

Graduate Program Recommendation Form - INACTIVATIONS

This form is to be used to INACTIVATE 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.

☐ 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.

☐ If applicable, attach a teach out plan.

College / Unit(s) Submitting Proposal: College of Graduate Studies

INACTIVATION - Proposed Effective Term / Year: Spring 2018

The program will be removed from the online application and new students will not be able to apply. 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 graduate catalog as of the approved term.

Unit(s) Housing Program: NanoScience Technology Center

Name of program, track and / or certificate: PSM in Nanotechnology

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

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

Brief description of program and rationale for the inactivation:

The PSM program includes a graduate certificate in Technology Venture as part of the curriculum. This certificate program was offered by College of Business. However, the College of Business has discontinued this program from Fall 2017. The College of Business is no longer offering the three business courses required for the certificate program. Therefore, we propose to inactivate the PSM program, and add a non-thesis option to our existing MSc Nanotechnology program as a replacement to the PSM program.

Currently we have 11 students remaining in the PSM program. Among the 11 students, one has completed all business courses, one may have quit from the program. We have discussed the proposed change with the remaining 9 students in the program. All 9 students are willing to transfer either to the thesis or non-thesis track MSc Nanotechnology program at the end of Fall 2017.
Impact on Current Students

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

If yes, number of current students: 11 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:

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Signatures

Recommend Approval (all approval levels must be signed)

Graduate Faculty Program Coordinator:
Print: Qun Huo
Signature: __________________________ Date: 8/8/2017

Department Chair / Director:
Print: Lei Zhai
Signature: __________________________ Date: 8/8/2017

College Academic Standards:
Print: __________________________
Signature: __________________________ Date: 

College Dean:
Print: __________________________
Signature: __________________________ Date: 

Graduate Council:
Print: __________________________
Signature: __________________________ Date: 

Vice President for Research and Dean of the College of Graduate Studies:
Print: __________________________
Signature: __________________________ Date: 

Approval

Provost and Executive Vice President:
Print: __________________________
Signature: __________________________ 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
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☐ 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.

☐ If applicable, attach a teach out plan.

College / Unit(s) Submitting Proposal:  

☐ INACTIVATION - Proposed Effective Term / Year:  

Fall 2017

The program will be removed from the online application and new students will not be able to apply. 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 graduate catalog as of the approved term.

Unit(s) Housing Program:  

Interdisciplinary Studies

Name of program, track and / or certificate:  

Conservation Biology PSM

Please check all that apply. This action affects:  

☐ Program  ☐ Track  ☐ Certificate

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

Brief description of program and rationale for the inactivation:

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

The Department of Biology, the original home of the program, is not interested in supporting this program at any administrative level (e.g., admission, advising, assessment). The College of Graduate Studies does not have the staff or expertise to support and administer the program. However, a comparable curriculum can be developed through the Interdisciplinary Studies (IDS) MS program offered through the College of Graduate Studies. This could permit, but does not require an internship. Currently, IDS offers a concentration in Environmental Sustainability.
Impact on Current Students

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

If yes, number of current students: 6

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:

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Signatures

Recommend Approval (all approval levels must be signed)

Graduate Faculty Program Coordinator:
Print: Elizabeth Smock
Signature: [Signature]
Date: 8/16/2017

Department Chair / Director:
Print: John Weishampel
Signature: [Signature]
Date: 8/16/17

College Academic Standards:
Print: 
Signature: 
Date: 

College Dean:
Print: Elizabeth Klonoff
Signature: [Signature]
Date: 8/24/17

Graduate Council:
Print: 
Signature: 
Date: 

Vice President for Research and Dean of the College of Graduate Studies:
Print: 
Signature: 
Date: 

Approval

Provost and Executive Vice President:
Print: 
Signature: 
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 for Conservation Biology

Although the College of Graduate Studies now manages the Conservation Biology PSM, we do not teach any of the required courses. The original program was housed in and managed by the Biology Department in conjunction with Public Administration and Public Affairs. With that in mind, we can only provide a course listing for Fall 2017 and Spring 2018 since those semesters are the only ones currently open in the course schedule. We will be allowing students to take courses similar to those listed in the program guide in the catalog to ensure timely graduation from the program.

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1. Course Additions

**College of Engineering and Computer Science Course Additions**

CWR 5XXX  
**ECS-Cece**  
3(3,0)

Coastal Systems Analysis: PR: One or more: CWR 4120, CWR 4633C, GLY 4xxx (Mar. Geol.), OCE 3008, or C.I. Coastal features; drivers of coastal flooding; climate variability and change; numerical and statistical modeling of extremes; coastal flood risk, management and adaptation. *Even Fall.*

**Abbrev: (24 of 30 chars)** Coastal Systems Analysis

**Discussion with others:** Dr. Worthy of Biology and Dr. Mucciolo of Physics were contacted and indicated no concerns.

**Rationale:** The instructor has joined UCF as a core faculty member of the Sustainable Coastal Systems Cluster and this new course makes a start in developing coastal curriculum that doesn't currently exist in CECE and other departments at UCF. The topics covered are related to the instructor's research activities. Similar courses exist at other schools with Civil Engineering and/or coastal programs in the U.S. and overseas (where the instructor has been involved in teaching similar courses in Germany and UK).

COP 5XXX  
**ECS-CS**  
3(3,0)

High Performance Computing and Programming: PR: COP 3503C or C.I. Basic hardware and software knowledge and essential programming skills for high-performance computing (HPC) including GPU computing and big data computing. *Fall.*

**Abbrev: (30 of 30 chars)** High Performance Comput & Prog

**Discussion with others:** Mathematics and IEMS had no objections and were supportive of this course. ECE suggested some more focus on programming, which has been incorporated into the syllabus and the title.

**Rationale:** High-performance computing plays a critical role in almost every field of science and engineering. There is a high demand from science and engineering majors to train graduate students to use the cutting-edge HPC techniques to enhance their own research and future careers. The course will also instruct students on how to use UCF Advanced Research Computing Center resources (such as Stokes) and public cloud computing (such as Amazon EC2).

EEL 6XXX  
**ECS-ECE**  
3(3,0)

Data Analytics in Power Systems: PR: EEL 5255. Data analytical methods in power systems. Students will learn statistical and machine learning data analytical methods, and their applications in power systems and smart grids. *Fall.*

**Abbrev: (27 of 30 chars)** Data Analy in Power Systems

**Discussion with others:** Computer Science, Industrial Engineering, Statistics and Math were contacted without any concerns noted.
Rationale: This course is a core course in the graduate-level power system course catalog. It introduces major data analytical methods in power systems. Students will learn key skill sets to be applied in the power system industry or research.

**EEL 6XXX**
**ECS-ECE**
**3(3,0)**

**Power Systems Reliability:** PR: EEL 4216. Advanced course to power systems engineering, designed to provide a student with comprehensive understanding of quantitative reliability evaluation of modern power systems. *Even Fall.*

**Abbrev:** (25 of 30 chars) Power Systems Reliability

Rationale: This is a new 6000 level graduate course. It completes the curriculum in advanced analysis of power systems for graduate students interested in power area. It will be co-shared with partner universities in the FEEDER project.

**College of Graduate Studies Course Additions**

**IDS 6XXX**
**GRDST-INTERDIS**
**3(3,0)**

**Luminescent Materials and Devices:** PR: IDS 6250 or upon instructor approval. Fundamental and applied topics of luminescent materials and devices: Luminescent Processes; Phosphors; Scintillators; Organic Emitters; Compound Semiconductors; Quantum dots; Photoluminescence; Cathodoluminescence; Electroluminescence; Various Applications. *Fall.*

**Abbrev:** (27 of 30 chars) Luminescent Mat and Devices

Discussion with others: The proposed course will have no overlaps with existing courses in MSE, Chemistry and Physics. There might be some slight overlap (estimated to be <5%) with one graduate level course in Nano (IDS 6256 Principles of Nanostructure Quantum Well, Wires, and Dots ) or several low level general courses in CREOL (OSE4410 Optoelectronics, OSE5313 Materials for Optical Systems, OSE5414 Fundamentals of Optoelectronic Devices, OSE6416 Organic Photonics). But none of the existing courses is dedicated to luminescent materials and devices, which is an important topic of its own.

Rationale: "Luminescent Materials and Devices" is an important topic for MSE, Nano and Optics and Photonics, but has been missing from the curriculum of all these departments. **Majors taking course:** MSE, Nano, CREOL

**2. Special Topics Additions**

**3. Course Revisions**

**College of Education and Human Performance Course Revisions**

**EDF 6401**
**Statistics for Educational Data**
**3(3,0)**

PR: EDF 6481 or COM 6304 or C.I.

Design of educational evaluation; analysis of data, descriptive and inferential statistics, interpretation of results.

There are no programs that list EDF 6401.
College of Nursing Course Revisions

NGR 6945L Clinical Specialty Practicum 1(0,1)
PR: NGR 5141 Pathophysiology; Pathophysiology; NGR 5003 & 5003L Advanced Health Assessment 5190 Core Clinical Concepts for Nurse Educators or C.I.
Supervised clinical practice activities related to nursing care of common health problems of specific patient population. Graded S/U. May be used in the degree program a maximum of 2 times.
Discussion with others: Not applicable
Rationale: The curriculum was revised in spring 2017. The current pre-requisite listed, NGR 5003 and NGR 5003L are no longer part of the curriculum. NGR 5190 is now the required course which include content from those courses, as well as some pharmacology content.
Majors taking course: MSN Nurse Educator
There are no programs that list NGR 6945L.

College of Optics and Photonics Course Revisions

OSE 6143 Fiber Optics Communication 3(3,0)
Fiber Optics Communication System PR:
Graduate standing GS, and OSE 6432 6111 and OSE 6474, or C.I.
Use of fiber optics as a communication channel. Principles of fiber optics. Mode theory, transmitters, modulators, sensors detectors and demodulators.
Abbrev (20 of 30): Fiber Optics Communication - Fiber Optic Comm Sys
Term Offered: Occasional Spring
Rationale: This is a name change and pre-requisite update. The name change better reflects the course - there is no change to the course content being taught. The pre-requisite is changed due to course OSE 6432 that is no longer taught.
Majors taking course: elective course in Optics & Photonics
There are no programs that list OSE 6143.

OSE 6474 Optical Communications Systems 3(3,0)
Fundamentals Optical Fiber Communications PR:
GS; OSE 5414, 6111, or C.I.
Introduces key principles and analysis of optical communication systems. Emphasis on developing the ability to analyze and design digital, analog fiber-based systems and networks.
Abbrev (23 of 30): Optical Communication Sys Fund Optical Fiber Comm
Discussion with others: Submitted to EE and PHY for their review: EE: Approved by Kalpathy Sundaram (copy of approval email sent separately; attached) PHY: Approved by Eduardo Mucciolo (copy of approval email sent separately; attached)
Rationale: This CAR is a name change to better reflect the focus of the course. The course content was slightly changed to prepare the student for the OSE 6143 Fiber Optics Communication Systems class. The pre-requisite is changed to remove OSE 5414 and add OSE 6111 which is a better preparatory class.
Majors taking course: elective in Optics and Photonics
There are no programs that list OSE 6474.
4. Course Deletions

5. Course Continuations