

**Minutes**  
**Graduate Council Curriculum Committee**  
**September 20, 2017**  
**2:30 p.m., Millican Hall 395E**

**Members Present:** Charles Kelliher, Kerry Purmensky, Art Weeks, Steven Ebert, Elsie Olan, Diane Andrews, Cheyenne Ro, Terrie Sypolt

**Administrators and Guests Present:** Elizabeth Klonoff, Devon Jensen, Jesse Mendez, Jana Jasinski, Bruce Caulkins, R. Paul Wiegand

**Recorder:** Emily Stettner

**Welcome and call to order.** Dr. Charles Kelliher, chair, called the meeting to order at 2:39p.m. and welcomed the committee and guests. A quorum was established. Dr. Kelliher asked if there was a member to volunteer to chair the October 18 meeting. Dr. Purmensky volunteered. The minutes (curriculum, course) from the September 6, 2017 meeting were reviewed and approved.

**Announcements.** Dr. Klonoff, the Vice President for Research and Dean of the College of Graduate Studies, welcomed members. Dr. Klonoff thanked the committee for participating in the activities of the committee and for their hard work in reviewing programs and curriculum. Dr. Klonoff explained to the committee the new curriculum initiatives for the post-doc program and asked the committee for their input in developing the curriculum later in the process.

**Revision of CGS Modeling and Simulation of Behavioral Cybersecurity Graduate Certificate effective Summer 2018.** Dr. Caulkins gave an overview of the Certificate program including the related course capstone addition and course revision to increase credit hours. These changes will allow students to prepare with practicum type coursework for future work in the field of cybersecurity. The program revision received unanimous approval.

**Revision of CGS Modeling and Simulation MS program effective Summer 2018.** Dr. Wiegand explained the changes in the MS and PhD programs due to course additions. The revision received conditional approval based on requested feedback for the course addition IDS 6XXX Understanding Humans for Modeling and Simulation. The Committee expressed concerns of course content overlap with the Human Performance department in the College of Education and also the Human Factors Psychology program in the College of Sciences. The Committee requested letters from each department with their review and approval of the course addition. Understanding Humans is a new core course in both the MS and PhD programs. Once the letters are received and reviewed, the Committee agreed that the both program revisions can be approved with no further review.

**Revision of CGS Modeling and Simulation PhD program effective Summer 2018.** Please see explanation of discussion in the MS area above.

**Revision of Optics and Photonics PhD program effective Fall 2018.** The Committee had questions about the revision and since a representative from the program was not present, the Committee tabled the review for a future meeting.

**Courses and special topics.** To review the list of approved courses, please see the attached course minutes.

**Adjournment.** The meeting adjourned at 3:08p.m. The next meeting is scheduled for October 4, 2017.

# Course Minutes

September 20, 2017

## 1.Course Additions

### College of Graduate Studies Course Additions

**Approved**

**IDC 5XXX**

**GRDST-INTERDIS**

**3(3,0)**

**Introductory Mathematics for Modeling and Simulation:** Preparatory analytical survey of material for the M&S core Math Foundations course: algebra, discrete mathematics, and basic probability. *Fall.*

**Abbrev: (24 of 30 chars)** Intro Math for Mod & Sim

Discussion with others: The course surveys background materials needed for later core courses within M&S (Math Foundations of M&S particularly). Math Foundations will be a revision of an existing required, core course on record within the program, and this proposed Intro Math course includes elements of our original core course (DIG 5876). These are specialized to our program of study. While some material overlaps with a variety of other classes, there is no course at UCF that specifically selects the appropriate subset of these materials needed for our M&S program.

Rationale: This is an optional survey course that compresses topics from multiple undergraduate level sources to ensure a proper background for some M&S students. Our current required course, DIG 5876, is too much material for one semester. As a result, we are splitting it into two courses by providing a new, preliminary course for those students that need it (this course) and a more advanced material (Mathematical Foundations of M&S). M&S students have a diverse background, and some will not need this course. Others will need this to prepare.

**Approved**

**IDC 6XXX**

**GRDST-INTERDIS**

**3(3,0)**

**Capstone in Modeling and Simulation of Behavioral Cybersecurity:** PR: IDC 6601 and CNT 5410L. Interdisciplinary teams of student apply modeling and simulation, cybersecurity, and psychology techniques to the analysis and prevention of emerging cybersecurity threats. *Fall.*

**Abbrev: (28 of 30 chars)** Capstone Behavioral Cybersec

Rationale: To support integration between the foundational components of this program and to prepare students for a successful career in cybersecurity, a new capstone course is being proposed as the final requirement for all students in the program. Their knowledge, skills, and abilities, will be strengthened through applied assignments that simulate emerging cybersecurity threats that students will face in the real world. Additionally, targeted lectures, speakers, and assignments will help prepare students for a cybersecurity career. The addition of this course will ensure that our students receive the highest possible value from our program

by emphasizing multidisciplinary approaches, technical competency, and career preparedness.  
Majors taking course: Required for the Modeling and Simulation of Behavioral Cybersecurity Graduate Certificate.

### **Approved**

**IDC 6XXX**

**GRDST-INTERDIS**

**3(3,0)**

**Mathematical Foundations of Modeling and Simulation:** PR: Introductory Mathematics for M&S or equivalent background. Provides analytical background material relevant to the M&S program. Emphasize critical thinking and problem solving and conducts survey probability & statistics, linear algebra, and calculus. *Spring.*

**Abbrev: (22 of 30 chars)** Math Foundations M&S

Discussion with others: The course covers specific background materials needed for later core courses within M&S (IDS 6145 Simulation Techniques, in particular). It is a revision of an existing required, core course on record within the program and is specialized to our program of study. While some material overlaps with a variety of other classes (e.g., linear algebra, probability, statistics), there is no course at UCF that specifically selects the appropriate subset of these materials needed for our M&S program.

Rationale: The content in our current required course, DIG 5876, is too much for a single semester and we are hoping to increase its rigor. As a result, we are splitting it into two courses by providing a new, preliminary course for those students that need it (Introductory Mathematics for M&S) and revising our current course with less, but more advanced material.

Majors taking course: Modeling & Simulation MS and PhD

**Tabled 9/20/2017. Needs discussion with the Human Performance department in the College of Education and Human Performance and the Human Factors Psychology program in the College of Sciences.**

**IDS 6XXX**

**GRDST-INTERDIS**

**3(3,0)**

**Understanding Humans for Modeling and Simulation:** PR: Graduate standing or C.I. Human cognition, human perceptual system, ergonomics, and how humans and computing systems can connect through the process of user centered design and analysis. *Spring.*

**Abbrev: (28 of 30 chars)** Understanding Humans For M&S

Rationale: There is an existing knowledge gap with our students in that they lack the understanding of how the human body and mind work as it relates to simulation and training and how to approach designing simulations using a human centric approach. This course would be required instead of IDS 6148 Human Systems Integration (HSI) for M&S because HSI catered more toward the military and does not provide a broad enough set of skills that should be required of any M&S student. HSI will still remain as an elective in the M&S program.

Majors taking course: Modeling and Simulation MS and PhD

## **2.Special Topics Additions**

## **3.Course Revisions**

## **College of Graduate Studies Course Revisions- *Approved***

<b>IDC 6600</b>	<b>Emerging Cyber Issues</b>	<b>1(1,0) 3(3,0)</b>
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PR: Graduate standing or C.I.

Interdisciplinary discussion of emerging issues with expert speakers from industry. Preparation of topic and required resources to complete a multi-disciplinary Modeling & Simulation capstone project.

Rationale: The revision of this course will expand IDC6600 from 1.0 credits to 3.0 credits to support the cohesive integration and communication between all courses within the Behavioral Cybersecurity Program as well as promote a deeper exploration into emerging Cybersecurity threats. Students will benefit from the addition of supplementary course materials, like targeted lectures, assignments, and special speakers to heighten their understanding and involvement within the Cybersecurity domain.

- More time available for discussions in advanced cyber topics related to human aspects of cyber

- More time to delve into advanced cyber concepts and modeling ideas for the project in the Fall term

Majors taking course: Required for the Modeling and Simulation of Behavioral Cybersecurity Graduate Certificate

There are no programs that list IDC 6600.

## **4.Course Deletions**

### **College of Graduate Studies Course Deletions- *Approved***

<b>DIG 5876</b>	<b>GRDST-INTERDIS</b>	<b>3(3,0)</b>
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**Quantitative Aspects of Modeling and Simulation** PR: Graduate Standing or C.I.

Introduction to matrix algebra and other discrete mathematics topics for modeling and simulation applications.

Discussion with others: The course covers specific background materials needed for later core courses within M&S (IDS 6145 Simulation Techniques, in particular). It is a revision of an existing required, core course on record within the program and is specialized to our program of study. While some material overlaps with a variety of other classes (e.g., linear algebra, probability, statistics), there is no course at UCF that specifically selects the appropriate subset of these materials needed for our M&S program.

Rationale: The content is too much for a single semester. As a result, created two new courses: Introductory Mathematics for M&S and Mathematical Foundations of M&S.

There are no programs that list DIG 5876.

## **5.Course Continuations**