

## Industrial Systems Simulation

ESI 4523 Section 2615

**Class Periods:** T1-2 (7:25 -9:20 am) R2 (8:30 -9:20 am)

**Location:** WEIL 0270

**Academic Term:** Spring 2017

### **Instructor:**

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Office Hours: Thursdays 10 am to 12 pm, 380 Weil Hall

### **Teaching Assistant:**

Farnaz Babaie Sarijaloo

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Office Hours: Tuesday 11 am to 1 pm, 450 Weil Hall

### **Course Description**

**Credits:** 3; Simulation methodology and languages (such as General Purpose Simulation System - GPSS). Design and analysis of simulation experiments as well as applications to solutions of industrial and service system problems.

### **Course Pre-Requisites**

COP 2271, STA 4322 and ESI 4313 with minimum grades of C.

### **Course Objectives**

This 3-credit course intends to introduce you some basic techniques for modeling and simulating industrial systems in the presence of uncertainty. You will gain experience in

- Formulating an appropriate simulation model for a system
- Implementing the model as a computer program
- Evaluating the output of the model

### **Professional Component (ABET):**

This is a course with significant design content. Throughout the semester, students will complete a team project expected to meet specific design criteria.

### **Relation to Program Outcomes (ABET):**

Outcome	Coverage*
a. Apply knowledge	Medium
b1. Conduct experiments	High
b2. Statistical design of experiments	
c. Design	Medium
d. Function on teams	High
e. Solve problems	Low
f. Professional and ethical responsibility	
g. Communicate	Medium
h1. Economic impact	Low
h2. Global, societal, and environmental impact	
i. Lifelong learning	
j. Contemporary issues	
k. Techniques, skills, and tools for degree program	High

\*Coverage is given as high, medium, or low. An empty box indicates that this outcome is not part of the course.

### **Required Software**

- You must have a laptop to sign up for this course. The laptop is necessary for the in-class exercises, homework assignments, and term project.
- For the class you will require access to the ARENA Software, and the student version is freely available through the following link: <https://www.arenasimulation.com/academic/students>

### **Required Materials**

- Kelton, Sadowski, and Sturrock, "Simulation Using ARENA", 5th Edition, McGraw-Hill

### **Tentative Course Schedule**

Week	Tue P1		Tue P2		Thurs P2	
1	1/3	*No Class*	1/3	*No Class*	1/5	Introduction
2	1/10	Chapter 1/2	1/10	Chapter 2	1/12	Chapter 2/Appendix C
3	1/17	Lab 1	1/17	Chapter 2	1/19	Chapter 3
4	1/24	Chapter 3	1/24	Chapter 4 (Model 04-01)	1/26	Chapter 4 (Model 04-01/02)
5	1/31	Lab 2	1/31	Chapter 4 (Model 04-03)	2/2	Chapter 4 (Model 04-03/04)
6	2/7	Chapter 4 (Input Analysis)	2/7	Chapter 5	2/9	Team Project/Chapter 5
7	2/14	Lab 3	2/14	Chapter 5	2/16	Midterm Review
8	2/21	<b>Exam 1</b>	2/21	<b>Exam 1</b>	2/23	*Project - No Class*
9	2/28	Chapter 6	2/28	Chapter 6	3/2	Chapter 6
10	3/7	*Spring Break- No Class*	3/7	*Spring Break- No Class*	3/9	*Spring Break- No Class*
11	3/14	Lab 4	3/14	<i>In-Class Q&amp;A for Project</i>	3/16	Chapter 7
12	3/21	Chapter 7	3/21	Chapter 8	3/23	Chapter 8
13	3/28	Lab 5	3/28	Chapter 8	3/30	Chapter 12/Review
14	4/4	*Project - No Class*	4/4	*Project - No Class*	4/6	<b>Exam 2</b>
15	4/11	*Project - No Class*	4/11	*Project - No Class*	4/13	Project Presentations
16	4/18	Project Presentations	4/18	Project Presentations	4/20	*Reading Days - No Class*

### **Exams**

Exams will be given at 8:20 pm on scheduled days. There will be no class during the scheduled class time that day.

### **Lab Classes**

Every other Tuesday will be an in-class lab. Homework assignments will be part two of the ones done in class. The TA will walk you through the lab materials and you will be able to ask questions and work together to solve the problems. It would be a good idea to attend the lab so that you will feel comfortable with homework questions.

### **Homework Assignments**

As stated above, homework assignments will be given following each lab. **They will be due the following week's Wednesday by 11:59 pm.** This is individual work.

### **Attendance**

Attendance is not required but recommended, though you are expected to be aware of all announcements made in class and know all previously covered material when you attend the following class.

### **Late Assignments and Make-Up Policy**

Late homework assignments will be accepted for 24 hours after the due date with a 25% deduction.

In general, there will be no makeup exams given. However, a student is permitted to make up a missed exam without penalty if he/she has a conflict between an exam/quiz and a scheduled University-approved activity (please do not ask for a make-up exam to attend a job interview). A student needing a make-up exam due to schedule conflicts must notify the instructor at least one week before the day the exam is scheduled for. Excused absences are consistent with university policies in the undergraduate catalog

(<https://catalog.ufl.edu/ugrad/current/regulations/info/attendance.aspx>) and require appropriate documentation.

### ***Evaluation of Grades***

<b>Assignment</b>	<b>Total Points</b>	<b>Percentage of Final Grade</b>
Homework (5)	20 each	20%
Exam 1	150	30%
Exam 2	150	30%
Group Project	100	20%
<i>Total</i>	<i>500</i>	<i>100%</i>

### ***Grading Policy***

<b>Grade</b>	<b>Range</b>	<b>Grade Points</b>
A	93-100	4.00
A-	90-92	3.67
B+	87-89	3.33
B	83-86	3.00
B-	80-82	2.67
C+	77-79	2.33
C	73-76	2.00
C-	70-72	1.67
D+	67-69	1.33
D	63-66	1.00
D-	60-62	0.67

\*The weighted average will be rounded to the nearest integer.

More information on UF grading policy may be found at:

<https://catalog.ufl.edu/ugrad/current/regulations/info/grades.aspx>

### ***Students Requiring Accommodations***

Students with disabilities requesting accommodations should first register with the Disability Resource Center (352-392-8565, <https://www.dso.ufl.edu/drc>) by providing appropriate documentation. Once registered, students will receive an accommodation letter which must be presented to the instructor when requesting accommodation. Students with disabilities should follow this procedure as early as possible in the semester.

### ***Course Evaluation***

Students are expected to provide feedback on the quality of instruction in this course by completing online evaluations at <https://evaluations.ufl.edu/evals>. Evaluations are typically open during the last two or three weeks of the semester, but students will be given specific times when they are open. Summary results of these assessments are available to students at <https://evaluations.ufl.edu/results/>.

### ***University Honesty Policy***

UF students are bound by The Honor Pledge which states, "We, the members of the University of Florida community, pledge to hold ourselves and our peers to the highest standards of honor and integrity by abiding by the Honor Code. On all work submitted for credit by students at the University of Florida, the following pledge is either required or implied: "On my honor, I have neither given nor received unauthorized aid in doing this assignment." The Honor Code (<https://www.dso.ufl.edu/sccr/process/student-conduct-honor-code/>) specifies a number of behaviors that are in violation of this code and the possible sanctions. Furthermore, you are obligated to report any condition that facilitates academic misconduct to appropriate personnel. If you have any questions or concerns, please consult with the instructor or TAs in this class.

### ***Software Use***

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***Xiang Zhong Spring 2017***

All faculty, staff, and students of the University are required and expected to obey the laws and legal agreements governing software use. Failure to do so can lead to monetary damages and/or criminal penalties for the individual violator. Because such violations are also against University policies and rules, disciplinary action will be taken as appropriate. We, the members of the University of Florida community, pledge to uphold ourselves and our peers to the highest standards of honesty and integrity.

### ***Student Privacy***

There are federal laws protecting your privacy with regards to grades earned in courses and on individual assignments. For more information, please see:

<http://registrar.ufl.edu/catalog0910/policies/regulationferpa.html>

### ***Campus Resources:***

#### *Health and Wellness*

#### **U Matter, We Care:**

If you or a friend is in distress, please contact [umatter@ufl.edu](mailto:umatter@ufl.edu) or 352 392-1575 so that a team member can reach out to the student.

**Counseling and Wellness Center:** <http://www.counseling.ufl.edu/cwc>, and 392-1575; and the University Police Department: 392-1111 or 9-1-1 for emergencies.

#### **Sexual Assault Recovery Services (SARS)**

Student Health Care Center, 392-1161.

**University Police Department** at 392-1111 (or 9-1-1 for emergencies), or <http://www.police.ufl.edu/>.

#### *Academic Resources*

**E-learning technical support**, 352-392-4357 (select option 2) or e-mail to [Learning-support@ufl.edu](mailto:Learning-support@ufl.edu).  
<https://lss.at.ufl.edu/help.shtml>.

**Career Resource Center**, Reitz Union, 392-1601. Career assistance and counseling. <https://www.crc.ufl.edu/>.

**Library Support**, <http://cms.uflib.ufl.edu/ask>. Various ways to receive assistance with respect to using the libraries or finding resources.

**Teaching Center**, Broward Hall, 392-2010 or 392-6420. General study skills and tutoring.  
<https://teachingcenter.ufl.edu/>.

**Writing Studio, 302 Tigert Hall**, 846-1138. Help brainstorming, formatting, and writing papers.  
<https://writing.ufl.edu/writing-studio/>.

**Student Complaints Campus:** [https://www.dso.ufl.edu/documents/UF\\_Complaints\\_policy.pdf](https://www.dso.ufl.edu/documents/UF_Complaints_policy.pdf).

**On-Line Students Complaints:** <http://www.distance.ufl.edu/student-complaint-process>.