

## ESI 4523 – Industrial Systems Simulation

**Time:** Monday, Wednesday, Friday, Period 1 (7:25am-8:15am)

**Location:** PSY 130

**Instructor:** Dr. Sojung Kim – sojungkim@ufl.edu

Office: Weil 474

Phone: 352) 294-7731

Office Hours: MW 10-11am; or by appointment

**TA:** Brian Zhou – brianzhou1991@gmail.com

Office: Weil 202

Office Hours: TR 10-11am; or by appointment

1. **Description:** This course is designed to develop student's ability to model and analyze real industrial systems using discrete event simulation. Through this course, the student will understand the power and characteristics of discrete event simulation modeling. During the course, the student will get experience in: (1) formulating an appropriate simulation model for a system, (2) implementing the model as a computer program, and (3) evaluating the output of the model. Interoperability issues of simulation with other applications, including database, will also be covered.

**Credits:** 3

2. **Prerequisites:** COP 2271, STA 4322 and ESI 4313 with minimum grades of C.

3. **Textbook and computer requirement:**

- Kelton, Sadowski, and Sturrock, "Simulation Using ARENA", 5th Edition, McGraw-Hill (required).
- You must have a laptop to sign up for this course. The laptop is necessary for the in-class exercises, lab classes, homework assignments, and term project.

4. **Tentative schedule:**

Week	Topic	Chapter
1	Introduction to Simulation and Fundamental Simulation Concepts	1, 2
2	Fundamental Simulation Concepts and a Guided Tour Through Arena	2, 3
3	Random Number Generation and Modeling Basic Operations and Inputs	12, 4
4	Modeling Basic Operations and Inputs	4
5	Modeling Detailed Operations	5
6	Modeling Detailed Operations	5

7	Modeling Detailed Operations	5
8	Midterm exam	-
9	Statistical Analysis of Output from Terminating Simulations	6
10	Intermediate Modeling and Steady-State Statistical Analysis	7
11	Entity Transfer	8
12	Arena Integration and Customization	10
13	Continuous and Combined Discrete /Continuous Models	11
14	Focus on Term Project	-
15	Final exam	-

A laptop does not required to take both exams.

### 5. Work Required:

- Exams: There will be a midterm and a final examination.
- Homework: Homework will be assigned on a regular basis.
- Final project: Final project will be performed as groups. Students will be given a same problem for their projects. Further information on the project will be provided in a separate handout in the middle of the semester.

6. **Lecture Notes:** Lecture notes will be uploaded before lecture (at least one day before the class date). Therefore, students are required to visit the course web site and print out new handouts before they come to the class.

7. **Grading:** Your grade will be based on 2 in-class exams, homework, lab class assignments and a term project.

- Homework and lab class assignments: 20 %
- Midterm Exam: 30 % (TBA)
- Final Exam: 30 %, 8:00~10:00 at classroom on December 16, 2015
- Term project: 20 %; due on December 18, 2015
- Grading scale:

Grade	Range
A	92-100
A-	90-92
B+	88-90
B	82-88
B-	80-82
C+	78-80
C	72-78
C-	70-72
D+	67-70
D	62-67
D-	60-62

In order to graduate, graduate students must have an overall GPA and an upper-division GPA of 3.0 or better (B or better). Note: a B- average is equivalent to a GPA of 2.67, and therefore, it does not satisfy this graduation requirement. For more information on grades and grading policies, please visit:

<http://gradcatalog.ufl.edu/content.php?catoid=8&navoid=1493#grades>

8. **ARENA Software:** For the class you will require access to the ARENA Software, which is freely available for students through the following link:  
<https://www.arenasimulation.com/academic/students>
9. **Lab classes:** During the course of the semester there will be in-class labs. The exercises you work on in the lab will be collected for grading from time to time. Lab classes (7-10 of them throughout the semester) will always be announced through the course website. The lab assignments will be posted on our website several days before the lab. It would be a good idea to do some of the work (at least reading the assignment) before the day of the lab so that you can focus on getting answers to your questions rather than trying to figure out the simple stuff.
10. **Make-up Exam Policy:** In general, there will be no makeup exams given. If you must miss an exam for any reason, the grade of the next exam will also count for the missed one. However, note that you need to let me know of any missed exam before the date.
11. **Honesty Policy:** All students admitted to the University of Florida have signed a statement of academic honesty committing themselves to be honest in all academic work and understanding that failure to comply with this commitment will result in disciplinary action. This statement is a reminder to uphold your obligation as a UF student and to be honest in all work submitted and exams taken in this course and all others.
12. **Accommodation for Students with Disabilities:** Students with disabilities requesting accommodations should first register with the Disability Resource Center (352-392-8565, [www.dso.ufl.edu/drc/](http://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.”
13. **Requirement of an Online Course Evaluation Process:** Students are expected to provide feedback on the quality of instruction in this course by completing online evaluations at <https://evaluations.ufl.edu>. 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/>.

14. **UF Counseling Services:** Resources are available on-campus for students having personal problems or lacking clear career and academic goals. The resources include:
  - UF Counseling & Wellness Center, 3190 Radio Rd, 392-1575, psychological and psychiatric services.
  - Career Resource Center, Reitz Union, 392-1601, career and job search services.
  
15. **Software Use:** All faculty, staff and student 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.