

ESI 4523 - Industrial Systems Simulation

Time: Monday, Wednesday, Friday, Period 8 (3.00pm-3.50pm)

Location: Weil 270

Instructor: Dr. Chrysafis (Chrys) Vogiatzis — chvogiat@ufl.edu

Office: Weil 202

Office Hours: WF 4-5pm; or by appointment

TA: Kai Pan — kpan@ufl.edu

TA Office Hours: MR 4-5pm; or by appointment

1. **DESCRIPTION:** This 3-credit course intends to introduce you some basic techniques for modeling and simulating industrial systems in the presence of uncertainty. After successfully completing this course, you should:
 - Understand the major capabilities and limitations of simulation as applied to industrial problems.
 - Be able to build computer-based models for real systems and performing simulation experiments to evaluate the behavior of a system under different sets of conditions.
 Moreover, students are required to do a term project, as detailed in a separate handout.
2. **Prerequisites:** STA 4321; Basic Computing knowledge, particularly basic file management under Windows operating systems.
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:**

Specific Dates of Interest

No class: 1/12, 1/19, 2/16

Exam Reviews: 2/25, 4/6

Exams (at night): 2/26, 4/8

Week	Topic	Chapter
1	Introduction to Simulation; Examples	1
2	Fundamentals, A Guided Tour Through Arena	2, 3
3	Modeling Basic Operations & Inputs	4
4	Modeling Basic Operations & Inputs	4
5	Modeling Detailed Operations	5
6	Modeling Detailed Operations	5
7	Modeling Detailed Operations	5
8	Exam 1	–
9	---- Spring Break ----	5

10	Statistical Analysis of Output from Terminating Simulations	6
11	Intermediate Modeling and Steady-State Statistical Analysis	7
12	Entity Transfer	8
13	Exam 2	-
14	Focus on Term Project	-
15	Project Presentations	-

5. Tests

- Test #1: February 26
- Test #2: April 7
- Term project report: due on April 18

Both tests will take place at night (8.20pm-10.10pm). You will need a laptop to successfully take and complete the exam.

6. 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%
- Mid-term exams: 30% (each)
- Term project: 20%

- **Grading Scale:**

<i>Grade</i>	<i>Range</i>
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	60-67

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://gradschool.ufl.edu/catalog/current-catalog/catalog-general-regulations.html#grades>

7. **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>

8. **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 on a Friday and 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.

9. **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. Note that you need to let me know of any missed exam before the date.

10. **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.

11. **Accommodation for Students with Disabilities:** Students Requesting classroom accommodation must first register with the Dean of Students Office. That office will provide the student with documentation that he/she must provide to the course instructor when requesting accommodation.

12. **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.

13. **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.