

Friday, 2:00 – 4:50 pm, Room GFS118

Professor: Virgil Adumitroaie

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Course Text: Kelton, W. D., Sadowksi, R.P., & Sturrock, D.T., "Simulation with ARENA", Fourth Edition, McGraw Hill, 2007.

Optional Text: Law, A. M., "Simulation Modeling and Analysis", Fourth Edition, McGraw Hill, 2007.

Course References: In addition to the above texts, some course material and in-class problems may come from various sources to be referenced during lectures.

Course Objectives: In this course, an introduction will be provided to the theoretical background and application of systems simulation, with special emphasis on: logic and methodologies of discrete event simulation, generation of random numbers and random deviates, survey of simulation languages. Simple simulation problems will be introduced using Microsoft Excel. A high-level simulation package ARENA will be utilized for more complex simulation problems. The course will cover the necessary tools/skills to create computer models of discrete systems, and how to use these models to make decisions about the design/improvement of the actual physical systems that the models represent. At the end of the course the student should be able to develop simulation models of industrial systems, to understand the issues involved and assumptions made in simulation studies, and to draw appropriate conclusions from the simulation analysis.

Course Schedule: See below.

Course Assignments: See below.

Grading: There are 11 separate homework assignments, each of which is valued at 20 points (44% of grade). The midterm exam is 120 points (24%) and the final examination is 160 points (32%). The exams will be open book and open notes.

If dissatisfied with the grading in a specific instance, the student may appeal to the professor to re-evaluate the grade. An appealed grade may be raised, lowered, or remain as originally scored. (Caution: The final grade in this course depends in significant measure on graded homework, and thus we take very seriously the academic integrity issue inherent in this activity. Do your own work. Copying the work of others is cheating and will be dealt with accordingly.)

Class Participation: Attendance will not be taken; it is expected that students will want to attend every class meeting. Active participation in the class will be noted.

Office Hours: Prof. Adumitroaie is available for office hours on Mondays, 5:25-6:25 pm, in GER 205. The TA, Yen-Ming "Emily" Lee, is available TBD in TBD.

Homework: All written homework assignments are due at the class meetings on the dates indicated below and will be collected at the end of class. Offsite students should place softcopy in DEN dropbox or fax hardcopy on the day of the class. All relevant reading assignments should be completed before coming to class. Include your name, date, course number and assignment number in your submitted homework.

Late homework will be accepted up to one week past due date with 2 points penalty per day. Drop off late homework in the ISE office homework mailbox. Homework turned in later than one week past due date will not receive any credit. No homework will be accepted after the last class meeting.

Course schedule and assignments are summarized below. This syllabus is subject to change as announced in class.

DATE	CLASS	TOPIC(S)	HOMEWORK
Aug 31	1	Introduction to Modeling and Simulation. Discrete Event Systems.	Assigned: #1
Sep 7	2	Simulation Concepts and Tools. Input analysis.	Due: #1 Assigned: #2
Sep 14	3	Randomness. Monte Carlo Simulation. Queues in Excel.	Due: #2 Assigned: #3
Sep 21	4	Designing Models, Data Collection and Analysis. Output Analysis in Excel.	Due: #3 Assigned: #4
Sep 28	5	Introduction to Arena.	Due: #4 Assigned: #5
Oct 5	6	Arena - Basic Operations and Inputs. Model Validation.	Due: #5 Assigned: #6
Oct 12	7	Arena - Detailed Operations.	Due: #6
Oct 19	8	MIDTERM EXAM Based on lectures 1 - 7	
Oct 26	9	Model Performance Measures. Output Analysis in Arena.	Assigned: #7
Nov 2	10	Entity Transfer	Due: #7 Assigned: #8
Nov 9	11	Inventory System Simulation	Due: #8 Assigned: #9
Nov 16	12	Modeling and Simulation of Production Lines	Due: #9 Assigned: #10
Nov 23	Thanksgiving No class		
Nov 30	13	Arena Integration and Customization	Due: #10 Assigned: #11
Dec 7	14	Continuous and Combined Discrete/Continuous Models	Due: #11
Dec 14	15	FINAL EXAM Comprehensive	

Academic Integrity. The Viterbi School of Engineering adheres to the University's policies and procedures governing academic integrity as described in SCampus (<http://www.usc.edu/dept/publications/SCAMPUS/>). Students are expected to be aware of and to observe the academic integrity standards described in SCampus, and to expect those standards to be enforced in this course.

Students with Disabilities. Any Student requesting academic accommodations based on a disability is required to register with Disability Services and Programs (DSP) each semester. A letter of verification for approved accommodations can be obtained from DSP. Please be sure the letter is delivered to me (or to TA) as early in the semester as possible. DSP is located in STU 301 and is open 8:30 a.m. - 5:00 p.m., Monday through Friday. The phone number for DSP is (213) 740-0776.