ISE 435 Discrete Systems Simulation
Spring Semester 2017
Lecture: Tu,Th 3:30-4:50pm, KAP 145
Labs: W 12:00-12:50pm, SAL 109
and Th 1:00-1:50pm, SAL 126
Web Site: blackboard.usc.edu

Kurt Palmer
Office: GER 205
Hours: W 2:30-4:30pm

Phone: 740-5960
E-mail: kpalmer@usc.edu

Objective: In this course, you will learn how to create computer models of discrete event systems, and how to use these models to make decisions about the design/improvement of the actual physical systems that the models represent. You will learn how to evaluate a business system and identify the input and output variables. You will learn how to evaluate field data to obtain input information and how to evaluate output predictions from the simulation model to select effective operating policies.

Text: Khoshnevis and Palmer, Discrete Systems Simulation, reader

Course Material: Chapters 1-6 of the text, plus topics discussed in lecture by the instructor

Grading Policies:

Points Breakdown -

Homework		105
Project		150
Exam #1		115
Exam #2		130
	Subtotal	500
Final Exam		150

Course GRADES will be determined by the distribution of point totals for the class. "Natural groupings" will be used to assign letter grades. The highest scoring group will receive A's, the next group is the B's, and so on. A single point will not be the difference between any two letter grades. A "gap" must exist to create a grade boundary.

HOMEWORK assignments will be due on the following dates:

Thursdays: January 19, 26; February 2, 23; March 2, 9
Tuesday: April 11

Homework will be graded on an "all or nothing" basis. If a paper shows an answer to each assigned exercise that uses approximately the correct method, the grade for the assignment is 15 points. If any exercise is unacceptable, the paper will be returned with a grade of 0 points. Late homework will be accepted until noon on the day following the original due date. Completions of returned assignments will be accepted for full credit until noon on the Friday after the assignment is returned to the class.

An EXAM will be given on each of the following dates:

Thursday, February 9 and Thursday, April 6

Each exam will cover the material presented up to and including the preceding homework assignment. Points will be assigned to each section of the exam. Partial credit will be awarded according to work shown. No re-takes will be allowed. No make-up exam will be given.

A PROJECT will be due in two parts on the following dates:

Part I – Thursday, March 23

Part II – Tuesday, April 18

The project will involve development and validation of a computer simulation model. For this project, you will work with assigned partners. The project assignment will be distributed about five weeks in advance of the Part I due date.

Your team's system description and model layout will be due on **Tuesday, February 28**.

A Peer Review of another team's system description will be due on **Tuesday, March 7**.

The FINAL EXAM is scheduled for **Tuesday, May 9 at 2:00-4:00**. It will be comprehensive and will be graded similarly to the other exams. A student may elect to omit the final exam, if both exams and the project have been completed.

Reading Assignments:

Week	Topic	Text Sections
1	Discrete Event Systems Queueing Systems Terms & Definitions	1.1 – 1.3, 2.1 – 2.2, Handout
2	Simulation Model Layout Input Analysis	2.3, 3.1 – 3.5, 4.1 – 4.3
3	Uniform Random Numbers	4.4
4	Random Numbers from Other Distributions Computer Simulation Software	4.5, 5.1 – 5.2
5	Arena Exam	Handout
6	Model Validation	6.11.1 – 6.11.2
7	Arena (continued) Project Peer Reviews	Handout
8	Model Performance Measures Statistical Inference Review Output Analysis for Terminating Simulations Output Analysis for Steady-State Simulations	6.1-6.3, 6.6 – 6.8, 6.4, 6.9, 6.5, 6.10
9	Simulation Experiments	6.11.3
10	Inventory Systems Terms & Definitions	Handout
11	Two-Factor Simulation Experiments	Handout

Reading Assignments (continued):

Week	Topic	Text Sections
12	Exam	
13	Experiment Analysis in Excel and Minitab	Handout
14	Capacity Schedules and Failures	Handout
15	Non-Stationary Poisson Processes Routes and Stations in Arena	Handout

Academic Integrity:

The Department of Industrial and Systems Engineering adheres to the University's policies and procedures governing academic integrity as described in SCampus. Students are expected to be aware of and to observe the academic integrity standards described in SCampus. Students should expect those standards to be enforced in this course.

Accomodations for 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 the instructor as early in the semester as possible. DSP is located in GFS 120 and is open 8:30 am - 5:00 pm, Monday through Friday. The phone number for DSP is (213)740-0776.