

**OM 420
Computer Simulation
Fall 2007**

Professor

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Professor Office Hours

W: 10:00am-11:30am; R: 1:30-3:00pm; by appointment

Teaching Assistant

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TA Office Hours

M, T: 1:30pm-3:00pm

Class Meetings

BL6; TR: 11:00am-12:15pm

Course Description

The use of simulation as a tool to understand and improve the performance of complex systems and processes. Students will learn the details of a specific simulation language. Applications to production processes and operational activities will be discussed.

Fundamental simulation concepts and statistical evaluation are also covered through the analysis of existing simulation models and the development of new models. Model development will be performed using Arena simulation software.

Course Objectives

- Learn the fundamentals/underpinnings of simulation modeling
- Understand how to successfully implement all steps of a simulation study
- Become technically competent in a simulation software package

Prerequisites

- OM 310
- All students must have earned 61 or more credit hours (i.e. junior standing).
- All C&BA students must have been admitted to the upper division and also have completed or be enrolled in EC110 and EC111; MATH112 and MATH 121; CS 102; AC 210; ST260; and LGS 200 (or their equivalents).

Any exceptions to these requirements must be approved by the instructor.

Textbooks

Course: Banks, J., J.S. Carson, B.L. Nelson, and D.M. Nichols, *Discrete-Event System Simulation, 4th Edition*, Prentice-Hall, 2004.

Reference: Kelton, W. D., R.P. Sadowski, and D. T. Sturrock, *Simulation with Arena, 4th Edition*, McGraw-Hill, 2007.

Course Website:

<http://elearning.ua.edu>. Login using your Bama ID and password. This site will be a very important source of information and course materials, including lecture notes, course grades, assignments, announcements, etc.

Course Evaluation

Assignments and Quizzes: 20%

Lab Exercise 1: 5%

Lab Exercise 2: 10%

Project: 15%

Midterm Exam: 20%

Final Exam: 30%

Course grades, based on the COURSE AVERAGE, are assigned using the scale given below:

A+:	97-above	A:	93-96.99	A-:	90-92.99
B+:	87-89.99	B:	83-86.99	B-:	80-82.99
C+:	77-79.99	C:	73-76.99	C-:	70-72.99
D+:	67-69.99	D:	63-66.99	D-:	60-62.99
F:	Less than 60				

Late/Missed Work Policy

All missed or late assignments, quizzes, and project reports will receive zero credit. Students who have a valid, documented excuse for missing the assignment may submit their documentation to the instructor within 24 hours of the assignment deadline. Upon accepting the validity of the excuse, I will decide whether the assignment can be dropped or made up. A missed exam will automatically receive zero credit unless the student provides a documented excuse for missing the exam within 24 hours of the exam. Upon the validity of the excuse, I will decide whether the exam should be made up or dropped.

Topics Outline

Intro to Simulation
Simulation Examples
General Principles
Statistical Models in Simulation
Queueing Models
Input Modeling
Validation & Verification
Output Analysis
Random Number Generation
Random Variate Generation

Student Expectations

Attendance:

Class attendance is required. Students are responsible for all of the material covered in class and for all of the reading and homework assignments. Excessive absence will have a negative impact on the course average.

Academic Conduct and Honor Code:

The Code of Academic Conduct and the Academic Honor code for the University of Alabama can be found on page 22 of the 2006-2008 Undergraduate Catalog. (See also, <http://www.ua.edu/catalogs/undergraduate/12600.html>) Every student must read and be familiar with these policies.

Examination materials of previous course offerings are considered to be secure, and as such, they may not be viewed without permission of the instructor. In a similar manner, the instructor requires that homework problems, quizzes, and course projects from previous course offerings be treated as secure materials.

Disability Access Statement

To request disability accommodations, please contact the Office of Disability Services at 348-4285. After initial arrangements are made with that office, please notify me.

Emergencies

In an event of an emergency, we will adhere to the following actions in accordance with University policies.

FIRE/FIRE ALARM: Evacuate the building and stay out of the building at a safe distance until authorized to return.

TORNADO WARNING: Move to the lower level. Remain inside classrooms, offices, and corridors until the warning has expired. Classes are cancelled until the warning expires.