

# ISyE 3232

## Stochastic Manufacturing & Service Systems

January 14, 2016

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**Brief course description:** Manufacturing & service systems often behave randomly. We will learn quantitative methods that are useful in analyzing, designing, and operating stochastic systems, particularly manufacturing and service systems. Much of our attention will be focused on understanding, managing and reducing variability for inventory, production and service systems. Our main topics are the newsvendor problem, queueing, Markov chains and Poisson processes.

**Contacting me:** Outside of class, the best way is via e-mail. Please include “3232” in the subject heading.

If you e-mail me a question about the course or course material that I believe is of general interest, I will usually do the following: I will remove any information that identifies the person who asked the question, and I will send my reply to the entire class.

**Course Materials:** You need to purchase the Littlefield Technology packet from the bookstore to participate in the Littlefield Technologies exercises. The packet contains your individual Littlefield access code. *Do not lose this code!* You will need it several times throughout the semester.

You should obtain and read a copy of *The Goal: A Process of Ongoing Improvement* by E. M. Goldratt and J. Cox, North River Press, 1992. The ideas in this book should be useful when you and your team are managing a factory for Littlefield Technologies. There will be a homework assignment related to this book.

From the GT library, download a copy of *Applied Probability and Stochastic Processes*, Thomson, 2004 by Feldman, R.M., and Valdez-Flores, C. at no additional charge to you. In addition, we will post some notes to t-square, and we will use materials from several web sites. Notice that I am attempting to keep your textbook costs low.

**Grading:** The grading will be based on two tests (25% each), a final (30%), and homework, projects, and pop quizzes (20%).

**Tests:** Two tests will be given during the semester. The tests are scheduled for Wednesday February 17th and Wednesday March 16th. There are no make-up tests. During tests, you will not be allowed to use books, notes, or calculators. I rarely give partial credit on questions. Do not write on your test after I return it to you in case you need to submit your test for a regrade. The final exam period will be 75 minutes in length. If you have a conflict, notify me by e-mail and include a copy of your course schedule no later than two weeks before the Thursday of the first week of final examinations.

**Assignments:** There will be both individual and group Some assignments will involve using software or writing programs.

**Littlefield Technologies:** Several of the team assignments will involve how well your team manages a simulated factory, which will be described in “Littlefield Technologies: Overview”.

The first Littlefield simulation will begin on Tuesday the 1st of March at 5:03 p.m. and end on the 8th of March at 5:03 p.m. The second Littlefield simulation will begin on Wednesday the 6th of April at 5:03 p.m. and end on Wednesday the 20th of April. *Registration for each simulation starts 48 hours before the simulation begins; each team must register at least 3 hours before the start. Once the simulation starts, no team can registered.* After each simulation, each team needs to submit a written report.

**Honor code:** Students are expected to abide by the Georgia Tech Honor Code.