STATISTICS 380-3
INTRODUCTION TO STOCHASTIC PROCESSES

Spring 2002
DAY COURSE

Instructor: DR. R. LOCKHART

Prerequisites:

STAT 280 and Math 251. Students with credit for MATH 387 may not take STAT380 for further credit.

Textbook:

Introduction to Probability Models (7th Edition) by: S.M. Ross; publisher: Academic Press

Course Description:

Markov chains. Random walks. Continuous time processes. Poisson process. Markov processes. Gaussian processes.

Outline:

1. Review: Chapters 1, 2, 3 (5 hours)
2. Monte Carlo generation of Random Numbers. (2 hours)
3. Discrete Time Markov Chains: Chapter 4.1-4.4, 4.5.1 and 4.6 (6 hours)
4. Poisson Processes: 5.1-5.4. Sections 5.1 and 5.2 are review. (6 hours)
5. Continuous time Markov Chains. 6.1-6.5, 6.8. (6 hours)
6. Queuing and Inventory Models: simulation. (3 hours)
7. Brownian Motion. 10.1-10.4. (5 hours)
8. Analysis of Simulation data. (2 hours)

Web materials:
Slides will be posted on the web. Assignment questions will be drawn from the text. I will not usually be posting solutions.

Computing requirements:
There may be a computational component to this course; details have yet to be determined.

Grading:

Assignments - 25%
Midterms - 25%
Final Exam - 50%

Students should be aware that they have certain rights to confidentiality concerning the return of course papers and the posting of marks. Please pay careful attention to the options discussed in class at the beginning of the semester.

Revised October 2001