IEOR 263A: Applied Stochastic Processes I Syllabus

ADMINISTRATIVE INFORMATION

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Text: *Introduction to Probability Models,* 11th Ed, Sheldon Ross, Academic Press. Available on-line through UCB library. Earlier/later editions ok, but you're responsible for having the right homework problems, and making sure the sections correspond to those in the course outline below. We will supplement with some more advanced material; Ross's *Stochastic Models* is a good reference.

Prerequisites: Statistics 134 or 200A or IEOR 172, or equivalent (a good probability foundation).

COURSE OUTLINE

Review of probability, random variables, and conditional expectation
Chapters 1-3 (skip sections 2.7, 3.6.2-3.6.6, 3.7)
Discrete- and Continuous-Time Markov chains
Chapters 4 and 6 (skip 4.5.2, 4.5.3, 4.9-4.11, 6.4, 6.6, 6.7, 6.9, and probably 4.7-4.8)
The Poisson process Chapter 5 (skip 5.3.6, 5.5)
Renewal theory Chapter 7 (skip 7.9-7.10)

PROBLEM SETS

Problem sets will generally be due at the start of class on Thursday. Some of the problems are quite challenging. I encourage you to work together on problems in groups of three to four people, but everyone should turn in individual papers. ***LATE PROBLEM SETS WILL NOT BE ACCEPTED.*** The lowest problem set grade will be dropped. Please don't waste paper ☺.

EXAMS

There will be two midterms and a final exam. In exceptional circumstances exams may be taken early, but not late. The final will be cumulative and comprehensive. Exams will be closed book, but you may bring one formula sheet for the first midterm, two for the second, and three for the final. No calculator.

Midterm 1:	Thursday, September 28	(during class time, but possibly different room)
Midterm 2:	Tuesday, October 31	(during class time, but possibly different room)
Final Exam:	Monday, December 11, 11:30 – 2:30	

GRADING

Problem Sets	15 points
Midterms	30 points each
Final exam	50 points
Class participation	5 points