

APMA 120 - Operational Research: Probabilistic Methods-Spring 2012

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Course web-page: <http://www.dam.brown.edu/people/kspiliop/S12AM120.html>

Meets: TuTh 9:00 am - 10:20 am at Watson (CIT) Center 165

Text: *An Introduction to Stochastic Modeling*, 4th edition, Mark Pinsky and Samuel Karlin, Academic Press

Recommended Texts:

1. *A First Course in Stochastic Processes*, 2nd edition, Howard M. Taylor and Samuel Karlin, Academic Press
2. *Stochastic Processes* S.M. Ross, John Wiley & Sons, New York

Prerequisites: *APMA 1650 or MATH 1610 or equivalent.* The students are required to have a solid understanding of basic probability and calculus.

Course Description: Basic probabilistic problems and methods in operations research and management science. Methods of problem formulation and solution. The course will cover basic stochastic processes such as simple random walk, Markov chains, Martingales, Poisson processes, and Brownian motion. It will also offer introductory level treatment to stochastic optimization problems, such as optimal stopping and optimal control, based on dynamic programming principle.

Tentative grading policy: Your grade will be based on : (a) Homework (35%), (b) midterm exam (35%) and final exam (30%). The grading policy may change according to the progress of the class.

Exams: There will be one midterm exam and one final exam. The exam material for each one of the two exams will be announced in class and posted on the webpage of the course. The final exam will concentrate on the material that was taught from the previous test and then. However, I reserve the right to include a couple of questions from the material of the previous exam. Hence, make sure that you have learned from your mistakes.

Homeworks: There will be several homeworks, both theoretical and more of applied flavor. The due date of each homework will be announced in class and it will usually be 7-10 days after. Needless to say, you should work on the homework on your own, unless otherwise instructed by me. Late homeworks will be heavily penalized.

Make-up policy: Make up exams will be given only in extreme circumstances, and only when accompanied by appropriate documentation. Any student with a valid reason to be given a make up exam must contact me prior to the exam, either by email or in person, and present documentation at the next class session attended.