Syllabus

COURSE HOME

SYLLABUS

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ASSIGNMENTS

EXAMS

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Course Meeting Times

Lectures: 2 sessions / week, 1.5 hours / session

Course Description

Discrete stochastic processes are essentially probabilistic systems that evolve in time via random changes occurring at discrete fixed or random intervals. This course aims to help students acquire both the mathematical principles and the intuition necessary to create, analyze, and understand insightful models for a broad range of these processes. The range of areas for which discrete stochastic-process models are useful is constantly expanding, and includes many applications in engineering, physics, biology, operations research and finance.

Prerequisites

Thorough understanding of elementary probability at the level of *6.041/6.341*, which uses the following text:

Buy at Amazon Bertsekas, Dimitri, and John Tsitsiklis. *Introduction to Probability*. 2nd ed. Athena Scientific, 2008. ISBN: 9781886529236.

Some patience and affinity for careful mathematical reasoning.

Homework

Homework assignments will be passed out each Wednesday in class; your solutions are due the following Wednesday and official solutions will be available before the weekend. A subset of the problems will be graded. You are responsible for using the official solutions to make sure that you understand the solutions to both the graded and the ungraded problems.

The homework is an important aspect of the course. You are encouraged to collaborate with your classmates (helping someone else learn is certainly one of the best ways to enhance your own understanding). You are also encouraged to get help from us or anyone else, but you must write out your own solutions.

This is a graduate subject, and you are expected to choose your own way to understand the material. We are eager to help, but you are responsible to use the class notes, the lectures, the recitations, the homework, and contact with other students and us to develop that understanding. Knowing how to do the assigned problems is important, but by no means sufficient. You should learn to ask your own questions and find your own answers in understanding the material covered. Again, we are eager to help in this process.

Grading

As a very rough guide, the split between the quiz, the final, and the homework in determining your grade is as follows:

ACTIVITIES	PERCENTAGES
Quiz	35%
Final	45%
Homework	20%

If we are successful in working with all of you to understand the material in reasonable depth, we will be delighted to give you all A's. To the extent we are less successful, then if we have evidence that you have made substantial progress in learning the material, you will get an A or a B. If we have no such evidence, the grade might be lower.