

STA 624.01
Applied Stochastic Processes
Spring, 2011
Tue & Thur 9:30 – 10:45 AM
Whitehall Classroom Bldg 309

Instructor: David Haws
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Office Hours: Tue & Thur 11:30 – 12:30 PM, or by appointment.
Text: “Introduction to Stochastic Processes”, Lawler.
Website: <http://www.davidhaws.net/courses/STA624S11/STA624Spring2011.htm>

Overview: This is a course on stochastic processes, which involve collections of random variables indexed by time or by space. In this course you will learn the nomenclature and techniques needed for understanding the major types of stochastic processes, how to apply these processes in mathematical modeling, and how to effectively simulate these processes on a computer. We will cover materials including (not limited to) discrete-time and continuous-time Markov Chain, Reversible Markov Chain. For computational assignments we will cover the basics of MATLAB, although you may utilize any environment you are familiar in order to complete assignments.

Homework: Typical homework assignments will contain regular problems and one computer problem. You are welcome to work together on assignments, but the final write-up should be your own. In the write-ups, indicate your calculations and reasoning for all work submitted. For numerical answers draw a box around your answer and use four significant figures for approximations, unless instructed otherwise.

Homework will be graded on a ten point scale: 0 meaning that you did not turn in the homework and 10 meaning absolutely 100% perfect, i.e. no other human being past, present, or future could have completed the assignment better.

Please staple all papers together and clearly write your name and the assignment number on the first page. Turn in paper-clipped or loosely clumped assignments at your own peril.

ABSOLUTELY NO LATE HOMEWORK. The lowest homework score for the semester will be thrown out. This is to handle emergencies in which you are unable to complete an assignment. I strongly recommend you save this “freebie” as long as possible and do not blow off an early assignment.

Exams: There will be two in-class midterm exams. They will test your ability to recall key definitions and theorems from the class, and apply them to simple problems. In addition, there will be a final exam roughly twice the length of the midterms. The final will be 8:00 AM on May 3rd.

Grading: The regular problems from homework are worth 20% of your grade, the computer problems 15%, midterm 1 is 20%, midterm 2 is 20%, and the final will be 25%.

Schedule: The following is a tentative schedule. It is subject to change.

Jan 13th	Review
Jan 18th – Feb 8th	Finite State Discrete Time Markov Chains
Feb 10th – Feb 17th	Countable State Discrete Time Markov Chains
Feb 22nd	Review
Feb 24th	Exam 1
Mar 1st – Mar 10th	Continuous Time Markov Chains
Mar 14th – Mar 17th	Spring Break
Mar 22nd – Mar 29th	Continuous Time Markov Chains
Mar 31st	Review
Apr 12th	Exam 2
Apr 7th – Apr 21st	Continuous Time Markov Chains and Applications
Apr 26th – Apr 28th	Review
May 3rd	Final (8:00 AM)