STA 624.01
Applied Stochastic Processes
Spring Semester, 2009
Tue and Thurs 12:30 PM–1:45 PM
Room CB307

Instructor:	Ruriko Yoshida
Office:	805A POT
E-mail:	ruriko@ms.uky.edu
Office hours:	Tue Thurs 3:10-4:00 PM
	(I'm usually available to talk whenever I'm in my office so
	feel free to drop in, except two minutes before class starts.)
Text:	"Introduction to Stochastic Processes" Lawler

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 compute and simulate using these processes. We will cover materials including (not limited to) discrete-time and continurous-time Markov Chain, Reversible Markov Chain, hidden Markov Model (HMM). For computing I will be teaching the basics of MATLAB, although you may utilize any environment you are familiar with for completing the assignments.

Course Website: All course materials (including the homework assignments) will be posted on the class website, which you can access using the Blackboard system found at

`http://polytopes.net/courses/Stat624S09/`

Homework: Assignments will be weekly, handed out on Friday and due back the next Friday. Typically these assignments contain 4 or 5 regular problems and one computer problem.

While you are welcome to work together on the assignments, the final writeups should be your own. In the writeups, indicate your calculations and reasoning for all the work submitted. For numerical answers, draw a box around your answer and use four significant figures for approximations unless the answer is an integer, or instructed otherwise in the problem statement.

Homework will be graded on a ten point scale 0 meaning that you did not turn in the homework and 10 meaning that Athena, goddess of wisdom could not have completed the assignment any better. You will receive two scores, one for the regular problems and one for the computer work. **ALSOLUTELY NO LATE homework**.

Before handing in your homework paper, please staple all papers together and clearly write your name and the assignment number on the first page. Turn in papers held together by paper clips or origami at your own risk.

The lowest homework score of each semester will be thrown out. This is basically to handle those emergencies where you are unable to complete an assignment for external reasons. I strongly recommend you save this freebie as long as possible and do not blow off an early assignment.

Tests: There will be 2 midterms during the semester, both in class. 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.

Grading: The regular problems of the 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 might be changed.

Week	Topic	Section
Jan 15th	Review	
Jan 20th to Feb 10th	Finite Markov Chain	Chapter 1
Feb 12th to 19th	Countable Markov Chain	Chapter 2
Feb 24th	Review	
Feb 26th	Exam 1	
March 3rd to April 9th	Continuous time Markov Chain	Chapter 3
March 16th to 21st	Spring break	
April 14th and 16th	Buffers	
April 21st	Review	
April 23rd	Exam 2	
April 28th and 30th	Review	
May 6th at 8AM to 10AM	Final	