Course Syllabus
Mathematics/Statistics 396, Probability III

Probability Models for Computer Science

Spring Quarter 2006
Sieg Hall 227, MWF 8:30–9:20am

Instructor
Tilmann Gneiting
Office: Padelford Hall B-301
E-mail: tilmann@stat.washington.edu
Office hours: M 10:30–11:30am, W 11:30–12:30am

Textbook

Course Contents
This class continues Math/Stat 394 and 395. It covers parts of Chapters 1, 2, 4 and 9 in the textbook, as well as some additional material, and discusses sort algorithms, conditioning arguments, Monte Carlo simulation, and Markov chains, culminating in an introduction to Markov chain Monte Carlo techniques. There will be some emphasis on the probabilistic analysis of algorithms. However, this is not a computer science class, and I will assign very few, if any, programming exercises. Almost all homework and exam problems will be of a mathematical character, and will typically involve proofs.

Prerequisites
A working knowledge of the material in Math/Stat 394 and 395 and a grade of 2.0 or better in Math/Stat 395 are prerequisites for this course. You should expect a much faster pace, and considerably harder homework and exam problems, than in Math/Stat 394 and 395.

Tentative Weekly Schedule
March 27 – March 31: Sort Algorithms
April 3 – April 7: Coupon collector problems
April 10 – April 14: Conditioning arguments
April 17 – April 21: Monte Carlo simulation
April 24 – April 28: Monte Carlo simulation
May 1 – May 5: Markov chains
May 8 – May 12: Markov chains
May 15 – May 19: Markov chains
May 22 – May 26: Markov chain Monte Carlo techniques
May 31 – June 2: Markov chain Monte Carlo techniques
Homework, Exams and Grades

I will hand out a problem set each Friday in April and May, except for April 21 and May 12, and will request a response by the following Friday. Homework will be collected at the beginning of the class. Late homework will not be accepted, and no exceptions will be made. Problem sets will be distributed in class and will be posted at

http://www.stat.washington.edu/tilmann/#STAT396A.

If you have questions on the homework problems, please stop by at my office during office hours. I will also try to respond to e-mail enquiries, but you should expect delays and a response with a copy to the entire class.

Please staple your homeworks and clearly mark them with your name. You are encouraged to discuss the problems among each other, but you need to give proper credit, and you need to write individually. Copied homework will not receive credit, and the general rules of academic integrity and honesty apply to all work.

There will be two in class midterm exams, the first on Wednesday, April 26 and the second on Wednesday, May 17. The final exam is scheduled 8:30–10:20am on Tuesday, June 6. Exams will be closed book and closed notes, but you will be allowed to bring one sheet (double-sided) of 8.5” × 11” paper with handwritten notes. No calculators or other devices will be allowed. There will not be any make-up exams.

The homework will count 30% of the course grade, each midterm 15% of the grade, and the final exam 40% of the grade.

Disclaimer

This syllabus is intended to provide an overview over the class. You cannot claim any rights from it. In particular, due dates, exam dates, and grading schemes may change. While the syllabus should be a fairly reliable guide for the quarter, official announcements are always those made in class.