

STAT 353 - Probability II

Winter 2009

- Instructor:** Glen Takahara - Jeffery Hall 407
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- Course Web Site:** <http://www.mast.queensu.ca/~stat353>
All assignments and important announcements will be posted here.
- Lecture:** Slot 1 (Monday 8:30, Tuesday 10:30, Thursday 9:30), Room Jeffery 234
- Office Hours:** Monday 10:00-12:00, or by appointment
- Text:** *Fundamentals of Probability, 3rd Ed.* by S. Ghahramani, Prentice Hall, 2005.
- Assignments:** There will be 9 homework assignments. These will be posted on the class web site; *no paper copies* will be handed out. Assignment 1 is due on Thursday, Jan. 15. Solutions to the assignments will be posted on the course web page.
- Grading:** 20% homework, 20% mid-term test, 60% final exam.
- Midterm Test** is scheduled for Thursday, Feb. 12 in class (12:30-1:30).
- Prerequisites:** STAT 251 or 269 or 351; MATH 110 or 111 or 112; MATH 281.

Course Outline

- *Multiple Random Variables:* multivariate distributions; joint probability, density, and distribution functions; marginal distributions; independent random variables; order statistics; multinomial distribution; transformations of n random variables; beta, t , χ^2 , and F distributions (Chapter 9 of text and class notes).
- *Expectations Involving Multiple Random Variables:* expectation of a sum of random variables; covariance and correlation; calculating expectations by conditioning; multivariate normal distributions (Chapter 10 of text and class notes).
- *Limit Theorems:* moment generating functions; sums of independent random variables; markov and chebyshev inequalities; modes of convergence; laws of large numbers; chernoff bounds and large deviations; central limit theorem (Chapter 11 of text and class notes).
- Further topic TBA (see outline on course web page for possible topics).