

STAT 353 - Probability II

Winter 2007

- 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 3 (Monday 10:30, Wednesday 9:30, Friday 8:30), Room Jeffery 101
- Office Hours:** Wednesday 12:30-2:00, 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 Friday, Jan. 19. 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 Friday, Feb. 16 in class (8:30-9:20).
- Prerequisites:** STAT 251; MATH 110, 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).