

MATH 419, Stochastic Processes, Section 201, MWF 10-11 in Math 104

Instructor: Ed Perkins
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Course webpage: <http://www.math.ubc.ca/~perkins/teaching.html>

Office Hours: (To be confirmed) Monday 1:20-2:50, Thursday 2:15-3:45 or by appointment. (On occasion the Thursday office hour will be replaced by Friday 1:20-2:50—this will be announced on Wed.)

Textbook: G.R. Grimmett and D.R. Stirzaker, *Probability and Random Processes*, 3rd Edition, Oxford.

Prerequisite: Math 418 or consent of instructor.

Reference books:

G.R. Grimmett and D.R. Stirzaker, *One Thousand Exercises in Probability*, Oxford (contains solutions to the problems in the book)

David Williams, *Probability with Martingales*, Cambridge.

Hoel, Port and Stone, *Introduction to Probability*.

Hoel, Port and Stone, *Introduction to Stochastic Processes*.

William Feller, *An Introduction to Probability and its Applications*, Vol 1. (rated G), Vol. 2 (rated PG)

Leo Breiman, *Probability*—Graduate level text.

Outline:

The course will be based on Chapters 6, 7, 8, 12 and 13 of Grimmett and Stirzaker, with the possibility of additional topics if time permits. Only parts of Chapters 8 and 13 will be covered and much of Ch. 7 (7.1-7.5) was presented in Math 418 last term.

- 1. Markov Chains, Poisson Process (Ch. 6.1-6.8)
- 2. Conditional Expectation
- 3. Martingales (Ch. 7.7-7.10, 12)
- 4. Brownian Motion (Ch. 8.5, 8.6, 13.1, 13.2)+?.

Homework: Assignments will be posted weekly or biweekly at <http://www.math.ubc.ca/~perkins/teaching.html>

The homework is a **very important** part of the course. Homeworks will be assigned and collected on Wednesdays. Homeworks handed in on the following Fri. will be given a *. Each student has two free *'s. After that, the grade will be divided by 2. No assignments will be accepted after Fri.

Exams: There will be one midterm in Feb. and a final exam.

Grading: Homework: 30% Midterm 20% Final exam: 50%.

Policy on missed assignments and test

Students who are unable to hand in a homework due to a medical or equivalent excuse will have that hw not count towards their final grade.

Missing a test normally results in a mark of zero. Exceptions are granted only with prior consent of the instructor or due to a medical emergency. In the latter case, the instructor must be notified within two working days of the missed test and presented with a doctor's note immediately upon the students return to UBC. If an exception is granted for a missed test, the final exam will be used to make up that portion of the grade.

Jan. 3, 2012.