

Lakehead University

Department of Mathematical Sciences

MATH 5333 FA Advanced Topics in Probability Fall 2010

COURSE OUTLINE

Instructor: Dr. Deli Li

Office: RB-2003

Phone: (807)343-8231

e-mail address: dli@sleet.lakeheadu.ca

Objectives: This one semester course is devoted to some advanced topics in probability. Topics include probability spaces, jointly distributed random variables, expectations and the central limit theorem, moment generating functions and characteristic functions, conditional probability and conditional expectation, normal processes and covariance stationary processes, counting processes and Poisson processes, renewal counting processes, finite Markov chains, countable Markov chains, continuous-time Markov chains, etc.

Prerequisite: Students should be comfortable with probability and statistics at the level of MATH 2331 and MATH 2333.

Textbooks: Book 1. *Stochastic Processes*
by Emanuel PARZEN
Book 2. *Introduction to Probability Theory*
by Paul G. HOEL, Sidney, C. PORT, and Charles J. Stone

Lectures: **Monday & Wednesday 4:00 p.m. – 5:30 p.m. in RB 3049.**
Pre-reading related sections in the textbooks is expected.

Office Hours: **Tuesday & Thursday 1:30 p.m. - 4:30 p.m. or by appointment.**
For an appointment, please email the instructor.

Course Requirements:

Assignments:

A list of assignment problems will be given to students during the Wednesday class period and are **due on the Friday in the following week. Late assignments will not be marked under any circumstances. Sloppy writing may face a mark penalty up to 20%. There will be approximately 6 assignments worth 20% of your final mark.**

Midterm Exam:

The midterm exam will be written in RB 3049 on **Wednesday 27 October 2010. No make-up test is provided for any student who misses writing the midterm exam at the scheduled time.** If there is a legitimate (documented) excuse, the final mark will be calculated on the basis of the final exam. Otherwise, a grade of **0%** for the missed exam will be averaged with other grades.

Final Exam:

The final exam will be written in the scheduled three hours. Further details will be provided closer to the exam dates.

All examinations will be open book and a calculator is allowed.

Determination of Final Marks: The basic formula is as follows

Assignments:	20%
Presentation and Attendance:	10%
Midterm Exams:	30%
Final Exam:	40%