Lakehead University

Department of Mathematical Sciences

MATH-3332-FA -- Introduction to Mathematical Probability – Fall 2012

COURSE OUTLINE

Instructor: **Dr. Deli Li, RB-2003, Ext. 8231, dli@lakeheadu.ca**

Note: If you e-mail me, please put "MATH-3332" in the Subject line so I can tell that your email is not spam.

Textbooks: ***Probability & Statistics for Engineers & Scientists, 9th Edition***
by Walpole, Myers, Myers, and Ye
Optional*:* ***Student's Solutions Manual***

Number of Credits: 0.5

Prerequisite: MATH 1172

Course Topics:
As a mathematical introduction to the theory and application of probability, topics include combinatorial methods, binomial coefficients, sample spaces, events, the probability of an event, some rules of probability, conditional probability, independent events, Bayes' Theorem, probability distributions, discrete random variables, continuous random variables, probability density functions, multivariate distributions, marginal distributions, conditional distributions, the expected value of a random variable, moments, Chebyshev's Theorem, moment-generating functions, conditional expectations, some special probability distributions such as the discrete uniform distribution, the Bernoulli distribution, the binomial distribution, the negative binomial and geometric distributions, the hypergeometric distribution, the Poisson distribution, the multinomial distribution, the uniform distribution, the gamma, exponential, and chi-square distributions, the beta distribution, the normal distribution, the normal approximation to the binomial distribution, the bivariate normal distribution, etc., functions of random variables, and limit theorems such as the law of large numbers and the central limit theorem. Basically this course will cover Chapters 1-7. The instructor reserves the right to add or delete sections to the list.

Note: MATH-3334 will cover Chapters **8 – 17**.

Lectures:
Tuesday & Thursday 02:30 PM - 04:00 PM in BB-1054
Attending lectures is not compulsory. According to historical records, however, there is a positive correlation between the regular lecture attendance and the final course mark. Pre-reading related sections in the textbook is expected.

Labs:
Monday 03:30 PM – 04:30 PM in RB-1021
During the lab hours, you will meet your instructor and ask questions about the course materials and even get help to finish your assignments. If there is no student showing up during the first 5 minutes, this Q's and A's will be moved to instructor's office (**RB-2003**).

Office Hours:
Monday & Wednesday 10:00 AM - 12:00 PM or by appointment

Problems that you are having with the course should be either
a) given to your instructor in class, or
b) left in Dr. Deli Li's mail-box in the Math Department Office RB-2012. If you are having a problem then most likely other people in the class are having the same problem, thus it will be worth to take class time to discuss the problem. If I don't discuss your problem in the lecture to your satisfaction please come and see me in my office during the office hours.

Course Requirements

Six Assignments (20%):
A list of assignment problems will be e-mailed you. It will be your own interest to try to work on the problems yourselves. Solutions to selected problems will be discussed in the labs. For this reason it is in your interest to attend your labs. Assignments should be dropped in the MATH-3332 assignment box on the second floor of Ryan Building before the due time or simply bring them to Thursday's lectures. All assignments, hand written or printed, should have a cover page with information including: course number, assignment number, student's name, and student's ID number. **Late assignments will not be marked under any circumstances. Sloppy writing may face a mark penalty up to 20%.** Each student's lowest assignment mark will be dropped for the final mark calculation.

Midterm Exam (30%):
The midterm exam will be written during the regularly scheduled class time **(02:30 PM – 04:00 PM in BB-1054)** on **Thursday 11 October 2012. No make-up test is provided for students who miss writing the test 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 (50%):
The final exam will be written in the scheduled three hours. It will cover all of the course material. Further details will be provided closer to the exam date.

Note: Exams will be open book and a non-programmable calculator is allowed.

Marking Disputes: If you feel you have been treated unfairly in the marking of the midterm exam or an assignment, **put your complaint in writing on the front of the paper and return it to the instructor**. Do not put it back in the Assignment Box.

Drop Date: The final date to withdraw from this course without academic penalty is Friday 02 November 2012.

Academic Dishonesty: All cases of academic dishonesty will be dealt with according to the University's Code of Student Behaviour and Disciplinary Procedures, copies of which are available from the Registrar.