The University of Western Ontario
London Canada

Applied Mathematics 2503B

Advanced Mathematics for Statistics

Course Outline - Winter 2013

Instructor: Khoa Nguyen, (519) 661-2111 x88799, MC 259, knguyen@uwo.ca

Office Hours: Wednesday, 3:00-4:00, MC259; or by appointment

Lectures: 1:30-2:30pm Mon, Wed, Fri P&AB-148

Textbook: *Advanced Mathematics for Statistics,* Custom Edition for the University of Western Ontario (ISBN: 0558563384) is required, and is only available at the university bookstore.

Website: Log into UWO Owl (https://owl.uwo.ca) for individual grades, coming quizzes and important announcements. Students are expected to check UWO Owl regularly.

Material: This course will consist of two parts. The first part (approximately seven weeks) will constitute an introduction to first-order ordinary differential equations (ODEs) and related topics, with emphasis placed on applications. Specific topics include linear and separable equations, qualitative analysis and stability, modeling deterministic systems (in particular population growth and savings/investment), and linear systems of ODEs. We will also discuss second-order ODEs, Laplace transforms and moment generating functions. The second part of the course (approximately five weeks) will constitute an introduction to discrete-time Markov chains. Specific topics include the Chapman-Kolmogorov equations, classification of states, stationary distributions and ergodic theorems. Time-permitting we will also discuss continuous-time Markov chains and the Poisson process.

Evaluation: Students will be evaluated on the basis of quizzes, one midterm test, and a final exam. All material covered up to the end of the course will be considered testable on the final exam.

Quizzes 20%
Midterm Test (Wed., Feb. 13, 7-9pm) 30%
Final Examination (April exam period) 50%

Quizzes: There will be approximately four equally weighted quizzes (in class). The number of quizzes is subject to change.

Missed Evaluations: If you have a conflict, please contact me with appropriate written documentation, if at all possible prior to the evaluation. There will be no make-up quizzes or mid-term tests, but if adequate documentation is received, the following accommodations will apply:
1. Quizzes – The course quiz grade will be computed using those quizzes for which accommodations have not been obtained.
2. Mid-term Test – a grade for this test will be assigned based on the relative ranking of his/her final exam grade.

Addendum to all Applied Mathematics Course Outlines:
If you are unable to meet a course requirement due to illness or other serious circumstances, you must provide valid medical or other supporting documentation to your faculty's Dean's Office as soon as possible and contact your instructor immediately. It is the student's responsibility to make alternative arrangements with their instructor once the accommodation has been approved and the instructor has been informed. In the event of a missed final exam, a "Recommendation of Special Examination" form must be obtained from your faculty's Dean's Office immediately. For further information please see:
http://www.uwo.ca/univsec/handbook/appeals/medical.pdf

A student requiring academic accommodation due to illness, should use the Student Medical Certificate when visiting an off-campus medical facility or request a Records Release Form (located in the Dean's Office) for visits to Student Health Services. The form can be found here:
https://studentservices.uwo.ca/secure/medical_document.pdf