

The University of Western Ontario
London Canada

Applied Mathematics 2402a
Differential Equations

Course Outline - Fall 2013

Instructor: Pei Yu
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Office hours: Tuesday 10:30 am – 12:30 pm MC283

Lectures: Mon, Wed, & Fri 3:30 – 4:30 pm UC 30

Tutorials: Fri Sec. 002 8:30 – 9:30 am SSC 1032
Thu Sec. 003 9:30 – 10:30 am SSC 1032
Fri Sec. 004 9:30 – 10:30 am SSC 1032

Everyone in the class has one assigned tutorial hour. There will be a TA available during that hour to give you extra help (e.g. demonstrating how to use Matlab and Maple). These tutorials are held in computer labs in case you need help doing the computational components of the course.

Textbook: *Elementary Differential Equations*, Boyce and DiPrima, 10th Edition, (ISBN: 978-0-470-45832-7) is required. A copy will be available for 2 hour loan at the Taylor reserves desk.

The Student Solutions Manual for this text (ISBN: 978-0-470-45832-8) is also available (but is not actually very helpful).

Evaluation: Assignments 15%
Midterm Examination 35%
(Friday, October 25, 7 - 9:30 pm, Room KB K103, K203, K208)
Final Examination (December exam period) 50%

This course covers material fundamental to the application of mathematics to problems in science, medicine and industry. The students will learn how to cast scientific problems into the language of differential equations, how to solve differential equations and assess the validity and usefulness of the solution obtained, and how to interpret the results in the original realworld context. In addition, the students will learn how to use computer system (Matlab, Maple) to solve complex problems.

The theoretical tools covered will include first order linear and nonlinear equations, linear second and higher order equations, systems of first order linear equations nonlinear systems, series solutions and approximation methods.

Assignments: Weekly assignments will be due in class on Mondays. Late assignments can be handed on Wednesday (-15%). The lowest assignment grade for each student will be dropped. Two assignments will be lab assignments, finished during the tutorial hour in the lab.

Software: Some assignment questions will involve computation. Software packages (Matlab and Maple) and help in using these packages will be available in the tutorial sessions. Thus, attending tutorial classes to get help from TAs is important.

Examinations: All material covered up to the end of the course will be considered testable on the final exam. Note in the "Addendum below": permission to write a makeup, for either the midterm or the final, must be obtained from the Dean of Science's office. The course instructor is not allowed to approve academic accommodation for course requirements that are worth more than 10% of the final grade.

Log into **WebCT** (<https://owl.uwo.ca/portal>) for individual grades, assignments and important announcements.

Accessibility Statement:

Please contact the course instructor if you require material in an alternate format or if you require any other arrangements to make this course more accessible to you. You may also wish to contact Services for Students with Disabilities (SSD) at 661-2111 x 82147 for any specific question regarding an accommodation.

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