

The University of Western Ontario

Applied Mathematics 2415 (formerly 276)

Applied Mathematical Methods for Electrical and Software Engineering I

Course Outline

2009-2010

Instructor

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Textbook

D.G. Zill and M.R. Cullen “Advanced Engineering Mathematics” (Jones and Bartlett)
Robert A. Adams, “Calculus - a Complete Course, 6th edition” (Addison Wesley)

Lecture Timetable

Mondays, Wednesdays	11:30am – 12:30pm	3M 3250
Fridays	12:30pm – 1:30pm	SSC 2028

Labs

Note: you may not switch lab sessions without permission.

002	Mondays	2:30pm – 4:00pm	SH 1310
003	Mondays	4:00pm – 5:30pm	SH 1310
004	Wednesdays	2:30pm – 4:00pm	SH 1310
005	Fridays	2:30pm – 4:00pm	UC 2

Course Content

This is a course for electrical, computer and software engineers that combines analytical treatment of ordinary differential equations with multiple variable calculus and an introduction to MATLAB and Maple.

Topics to be covered are:

1. Introduction to MATLAB and Maple(to be covered in the lab sessions)
2. First order differential equations.
3. Higher order differential equations.
4. Systems of differential equations.
5. Laplace transforms.
6. Fourier series and transforms.
7. Power series methods.
8. Multiple integration, vector fields.
9. Vector calculus.

Evaluation

Homework: The best way to learn is to solve as many problems as possible. Please note that historically the majority of the problems on the midterm and final exams have come from the list of suggested exercises.

Attendance: Some material taught in lecture or in the lab sessions may not be in any of the textbooks, therefore attendance of lectures and lab sessions is mandatory. You must attend the lab section for which you are registered, unless permission has been granted by your instructor. Students are responsible for ensuring they are informed of what problems are assigned by keeping careful records in class.

Laboratories: A laboratory will be an experiment or collection of procedures using MATLAB or Maple, leading to a report to be submitted and graded. As most of these submissions will be electronic, students should keep their own personal back-up copies of submitted assignments on a diskette they should bring to the lab.

In Laboratory Quizzes: These will test your knowledge of material taught in class. They may be given in any scheduled laboratory period without notice other than that given above in this outline, as part or instead of any laboratory. The best preparation is to complete all homework as it is assigned.

Weights: Lab submissions and quizzes: 20%, Midterm: 40%, Final exam: 40%.

Make-ups: if you have a justified absence for a lab, quiz or MATLAB test, your mark for the other assignments will be prorated. No make-up labs, quizzes or MATLAB tests will be administered. If you are ill at the time of the midterm exam, your final exam will be prorated to 80%. There will be no make-up midterm exam given. If this happens at the time of the final exam, the make-up examination will be held concurrently with the final exam for AM276 (Intersession) at the end of the following June. Please read below for further details.

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