

The University of Western Ontario

Applied Mathematics 2415

Applied Mathematical Methods for Electrical and Software Engineering I

Course Outline

2012-2013

Instructor

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Textbook

D.G. Zill and W.S. Wright, Advanced Engineering Mathematics 4th Edition (Jones and Bartlett)
Adams and Essex, Calculus - a Complete Course, 7th Edition (Addison Wesley)

Lecture Timetable

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|---------------------|-------------------|---------|
| Mondays, Wednesdays | 11:30am – 12:30pm | 3M-3250 |
| Fridays | 12:30pm – 1:30pm | HSB-240 |

Labs

Note: you may not switch lab sessions without permission.

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|-----|------------|-----------------|---------------------|
| 002 | Mondays | 2:30pm – 4:00pm | SSC-1032 (full) |
| 003 | Wednesdays | 2:30pm – 4:00pm | SSC-1032 (not full) |
| 004 | Fridays | 2:30pm – 4:00pm | SSC-1032 (full) |

Course Content

This is a course for electrical, computer and software engineers that combines analytic 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

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

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 expected. You must attend the lab section for which you are registered, unless permission has been granted by your instructor.

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.

Make-ups: if you have a justified absence for a lab or quiz your mark for the other assignments will be prorated. No make-up labs or quizzes 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 AM2415 (Intersession) at the end of the following June. Please read below for further details.

Academic Accommodation Due to Illness

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/mdical.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 at: https://studentservices.uwo.ca/secure/medical_document.pdf

Academic Integrity

You should familiarize yourself with University of Western Ontario's Scholastic Offence Policy. The policy describes the university's process for dealing with scholastic offences, including a list of sanctions: <http://www.uwo.ca/univsec/handbook/appeals/scholoff.pdf> The Office of the Ombudsperson produces a student guide on cheating, plagiarism and other scholastic offenses: <http://www.uwo.ca/ombuds/student/cheating.html>

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 extension 82147 for any specific questions regarding accommodation.