

The University of Western Ontario
London, Ontario Canada
Department of Applied Mathematics
APPLIED MATHEMATICS 2270A
Course Outline 2020

Instructors:

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Tutorials:

004	Friday	12:30 PM	1:30 PM	Online
005	Friday	12:30 PM	1:30 PM	Online
006	Friday	10:30 AM	11:30 AM	Online
008	Monday	11:30 AM	12:30 PM	Online
009	Monday	10:30 AM	11:30 AM	Online
011	Monday	11:30 AM	12:30 PM	Online
012	Friday	10:30 AM	11:30 AM	Online

Text:

Advanced Engineering Mathematics, 6th edition, Zill (required) (No need to take book to class.)

May also use

Advanced Engineering Mathematics, 5th edition, Zill and Wright ISBN 978-1-4496-9172-1

Lectures: Lectures have been post on OWL under Course Content

Course Description:

This (half) course is designed to provide all second year engineering students with an introduction to the field of differential equations, with special emphasis on methods and applications that are most useful in the engineering sciences. Topics include first order differential equations of various types, higher order differential equations and methods of solving them, initial and boundary value problems, applications to mass-spring systems and electric RLC circuits, Laplace transform and its use for solving differential equations, systems of linear differential equations, orthogonal functions and Fourier series.

Learning Outcomes:

By the end of the course the student will be able to

- Solve first order linear and non-linear differential equations.
- Solve second order or higher order linear differential equations.
- Solve linear order differential equations with constant coefficients with initial condition(s) by using Laplace transform.
- Construct a physical/engineering problem in the language of differential equations and solve it.
- Solve a system of differential equations by using Laplace transform.
- Define orthogonal functions and compute their inner product.
- Express a periodic function by using Fourier series.

Method of Evaluation:

50% biweekly quizzes online via Sakai/OWL (Multiple Choice and Long Answer)
20% Midterm Exam Tentatively Oct. 30th (Multiple Choice and Long Answer)
30% Final Exam (TBD) (Multiple Choice and Long Answer)

All evaluations will be done using OWL or WebWorks. Each student will receive a unique quiz or exam. We will not be using Proctor Track

Dates for evaluations are posted in the Course Calendar on Sakai/OWL.

Attendance: All material in the lectures up to the end of the course can be considered testable. In addition, extra material covered in lectures can be tested in quizzes and exams.

Addendum to all Applied Mathematics Course Outlines:

Statements concerning Online Etiquette

Some components of this course will involve online interactions. To ensure the best experience for both you and your classmates, please honour the following rules of etiquette:

- please “arrive” to class/tutorials on time
- please use your computer and/or laptop if possible (as opposed to a cell phone or tablet)
- ensure that you are in a private location to protect the confidentiality of discussions in the event that a class discussion deals with sensitive or personal material
- to minimize background noise, kindly mute your microphone for the entire class until you are invited to speak, unless directed otherwise
- In order to give us optimum bandwidth and web quality, please turn off your video camera for the entire class unless you are invited to speak

- please be prepared to turn your video camera off at the instructor’s request if the internet connection becomes unstable
- unless invited by your instructor, do **not** share your screen in the meeting

The course instructor/TA will act as moderator for the class and will deal with any questions from participants. To participate please consider the following:

- if you wish to speak, use the “raise hand” function and wait for the instructor to acknowledge you before beginning your comment or question
- remember to unmute your microphone and turn on your video camera before speaking
- self-identify when speaking.
- remember to mute your mic and turn off your video camera after speaking (unless directed otherwise)

General considerations of “netiquette”:

- Keep in mind the different cultural and linguistic backgrounds of the other students in the course.
- Be courteous toward the instructor, your colleagues, and authors whose work you are discussing.
- Be respectful of the diversity of viewpoints that you will encounter in the class and in your readings. The exchange of diverse ideas and opinions is part of the scholarly environment. “Flaming” is never appropriate.
- Be professional and scholarly in all online postings. Cite the ideas of others appropriately.

Note that disruptive behaviour of any type during online classes, including inappropriate use of the chat function, is unacceptable. Students found guilty of Zoom-bombing a class or of other serious online offenses may be subject to disciplinary measures under the Code of Student Conduct.

Examination conflicts

A student with examinations having flexible submission times (e.g., where one or more examination is a take-home examination) cannot request alternative arrangements unless a conflict cannot be avoided by rescheduling writing the exam to a different time within the window specified by the instructor. This applies to direct conflicts as well as “heavy load” conflicts (e.g., three exams within a 23-hour period). The student should discuss any concerns about a potential conflict and/or request accommodation with their academic counselling unit prior to the deadline to drop a course without academic penalty.

In the case of online examinations, an “Examination Conflict Room,” which may be assigned when a student is scheduled to write two proctored exams concurrently, will be interpreted as arrangements for continuous proctoring.

Missing Quizzes or Exams: Missing an exam or quiz will result a grade of zero for that exam or quiz except when permission is granted from Engineering Student Services. If permission is granted, a prorated mark will be assigned. There will be no make up for quizzes.

If you are unable to meet a course requirement due to illness or other serious circumstances, you must provide valid medical or supporting documentation to the Academic Counselling Office of your home faculty as soon as possible. If you are a Science student, the Academic Counselling Office of the Faculty of Science is located in NCB 280, and can be contacted at scibmsac@uwo.ca.

For further information, please consult the university's medical illness policy at http://www.uwo.ca/univsec/pdf/academic_policies/appeals/accommodation_medical.pdf

If you miss the Final Exam, please contact your faculty's Academic Counselling Office as soon as you are able to do so. They will assess your eligibility to write the Special Exam (the name given by the university to a makeup Final Exam).

You may also be eligible to write the Special Exam if you are in a "Multiple Exam Situation" (see http://www.registrar.uwo.ca/examinations/exam_schedule.html)

Please contact the course instructor if you require lecture or printed material in an alternate format or if any other arrangements can make this course more accessible to you. You may also wish to contact Student Accessibility Services (SAS) at 661-2147 if you have any questions regarding accommodations.

The policy on Accommodation for Students with Disabilities can be found here: http://www.uwo.ca/univsec/pdf/academic_policies/appeals/accommodation_disabilities.pdf

The policy on Accommodation for Religious Holidays can be found here: http://www.uwo.ca/univsec/pdf/academic_policies/appeals/accommodation_religious.pdf

Learning-skills counsellors at the Student Development Centre (<http://www.sdc.uwo.ca>) are ready to help you improve your learning skills. They offer presentations on strategies for improving time management, multiple-choice exam preparation/writing, textbook reading, and more. Individual support is offered throughout the Fall/Winter terms in the drop-in Learning Help Centre, and year-round through individual counselling.

Students who are in emotional/mental distress should refer to Mental Health@Western (http://www.health.uwo.ca/mental_health) for a complete list of options about how to obtain help. Additional student-run support services are offered by the USC, <http://westernusc.ca/services>.