

**The University of Western Ontario
London, Ontario Canada**

**Department of Applied Mathematics
APPLIED MATHEMATICS 2270B
Course Outline Winter 2019-2020**

1. General Course Information

Applied Mathematics 2270A/B: APPLIED MATHEMATICS FOR ENGINEERING II
Winter Term 2019-2020

Extra Information: 3 lecture hours, 1 tutorial hour. Restricted to students in the Faculty of Engineering.

Lecture 001:
Monday, Wednesday, Friday: 8:30am – 9:20am in UCC-56

Tutorial 002:
Monday: 11:30am – 12:20pm in HSB-236

Prerequisites

Antirequisite(s): Applied Mathematics 2402A, the former Applied Mathematics 2411, the former Applied Mathematics 2413, the former Applied Mathematics 2415.

Prerequisite(s): Applied Mathematics 1411A/B and Applied Mathematics 1413.

Unless you have either the requisites for this course or written special permission from your Dean to enroll in it, you may be removed from this course and it will be deleted from your record. This decision may not be appealed. You will receive no adjustment to your fees in the event that you are dropped from a course for failing to have the necessary prerequisites.

2. Instructor Information

Dr. Daniel Goldman
Associate Professor
Applied Mathematics & Medical Biophysics
Office: HSA 21 Email: dgoldma2@uwo.ca

Students must use their Western (@uwo.ca) email addresses when contacting their instructor.

3. Course Description

Topics include first order ODE's of various types, higher order ODE's and methods of solving them, initial and boundary value problems, applications to mass-spring systems and electrical RLC circuits,

Laplace transforms and their use for solving differential equations, systems of linear ODE's, 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.

4. Course Materials

Required Textbook: Advanced Engineering Mathematics, 6th edition, Zill.

Students should check OWL (<http://owl.uwo.ca>) on a regular basis for news and updates. This is the primary method by which information will be disseminated to all students in the class. Students are responsible for checking OWL on a regular basis.

5. Methods of Evaluation

The overall course grade will be calculated as listed below:

Tests (Jan 27 and Feb 24 in tutorial): 30%

Quiz (Mar 23 in tutorial): 10%

Final Exam (TBD): 60%

Missed Tests and Quizzes:

Missing a test or quiz will result in a grade of zero, except when permission is obtained via a self-reported absence or granted from the Dean's Office/Academic Counselling/Student Services of your Home Faculty. If permission is granted to miss a test/quiz, a prorated mark will be assigned. There will be no make up for tests/quizzes.

6. Accommodation and Accessibility

If you are unable to meet a course requirement due to illness or other serious circumstances, you must seek approval for the absence as soon as possible. Approval can be granted either through a self-reporting of absence or via the Dean's Office/Academic Counselling unit of your Home Faculty. 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 policy on academic consideration for student absences:

https://www.uwo.ca/univsec/pdf/academic_policies/appeals/Academic_Consideration_for_absences.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).

7. Academic Policies

The website for Registrarial Services is <http://www.registrar.uwo.ca>.

In accordance with policy, <http://www.uwo.ca/its/identity/activatenonstudent.html>, the centrally administered e-mail account provided to students will be considered the individual's official university e-mail address. It is the responsibility of the account holder to ensure that e-mail received from the University at his/her official university address is attended to in a timely manner.

Calculators will be permitted on tests, quizzes, and the final exam for numerical calculations only. No other electronic devices will be permitted.

Scholastic offences are taken seriously and students are directed to read the appropriate policy, specifically, the definition of what constitutes a Scholastic Offence, at the following Web site: http://www.uwo.ca/univsec/pdf/academic_policies/appeals/scholastic_discipline_undergrad.pdf.

8. Support Services

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:

https://www.uwo.ca/univsec/pdf/academic_policies/appeals/Academic%20Accommodation_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>.