

THE UNIVERSITY OF WESTERN ONTARIO
London Ontario
Department of Applied Mathematics

**AM 2277b Applied Mathematics for Engineers
(Chemical and Civil)**

Winter 2020

MWF 08:30-09:30 MC110

Instructor: Professor C. Essex, MC 270

1. **Teams:**

Div ($\nabla \cdot$) 003 Tu 17:30 SEB 2202

Grad (∇) 004 Th 16:30 SEB 2200

Curl ($\nabla \times$) 005 F 09:30 SEB 2202

2. **Out-of-Class Contacts and Office hours:** Teaching Assistants to be assigned. Watch for an update.

3. **Calendar Description and Prerequisites:**

<http://www.westerncalendar.uwo.ca/Courses.cfm?Subject=APPLMATH&SelectedCalendar=Live&ArchiveID=>

4. **Strategy:** Advanced calculus, including Green's, Gauss's and Stokes's theorems with applications (Adams Essex Chapters 14-16). Orthogonal expansions of functions and Fourier series, partial differential equations and Fourier series solutions, boundary value problems, the wave, diffusion and Laplace equations (Zill, Chapter 13).

5. **Goals:** To be able to understand and execute advanced calculus and solutions of partial differential equations for engineering purposes, enhanced through team work and team learning.

6. **Texts:** *Calculus: A Complete Course*, R.A. Adams, C. Essex, Ninth Edition (2018), Pearson, ISBN: 978-0-13-415436-7, and *Advanced Engineering Mathematics*, D.G. Zill, Sixth Edition (2018), Jones & Bartlett Learning, ISBN: 978-1-284-10590-2.

7. **Evaluation:** If necessary, term work will be weighted to accommodate the half-course drop date rule of 15%, as per the following:

1. $x\%$ Competitive Team Problem Sets I: Concludes March 1.

$y\%$ Competitive Team Problem Sets II: Begins March 2

$x + y = 40$, $x \geq 15$, $5 < y \leq 25$ (x and y will be set after March 2)

2. **60%** Final (April 2020, TBA):

8. **General:** Problems from the texts will only be assigned in class, and nowhere else. These form the final exam material. 4 to 6 separate problem sets will be assigned through OWL. These define the term mark. These sets will be evaluated in terms of individual competence directly and community competence at deploying resources to get best results indirectly. Although problem sets will be scored directly for individuals, competitive bonus points (TBD) will be assessed for best team performance. Your team is determined by your tutorial section as above. In contrast, the final examination will evaluate individual knowledge and ability, **without any** external help or aids. Missing an evaluation will result in a grade of zero, unless permission is granted from the Associate Dean of Engineering. If permission is granted, a prorated mark will be assigned. There will be **no makeups** for missed term assessments.

9. **It is the desire of greater powers that the following information be on all course outlines:**

1. *Plagiarism:* Students must write their essays and assignments in their own words. Whenever students take an idea, or a passage from another author, they must acknowledge their debt both by using quotation marks where appropriate and by proper referencing such as footnotes or citations. Plagiarism is a major academic offence (see Scholastic Offence Policy in the Western (Academic Calendar).
2. *Plagiarism Checking:* The University of Western Ontario uses software for plagiarism checking. Students may be required to submit their written work and programs in electronic form for plagiarism checking.
3. *Prerequisites for a course:* Unless you have either the requisites for this course or written special permission from your Dean to enroll in it, you will 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.
4. *If computer-marked multiple-choice tests and/or exams are given:* Use may be made of software to check for unusual coincidences in answer patterns that may indicate cheating.
5. *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 Deans 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 Deans 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 Deans Office) for visits to Student Health Services. The form can be found here: <https://studentservices.uwo.ca/secure/medical document.pdf>
6. Please contact the course instructor if you require the material in an alternate format or for other arrangements to make this course more accessible for you. You may also contact services for students with disabilities at X 82147.