

THE UNIVERSITY OF WESTERN ONTARIO  
London Ontario  
APPLIED MATHEMATICS 1413  
Applied Mathematics for Engineers I  
Course Outline 2019-2020

**Instructor:**

Section 001: Dr. P. Yu: M W F 1:30pm-2:30pm TC-141 pyu@uwo.ca MC 283

**Section 002: Dr. A.B. MacIsaac: M W F 3:30pm-4:30pm, SEB 2200 allanb@uwo.ca MC 285**

Section 003: Dr. B. Tudose: M W F 3:30pm 4:30pm TC-141 btudose@uwo.ca MC 286

Tutorials: 004- Thursday 8:30am-9:30am SEB 2202

005- Thursday 11:30am-12:30pm FNB 1240

006- Tuesday 1:30pm-2:30pm FNB 1240

**007- Friday 1:30pm-2:30pm SSC-2032**

**008- Monday 4:30pm-5:30pm FNB 1240**

009- Thursday 2:30pm-3:30pm FNB 1240

010- Tuesday 9:30am-10:30am FNB 3210

011- Friday 1:30pm-2:30pm SEB 2202

**Office Hours:** TBD by Instructor ( section specific )

**Texts:**

Calculus: A Complete Course, 9th edition, Adams and Essex, ISBN: 0134154363 (Required)

MyMath Lab course code 2019: macisaac49624 ( may be used by students in all sections )

( 8<sup>th</sup> Edition will be Okay. Adams and Essex is available in Book Store and Online in various formats)

Additional Texts for more help: (Optional) <https://openstax.org/subjects/math> (Multiple Volumes)

**Course Syllabus**

Description

Limits, continuity, differentiation of functions of one variable with applications, extreme values, integration, the fundamental theorem of calculus, methods and applications of integration to areas, volumes and engineering applications. Sequences and series, convergence, power series. Vector functions, partial differential calculus, gradients, directional derivatives and applications.

**Antirequisite(s):** Calculus 1000A/B, Calculus 1301A/B, Calculus 1500A/B, Calculus 1501A/B, Mathematics 1225A/B, Mathematics 1230A/B.

**Prerequisite(s):** One or more of Ontario Secondary School MHF4U, MCV4U, or Mathematics 0110A/B.

**Extra Information:** 3 lecture hours, 1 tutorial hour. Applied Mathematics 1413 is a suitable prerequisite for any course which lists Calculus 1000A/B plus Calculus 1501A/B. Restricted to students in the Faculty of Engineering.

### **Expectations**

By the end of the course, students should be able to:

- operate with complex numbers, including finding powers and roots.
- calculate limits, derivatives and integrals of functions and apply these concepts to applied problems.
- decide convergence for infinite sequences and series
- apply calculus concepts to vector valued functions, calculate limits and derivatives (with applications) for functions of several variables.
- Students are expected to have read the appropriate sections from the textbook and to have completed practice problems recommended in class.
- Students should note that success in university-level mathematics courses requires self-directed exploration of topics.
- Students are expected to use help resources available to them when problems arise. It is often better to tackle difficult material when problems with understanding occur. Putting off questions until exam time is an ill-advised study strategy. Students that work at a consistent pace throughout the term and make a consistent effort to understand material tend to achieve better results.

The course will cover selected material in Preliminaries, Appendices I-III, and Chapters 1-13 in Calculus by Adams and Essex. A list of suggested exercises will be provided; it is strongly recommended that you solve as many of them as possible.

**Method of Evaluation:**

20% Quizzes or Assignments (approximately one every two weeks, section specific)

40% Midterm Exam – December Examination Period (Multiple Choice)

40% Final Exam - April Examination Period (Multiple Choice)

Examinations will be closed book. No computational aids will be permitted. No phones, no calculators, no smart watches.

**There will be no 100% option for the final exam.**

Missing Quizzes and Exams:

Missing an exam or quiz will result in a grade of zero for that exam or quiz, unless permission is granted from Engineering Student Services. If permission is granted, a prorated mark will be assigned. There will be no makeups for quizzes.

Registration in Tutorials and Lecture Sections

Students will not receive credit for writing quizzes or assignments in sections in which they are not registered. Each tutorial session is linked to a particular lecture section and quizzes and assignments will be set according to the instructor of that section. You are expected to know which lecture section and tutorial section you are registered in and your attendance at each is required.

**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](mailto: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](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](http://www.registrar.uwo.ca/examinations/exam_schedule.html)).

## **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.

No electronic devices will be permitted during any quizzes or exams in this course.

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](http://www.uwo.ca/univsec/pdf/academic_policies/appeals/scholastic_discipline_undergrad.pdf)

## **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](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](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](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>.