

CAL2502A (F11 2024) --- Course Outline

1. Course Information

Course Information

Course Name: Calculus 2502A — Advanced Calculus I

Time and Location: Monday, Wednesday, Friday: 1:30 - 2:30 pm

Prerequisites: A minimum mark of 60% in one of Calculus 1501A/B, Numerical and Mathematical Methods 1414A/B, the former Applied Mathematics 1414A/B, the former Applied Mathematics 1413, or a minimum mark of 85% in Calculus 1301A/B. Integrated Science 1001X with a minimum mark of 60% can be used in place of Calculus 1301A/B.

Antirequisites: Calculus 2302A/B

Pre- or Corequisites: Mathematics 1600A/B or Mathematics 1700A/B or Numerical and Mathematical Methods 1411A/B or the former Applied Mathematics 1411A/B.

Unless you have either the requisites for this course or written special permission from your Dean's Designate (Department/Program Counsellors and Science Academic Advisors) 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

Full name, title and appropriate contact information of the instructor and, if the course is taught by more than one instructor, the name of the person responsible for the course (course coordinator).

Instructors	Email	Office	Phone	Office Hours
Dr. Pei Yu	pyu@uwo.ca	MC 283		Wednesday, Friday: 3:00- 4:00 pm

TA				

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

The instructor's office hours hold in person in the instructor's office (MC 283).

3. Course Syllabus, Schedule, Delivery Mode

Description: The course material corresponds to Chapters 12, 13, 14 and Sections 16.1 and 16.5 from the textbook.

Quick review of vectors in space from Chapter 12, vector valued functions (Chapter 13), Differential calculus of functions of several variables: level curves and surfaces; limits; continuity; partial derivatives; total differentials; Jacobian matrix; chain rule; implicit functions; inverse functions; curvilinear coordinates; derivatives; the Laplacian; extrema; Lagrange multipliers; vector and scalar fields; divergence and curl (from Chapter 14 and Sections 16.1, 16.5 of Chapter 16).

Learning Outcomes: By the end of this course you will be able to

- represent vectors analytically and geometrically, and compute dot and cross products for presentations of lines and planes;
- analyze vector functions to find derivatives, tangent lines, arc length, and curvature;
- compute limits and derivatives of functions of multiple variables;
- apply derivative concepts to find tangent lines to level curves and to solve optimization problems;

use technological tools such as computer algebra systems or graphing calculators for visualization and calculation of multivariable calculus concepts.

Lectures – Section 001, **in-person**.

Note that all Quizzes, Midterm Test and Final Examination are scheduled **in-person**.

See the schedule for the lecture/assigned problems, etc. from the **Course Content** on the OWL.

Classes Begin: September 5, 2024

Last Day to Add the Course: September 13, 2024

National Day for Truth and Reconciliation: September 30, 2024

Reading Week: October 12-20, 2024

Last Day to Drop the Course: December 2, 2024

Classes End: December 6, 2024

Examination Period: December 9-22, 2024

Contingency plan:

Although the intent is for this course to be delivered in person, should any university-declared emergency requires some or all of the course delivered online, either synchronously or asynchronously,

the course will adapt accordingly. The grading scheme will **not** change. Any remaining quizzes/midterm will also be conducted online as determined by the course instructor.

4. Course Materials

Textbook: Multivariable Calculus, 9th ed., by J. Stewart (required). *Student solution manual is recommended.*

Note: older editions of Stewart are not compatible with the current edition 9.

Course website: All course material will be posted to OWL: <https://westernu.brightspace.com/>. All information about this course including the course outline, practical problems, exams, lectures, etc. will be posted only on OWL.

Students are responsible for checking the course OWL site (<https://westernu.brightspace.com/>) regularly for news and updates. This is the primary method by which information will be disseminated to all students in the class.

If students need assistance with the course OWL site, they can seek support on the OWL Brightspace Help page. Alternatively, they can contact the Western Technology Services Helpdesk. They can be contacted by phone at 519-661-3800 or ext. 83800

Technical Requirements for teaching online: For lecture classes, you need stable internet connection, computer with working microphone and/or webcam.

5. Methods of Evaluation

Grading Scheme and Assessment Dates

Quizzes (3) will be run during the lecture hour.

Quiz 1: Monday, September 30, 2024	10%
Quiz 2: Monday, October 28, 2024	10%
Quiz 3: Friday, November 22, 2024	10%

Midterm Test: Friday, November 8, 2024, 7:00-9:30 pm, Room (TBA)	30%
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Make-up Midterm: Friday, November 15, 2024 (Time and location TBA)	
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See the **Course Content** on the OWL for the material covered in each of and quizzes, and the midterm test.

Final Exam: (In-person, Period: December 9 – 22, 2024)	40%
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Problem sets are provided, which are designed to enhance understanding of the lectures and to develop problem solving skills. These assigned problems will not be collected and marked

Note: All materials covered in lectures and assigned problems can be considered testable in the quizzes, midterm and final examination.

General information about missed coursework

Students must familiarize themselves with the *University Policy on Academic Consideration – Undergraduate Students in First Entry Programs* posted on the Academic Calendar:
https://www.uwo.ca/univsec/pdf/academic_policies/appeals/academic_consideration_Sep24.pdf,

This policy does not apply to requests for Academic Consideration submitted for **attempted or completed work**, whether online or in person.

The policy also does not apply to students experiencing longer-term impacts on their academic responsibilities. These students should consult [Accessible Education](#).

For procedures on how to submit Academic Consideration requests, please see the information posted on the Office of the Registrar's webpage:

https://registrar.uwo.ca/academics/academic_considerations/

All requests for Academic Consideration must be made within 48 hours after the assessment date or submission deadline.

All Academic Consideration requests must include supporting documentation; however, recognizing that formal documentation may not be available in some extenuating circumstances, the policy allows students to make one Academic Consideration request **without supporting documentation** in this course. However, the following assessments are excluded from this, and therefore always require formal supporting documentation:

- Examinations scheduled during official examination periods (Defined by policy)
- Midterm (Designated by the instructor as the one assessment that always requires documentation when requesting Academic Consideration)

When a student *mistakenly* submits their one allowed Academic Consideration request **without supporting documentation** for the assessments listed above or those in the **Coursework with Assessment Flexibility** section below, the request cannot be recalled and reapplied. This privilege is forfeited.

Flexible Completion

Quizzes: No Make-up for missed quizzes will be arranged. For missing quizzes, students can either request an academic consideration without supporting documentation (at most one) or they have to present formal supporting documentation in order to get an academic consideration. The accommodation will be approved by the instructor and students need to report their missing quizzes to the instructor as soon as possible. An approved missing quiz will be given a grade based on the student's course average after the final examination. A missed quiz has a score blank and OWL will reweigh automatically.

When students miss the Final Exam and their Academic Consideration has been granted, they will be allowed to write the Special Examination (the name given by the University to a makeup Final Exam). See the Academic Calendar for details (under [Special Examinations](#)), especially for those who miss multiple final exams within one examination period.

6. Additional Statements

Religious Accommodation

When conflicts with a religious holiday that requires an absence from the University or prohibits certain activities, students should request an accommodation for their absence in writing to the course instructor and/or the Academic Advising office of their Faculty of Registration. This notice should be made as early as possible but not later than two weeks prior to the writing or the examination (or one week prior to the writing of the test).

Please visit the Diversity Calendars posted on our university's EDID website for the recognized religious holidays:

<https://www.edi.uwo.ca>.

Accommodation Policies

Students with disabilities are encouraged to contact Accessible Education, which provides recommendations for accommodation based on medical documentation or psychological and cognitive testing. The policy on Academic Accommodation for Students with Disabilities can be found at:

[https://www.uwo.ca/univsec/pdf/academic_policies/appeals/Academic Accommodation_disabilities.pdf](https://www.uwo.ca/univsec/pdf/academic_policies/appeals/Academic_Accommodation_disabilities.pdf).

Academic Policies

The website for Registrar Services is <https://www.registrar.uwo.ca/>.

In accordance with policy,

https://www.uwo.ca/univsec/pdf/policies_procedures/section1/mapp113.pdf,

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 their official university address is attended to in a timely manner.

Statement on Use of Electronic Devices: Calculators, computers, cellphones or any electronic devices which can be used for communication, are not allowed to be used in the quizzes, midterm test and final examination.

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:

https://www.uwo.ca/univsec/pdf/academic_policies/appeals/scholastic_discipline_undergrad.pdf.

Remote Proctoring Service: All the quizzes, midterm and final examination in this course will be conducted **in person**. In the event of any university-declared emergency, the teaching will be changed to **online**, and the tests will be proctored using Zoom through OWL. By taking this course, you are

consenting to the use of this software and acknowledge that you will be required to provide **personal information** (including some biometric data) and the session will be **recorded**. Completion of this course will require you to have a reliable internet connection and a device that meets the technical requirements for this service. More information about this remote proctoring service, including technical requirements, is available on Western's Remote Proctoring website at:

<https://remoteproctoring.uwo.ca>.

Support Services

Please visit the Science & Basic Medical Sciences Academic Advising webpage for information on adding/dropping courses, academic considerations for absences, appeals, exam conflicts, and many other academic-related matters: <https://www.uwo.ca/sci/counselling/>.

Students who are in emotional/mental distress should refer to Mental Health@Western (<https://uwo.ca/health/>) for a complete list of options about how to obtain help.

Western is committed to reducing incidents of gender-based and sexual violence and providing compassionate support to anyone who has gone through these traumatic events. If you have experienced sexual or gender-based violence (either recently or in the past), you will find information about support services for survivors, including emergency contacts at

https://www.uwo.ca/health/student_support/survivor_support/get-help.html.

To connect with a case manager or set up an appointment, please contact support@uwo.ca.

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 Accessible Education at

http://academicsupport.uwo.ca/accessible_education/index.html

if you have any questions regarding accommodations.

Learning-skills counsellors at Learning Development and Success (<https://learning.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.

Western University is committed to a thriving campus as we deliver our courses in the mixed model of both virtual and face-to-face formats. We encourage you to check out the Digital Student Experience website to manage your academics and well-being: <https://www.uwo.ca/se/digital/>.

Additional student-run support services are offered by the USC, <https://westernusc.ca/services/>.