**Department of Mathematics**

 **Calculus 2502A Course Outline**

**1. Course Information**

Calculus 2502A Advanced Calculus I, Fall 2025, September-December 2025,

List of Prerequisites

**Prerequisite(s):** A minimum mark of 60% in one of [Calculus 1501A/B,](https://westerncalendar.uwo.ca/Courses.cfm?CourseAcadCalendarID=MAIN_013891_1&SelectedCalendar=Live&ArchiveID=) [Numerical and Mathematical Methods 1414A/B,](https://westerncalendar.uwo.ca/Courses.cfm?CourseAcadCalendarID=MAIN_029476_1&SelectedCalendar=Live&ArchiveID=) the former Applied Mathematics 1414A/B, the former Applied Mathematics 1413, or a minimum mark of 85% in [Calculus 1301A/B](https://westerncalendar.uwo.ca/Courses.cfm?CourseAcadCalendarID=MAIN_013892_1&SelectedCalendar=Live&ArchiveID=). [Integrated Science 1001X](https://westerncalendar.uwo.ca/Courses.cfm?CourseAcadCalendarID=MAIN_027319_1&SelectedCalendar=Live&ArchiveID=) with a minimum mark of 60% can be used in place of [Calculus 1301A/B](https://westerncalendar.uwo.ca/Courses.cfm?CourseAcadCalendarID=MAIN_013892_1&SelectedCalendar=Live&ArchiveID=). **Pre-or Corequisite(s):** [Mathematics 1600A/B](https://westerncalendar.uwo.ca/Courses.cfm?CourseAcadCalendarID=MAIN_023092_1&SelectedCalendar=Live&ArchiveID=) or [Mathematics 1700A/B](https://westerncalendar.uwo.ca/Courses.cfm?CourseAcadCalendarID=MAIN_031207_1&SelectedCalendar=Live&ArchiveID=) or [Numerical and Mathematical Methods 1411A/B](https://westerncalendar.uwo.ca/Courses.cfm?CourseAcadCalendarID=MAIN_005157_1&SelectedCalendar=Live&ArchiveID=) or the former Applied Mathematics 1411A/B.

Unless you have either the prerequisites for this course or written special permission from the Department of Mathematics to enroll in it, you may be removed and withdrawn from this course in accordance with university policy. This may be done after the add/drop deadline of the academic term, and the course will be marked as withdrawn (WDN) on your academic record. This decision may not be appealed.

**Antirequisite(s):** [Calculus 2302A/B](https://westerncalendar.uwo.ca/Courses.cfm?CourseAcadCalendarID=MAIN_014964_1&SelectedCalendar=Live&ArchiveID=).

**2. Instructor Information**

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| --- | --- | --- | --- | --- |
| **Instructors** | **Email** | **Office** | **Phone** | **Office Hours** |
| Dr. Tatyana Barron | Tatyana.barron@uwo.ca |  |  |  |
| TA: to be determined |  |  |  |  |
|  |  |  |  |  |

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

Office hours: in-person, see the Brightspace site.

**3. Course Syllabus, Schedule, Delivery Mode**

The course description published in the Western Academic Calendar:

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; Taylor Series; extrema; Lagrange multipliers; vector and scalar fields; divergence and curl.

Course-level learning outcomes: on successful completion of this course, students will be able to

Recall and apply theorems about functions of several real variables,

Explain the significance of partial derivatives and directional derivatives,

Demonstrate skills in optimization techniques,

Perform calculations with Taylor polynomials and Taylor series in two or three real variables,

Identify the properties of vector functions and vector fields.

Delivery mode: in person.

The relevant Key Sessional Dates:

Classes begin: September 4, 2025;

Fall Reading Week: November 3 – 9, 2025;

Classes end: December 9, 2025;

Exam period: December 11 – 22, 2025;

**4. Course Materials**

Textbook: “Multivariable Calculus” 9th Ed. by J. Stewart, D. Clegg, S. Watson (required),

with Student Solution Manual (strongly recommended).

**Costs of Textbooks on the Course Syllabus**

The URL to the Western bookstore for CALC 2502A:

CAL2502A <https://bookstore.uwo.ca/textbook-search?campus=UWO&term=W2025A&courses%5B0%5D=001_UW/CAL2502A>

All course material will be posted to OWL: https://westernu.brightspace.com/

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](https://brightspacehelp.uwo.ca/) 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**

A stable internet connection and computer are required to access the course Brightspace site.

**5. Methods of Evaluation**

**Grading Scheme and Assessment Dates**

The overall course grade will be calculated as listed below:

Assignments (2) 14%

Quizzes (3) 21%

Midterm Test 25%

Final Exam 40%

Assignment due dates are: Wednesdays Oct. 8, Nov. 19 (each 7%).

In class quiz dates are: Wednesdays Sept. 24, Oct. 29, Nov. 26 (each 7%).

Midterm exam (tentatively): Thursday, Oct. 23, 7-9 pm.

Makeup midterm exam: to be determined, during the week of Oct. 27th.

Final exam: a 3 hour cumulative exam scheduled by the Exam Central.

**Use of Generative AI Tools**

(e.g., ChatGPT, Copilot, Gemini) is **prohibited on tests and exams, as the tests and exams are closed book and no aids are allowed. For the written homework assignments, the use of generative AI tools is discouraged but permitted with limitations**: such use of AI may include brainstorming not final writing. The students may not appeal any marks lost due to any mistakes caused by the use of AI or online tools.

**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](http://academicsupport.uwo.ca/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 Examination (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.

**Evaluation Scheme for Missed Assessments**

Missed homework assignments: homework solutions will be posted on Brightspace promptly after the due date. No late papers will be accepted after the solutions page is posted. A missed assignment without a valid reason is a zero mark. A missed assignment with a valid reason will be reweighted to the final exam.

Missed quizzes: a missed quiz without a valid reason is a zero mark. There will be no make up quizzes.

A missed quiz with a valid reason will be reweighted to the final exam.

The one Academic Consideration request **without supporting documentation** per course per term (see above) would count as a “valid reason” for either a missed assignment or a missed quiz.

Missed midterm test: a student with approved accommodation will be given one chance to write a make up test, within two weeks of the original test. If the make up test is not written within 2 weeks and there is an approved accommodation covering that, then the midterm mark will be moved to the final exam.

The one Academic Consideration request **without supporting documentation** per course per term (see above) may not be used towards the midterm examination.

When a student misses 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](https://www.westerncalendar.uwo.ca/PolicyPages.cfm?Command=showCategory&PolicyCategoryID=5&SelectedCalendar=Live&ArchiveID=#SubHeading_70)), especially for those who miss multiple final exams within one examination period.

**6. Additional Statements**

**6.1 Religious Accommodation**

When conflicts arise 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 of 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>

**6.2 Academic 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%20Accommodation_disabilities.pdf).

**6.3 General Academic Policies**

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

**Use of @uwo.ca email:** 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 email address. It is the responsibility of the account holder to ensure that emails received from the University at their official university address are attended to in a timely manner.

**Requests for Relief** (formally known as “appeals”)

Policy on Request for Relief from Academic Decision:

<https://uwo.ca/univsec//pdf/academic_policies/appeals/requests_for_relief_from_academic_decisions.pdf>

Procedures on Request for Relief from Academic Decision (Undergraduate):

<https://uwo.ca/univsec//pdf/academic_policies/appeals/undergrad_requests_for_relief_procedure.pdf>

Procedures on Request for Relief from Academic Decision (Graduate):

<https://uwo.ca/univsec//pdf/academic_policies/appeals/graduate_requests_for_relief_procedure.pdf>

**6.4 Scholastic Offences**

Policy on Scholastic Offences: <https://uwo.ca/univsec//pdf/academic_policies/appeals/scholastic_offences.pdf>

Procedures on Scholastic Offences:

<https://uwo.ca/univsec//pdf/academic_policies/appeals/undergrad_scholastic_offence_procedure.pdf>

**Use of Electronic Devices During Assessments**

In courses offered by the Faculty of Science, the possession of unauthorized electronic devices during any in-person assessment (such as tests, midterms, and final examinations) is strictly prohibited. This includes, but is not limited to: mobile phones, smart watches, smart glasses, and wireless earbuds or headphones.

Unless explicitly stated otherwise in advance by the instructor, the presence of any such device at your desk, on your person, or within reach during an assessment will be treated as a *scholastic offence*, even if the device is not in use.

No electronic devices, including non-programmable calculators, will be allowed in the assessment room. It is your responsibility to review and comply with these expectations.

**Use of Generative AI Tools**

Unless otherwise stated, the use of generative AI tools (e.g., ChatGPT, Microsoft Copilot, Google Gemini, or similar platforms) is **not permitted** in the completion of any course assessments, including but not limited to: assignments, lab reports, presentations, tests, and final examinations.

Using such tools for content generation, code writing, problem solving, translation, or summarization—when not explicitly allowed—will be treated as a **scholastic offence**.

If the use of generative AI is permitted for a particular assessment, the conditions of use will be specified by the instructor in advance. If no such permission is granted, students must assume that use is prohibited. It is your responsibility to seek clarification before using any AI tools in academic work.

In the event of a health lockdown, Remote Proctoring Software may be used in this course, and

tests and examinations in this course will be conducted using a remote proctoring service. 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](https://remoteproctoring.uwo.ca/).

**6.5 Support Services**

Please visit the Science & Basic Medical Sciences Academic Advising webpage for information on adding/dropping courses, academic considerations for absences, requests for relief, 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. If you have any questions regarding accommodations, you may also wish to contact Accessible Education at

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

Learning-skills counsellors at Learning Development and Success ([https://learning.uwo.ca](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/>.