



Department of Mathematics

MATH 0110A Course Outline

Introductory Calculus

1. Course Information

Prerequisites: Ontario Secondary School MCV4U or Mathematics 0110A/B.

Anti-requisite: Applied Mathematics 1201A/B, Calculus 1301A/B, Calculus 1501A/B, Mathematics 1230A/B, Numerical and Mathematical Methods 1412A/B, the former Applied Mathematics 1412A/B, the former 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

Instructor	Email	Office	Phone	Office Hours
Dr. Khoa Nguyen	knguyen@uwo.ca	MC 282	519-661-2111 x88799	TBA
TA	TBA			

Students must use their Western (@uwo.ca) email addresses when contacting their instructors and must say Math 0110A in the subject line.

3. Course Syllabus, Schedule, Delivery Mode

Description: Limits, continuity, definition of derivative, differentiation rules, higher order derivatives, velocity, acceleration, implicit differentiation, related rates, exponential and logarithmic functions and their derivatives, maxima and minima, concavity, curve sketching, optimization.

Objectives: At the end of the course, a student should be able to

- Manipulate functions of one variable to accomplish required tasks
- Explore and evaluate limits
- Understand instantaneous rate of change and how it relates to slope and average rate of change
- Understand the definition of a function of one variable and be able to calculate and interpret its meaning.
- Use the Chain Rule to evaluate derivatives of complicated functions
- Learn how to use exponential and logarithmic functions and their derivatives
- Use derivatives to solve optimization problems
- Solve application problems in a variety of areas
- Use derivatives to obtain information about the graph of a function

Important Dates:

Classes begin September 5, 2024

Fall Reading Week: October 14–20, 2024

Thanksgiving Day: October 14, 2024

Classes end: December 6, 2024

Contingency plan:

Although the intent is for this course to be delivered in person, should any university-declared emergency require some or all of the course to be delivered online, either synchronously or asynchronously, the course will adapt accordingly. The grading scheme will **not** change. Any assessments affected will be conducted online as determined by the course instructor.

4. Course Materials

Required Textbook: University of Western Ontario Custom e-book: Text for MATH 1225A/B, 2nd edition. SKU: CEB_CODEID=38254. Here is the link of UWO bookstore:

https://bookstore.uwo.ca/textbook-search?campus=UWO&term=W2024A&courses%5B0%5D=001_UW/MAT0110A

Since September 2024, students at UWO must use Owl Brightspace to access their courses. Therefore, students are responsible for checking their courses on OWL Brightspace site (<https://westernu.brightspace.com/>) on a regular basis for news and updates.

Technical Requirements

For doing assignments, students need to use **WeBWorkK** in which students will need stable internet connection, a laptop or computer and recent browsers as Firefox or Chrome.

5. Methods of Evaluation

The overall course grade will be calculated as listed below:

Regular Assigned Problems (not graded)

5%: Marked on participation only using iClicker. The score you receive is based on the % of questions you answer:

At least 80% = 5; 70-79% = 4; 60-69% = 3; 50-59% = 2; 40-49% = 1; Less than 40% = 0

Assignments (6) 15 %

Test 1 (20%), Friday, October 11, 2024, from 4:00pm-6:00pm (in person)

Test 2 (20%), Friday, November 8, 2024, from 4:00pm-6:00pm (in person)

Final Exam (40 %) scheduled by the Registrar Office (in person). This is a three-hour exam and it is a comprehensive examination; it covers the entire material of the course.

- If your test 1 score is lower than your test 2 and/or exam score, your test 1 weight will be reduced to 10%, and your best assessment between the final exam and test 2 will have an additional 10% weight applied (so either your test 2 becomes 30% or your final exam becomes 50% weight for students whose test 1 mark is their lowest).

Remark: NO calculators or other electronic devices or any other aids are allowed on exams.

Assignments: Students do their assignments in **WeBWorkK**. There are 6 assignments, and the best five out of six are chosen.

Assignment 1: released September 9, due September 15

Assignment 2: released September 23, due September 29

Assignment 3: released October 7, due October 11 (by 5:30pm)

Assignment 4: released October 21, due October 27

Assignment 5: released November 4, due November 10

Assignment 6: released November 18, due November 24

Week Dates Topics by Chapters Comments

1	September 5	1.1, 1.2, 1.3	Cartesian coordinates, distance formula, graphs of equations, line, and slope
2	September 9-13	1.4, 1.5, 1.6	Functions, limits, continuity
3	September 16-20	2.1, 2.2	derivative, rules of differentiation
4	September 23-27	2.3, 2.4, 2.5	Rates of change, velocity, product and quotient rules, chain rule
5	September 30-Oct 4	2.6, 3.1, 3.2, 3.3	higher order derivatives, acceleration
6	October 7-11	2.7, 2.8	implicit differentiation, related rates Test 1 (Oct 11)
7	October 14-18	Fall Reading Week	No classes, Thanksgiving Day (Oct 14, 2024)
8	October 21-25	4.1, 4.2, 4.4	Exponential and logarithmic functions
9	October 28-Nov 1	4.3, 4.5	Derivatives of exponential and logarithmic functions
10	November 4-8	3.1, 3.2	Increasing/decreasing functions and min/max problems Test 2 (Nov 8)
11	November 11-15	3.3	Concavity, inflection, and 2 nd derivative test
12	November 18-22	3.4, 3.5	Optimization with applications
13	November 25-29	3.6, 3.7	Asymptotes and curve sketching
14	December 2-6		Catch up and review

Accommodated Evaluations

Students must familiarize themselves with the University Policy on Academic Consideration- Undergraduate Students in First Entry Programs posted on the Academic Calendar:

http://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)
- Test 2

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 Lectures (iClicker Questions): We understand that you will not be able to attend class from time to time. So, the participation-based iClicker marking scheme was designed to consider occasional missed classes. Therefore, iClicker marks will not be adjusted for the occasional missed classes. However, if you have a long-term absence (three or more consecutive classes) that is supported by academic consideration, your iClicker marks will be adjusted to take your long absence into account.

- If a student missed more than one online assignment, academic consideration may be granted, and these missed assignments will be reweighted to the other assignments.
- If a student misses test 1 (with academic consideration or self-reported absence), there will be a makeup test on Friday, October 25, 2024, from 2:30pm-4:30pm.
 - If a student then missed the makeup for test 1 (with academic consideration), the weight of test 1 would shift to the final exam.
 - New material will continue between October 11 and October 25, so those writing the makeup test will need to make sure they do not fall behind on the material that comes after test 1.
- If a student misses test 2 (academic consideration required; NOT ELIGIBLE for self-reported absence as mentioned above), there will be a makeup test on Friday, November 15 from 2:30pm-4:30pm.
 - If a student then missed the makeup for test 2 (with academic consideration), the weight of test 2 would shift to the final exam.
- For students miss the final exam with formal academic consideration, 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.
- Online makeups are NOT available for any reason.

Coursework with Assessment Flexibility

By policy, instructors may deny Academic Consideration requests for the following assessments with built-in flexibility:

Flexible Completion

Assignments. This course has 6 assignments, and the 5 ones with the highest marks are counted towards your final grade. Should extenuating circumstances arise, students do not need to request Academic Consideration for the first missed assignment. Academic consideration requests will be denied for the first missed assignment. Academic Consideration requests may be granted when students miss more than one assignment, and these additional (2nd, 3rd, 4th...) missed assignments will be reweighted to the other assignments.

Deadline with a No-Late-Penalty Period

Students are expected to complete all the assignments by the deadline listed. We will leave the assignments open for 48 hours after the deadline as a no late penalty period. No submission will be accepted after that 48-hour 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.

Remark: NO calculators or other electronic devices or any other aids are allowed on tests and exm.

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.

Computer-marked multiple-choice tests and exams may be subject to submission for similarity review by software that will check for unusual coincidences in answer patterns that may indicate cheating.

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/>.