Western Science

Department of Mathematics

Mathematics 0110A-Introductory Calculus
Course Outline
Fall 2021

1. Course Information

Course Information

Course Name: Mathematics 0110A-Introductory
Sections Number: 001
Instructor: Dr. Asghar Ghorbanpour
Academic term: Fall 2021
Class Day/Time: TuTh 7:00 – 9:00 PM
Classroom: BGS-0165

Prerequisites

Acceptable prerequisites include (but are not limited to): Mathematics 0105A/B, Mathematics 0109A/B, Ontario High School MHF4U.

Anti-requisites

Mathematics 1225A/B, 1230A/B, Calculus 1000A/B, the former 1100A/B, 1500A/B, 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

Instructors	Email	Office	Phone	Office Hours
Dr. Asghar Ghorbanpour	aghorba@uwo.ca	MC 134	519.661.2111 ext. 86525	TBA

- Instructor office hours will be posted to the OWL page, and may be a mix of in-person and virtual/online
- Email is not efficient, and response times vary wildly depending on email volume (instructors may be receiving hundreds of emails per day).
- Any email sent to an instructor **SHOULD say Math 0110A in the subject line**. This helps us categorize your email as "not spam" and give it a higher priority
- Do not trust email "autocomplete" to default to your instructor's email addresses. Type it in.

Autocomplete may automatically input the wrong email address.

- Any changes in office hours locations and timings will be clearly communicated to you via the course OWL page, and announced in class.

3. Course Syllabus, Schedule, Delivery Mode

Course Topics:

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

Learning Outcomes: Students will

- Be able to manipulate functions to accomplish required goals
- Explore limits of functions
- Understand instantaneous rates of change and how they compare with slope and average rates of change
- Be able to calculate and interpret derivatives of single-variable functions
- Learn how to use exponential and log functions
- Solve application problems in a variety of areas
- Use derivatives to infer information about the graphs of functions
- Perform optimization with constraints
- Learn how to properly justify steps in mathematical calculations

Delivery Mode:

Lectures are in-person

Quizzes may be conducted online and in-person

Some materials will be posted to OWL (Western's online learning platform), and you are expected to access these materials in addition to attending class

Contingency plan for an in-person class pivoting to 100% online learning

In the event of a COVID-19 resurgence during the course that necessitates the course delivery moving away from face-to-face interaction, all remaining course content will be delivered entirely online, either synchronously (i.e., at the times indicated in the timetable) or asynchronously (e.g., posted on OWL for students to view at their convenience). The grading scheme will **not** change. Any remaining assessments will also be conducted online as determined by the course instructor.

Tentative Schedule

Dates	Topics	Assessments
Week 1	Operations and functions	Test 1
Week 2	Limits and continuity	
Week 3	Lines, average rate of change	
Week 4	Definition of derivative and short-cuts	
Week 5	Chain rule and combination derivatives	
Week 5 and 6	Implicit, higher order derivatives, related rates	Test 2 emphasizes

Week 7	Exponential and log functions	this material
Week 8	Derivatives of exponential and log functions	
November 1 to November 7 FALL READING WEEK		
Week 9	Increasing/decreasing and max/min	Final exam emphasizes this material (but tests entire course)
Week 10	Concavity, inflection, and 2nd derivative test	
Week 11	Optimization with applications	
Week 12	Asymptotes and curve sketching	

Key Sessional Dates:

Classes begin: September 8, 2021
Reading Week: November 1–7, 2021
Classes end: December 8, 2021

4. Course Materials

Textbook:

Custom Text for Mathematics 0110A/B, 1225A/B and 1230A/B
OPTION 1: print text with homework solutions book (any edition)
OPTION 2: e-Book with homework solutions e-book (any edition)

OWL Website:
Students are responsible for checking the course OWL site (http://owl.uwo.ca) on a regular basis 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 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

- Computer or laptop access
- Stable internet connection
- Paper, pencils, and erasers
- *Recommended but not required*: access to a printer

Comments About Learning Mathematics:

- Mathematics is important as its own discipline but is also important because (1) it is a language and set of structures that allow us to efficiently discuss, model, and explain our physical reality; and (2) it provides a form of intellectual exercise that enhances our ability to solve (mathematical and non-mathematical) problems, think creatively, argue concisely, and navigate challenges that may not at all resemble mathematics.
- In the first sense, learning mathematics is about being able to perform specific operations and procedures for applications, analogous to learning to fly a plane or cook a complicated meal.

People heading to professional routes that clearly uses mathematics (economics, finance, physics, actuarial science, etc) can justify the effort needed in terms of direct utility.
- In the second sense, learning mathematics is more like exercising in preparation to perform better at a sport. There may be resentment at running laps or lifting weights when you start the journey because the connection is harder to see, but there is undeniable benefit.

5. Methods of Evaluation

Students will be assessed based on:

- Quizzes and Assignments (20%) – dates/times/format will be indicated on OWL
- Test 1 (23%) – Friday, October 15 from 7:00 – 9:00 PM Eastern Time
    - If your test 1 score is lower than your test 2 or exam score, your test 1 weight will be reduced to 13%, and your **best** assessment between the final exam and test 2 will have an additional 10% weight applied (so either your test 2 becomes 33% weight or your exam becomes 44% weight, depending on which is better)
- Test 2 (23%) – Friday, November 12 from 7:00 – 9:00 PM Eastern Time
- Final Exam (34%) – Scheduled during the exam period (3 hours)

Note 1: Information about how the Quiz and Assignment component will be assessed, and details of the timing, will be announced in class and posted on the OWL web site. Quizzes will be either online or in-class.
Note 2: **The use of calculators and other electronic devices during the term tests or final exam is prohibited.**

In the event of a health lockdown, 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.

Appropriate Use of Learning Environment

- The course web site is hosted on OWL. It requires login using your UWO credentials.
- Course materials on the OWL page including notes, videos, and related are copyright-protected by the instructor and cannot be distributed
- Uploading of any course materials to websites or social media is strictly forbidden and will result in serious academic sanctions
- Class activities may not be recorded (video or audio) by students. This is to protect the privacy of everyone in attendance.

Academic Integrity

- It is expected that all work you submit will be your own.
- Academic integrity policies at Western require that instructors forward to their department chair or director any evidence of academic offenses
- Cheating is taken seriously to protect the integrity of our measures of your learning
- 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**
- Tests and exams may be subject to similarity review (by hand or by software) to check for unusual coincidences in answer patterns that may indicate cheating.

Notes about assessment format

- This is an introductory course in calculus that primarily prepares students for further study of calculus in math 1225A/B and math 1230A/B. It is also preparatory for calculus 1000A/B and calculus 1500A, though students heading into those higher-level calculus courses will also need to independently review trigonometry.
    - That this course creates a pathway to calculus 1000A/B and 1500A means we must maintain a high standard, which is reflected in the assessment format
- Tests are in-person, proctored, closed book, no calculator.
- Practice tests and exams are available on OWL, and are extremely helpful preparation

Makeup Tests

- Makeup tests will be held for students approved to write a makeup due to academic conflict or confirmed medical issue or on confirmed compassionate grounds
    - Birthdays, social activities, family trips, etc are not grounds for a makeup

Your mark in the course will be the mark that you earn based on your demonstrated understanding of the course content, assessed using the outlined criteria. Extra credit assignments are not available, and tests and exams cannot be rewritten to obtain a higher mark.

6. Student Absences

Academic Consideration for Student Absences

Students who experience an extenuating circumstance (illness, injury or other extenuating circumstance) sufficiently significant to temporarily render them unable to meet academic requirements may submit a request for academic consideration through the following routes:

(i) Submitting a Self-Reported Absence (SRA) form provided that the conditions for submission are met. To be eligible for a Self-Reported Absence:

- an absence must be no more than 48 hours
- the assessments must be worth no more than 30% of the student's final grade
- no more than two SRAs may be submitted during the Fall/Winter term

(ii) For medical absences, submitting a Student Medical Certificate (SMC) signed by a licensed medical or mental health practitioner to the Academic Counselling office of their Faculty of Registration.

(iii) Submitting appropriate documentation for non-medical absences to the Academic Counselling office in their Faculty of Registration.

Note that in all cases, students are required to contact their instructors within 24 hours of the end of the period covered, unless otherwise instructed in the course outline.

Students should also note that individual instructors are not permitted to receive documentation directly from a student, whether in support of an application for consideration on medical grounds, or for other reasons. **All documentation required for absences that are not covered by the Self-Reported Absence Policy must be submitted to the Academic Counselling office of a student's Home Faculty.**

For the policy on Academic Consideration for Student Absences – Undergraduate Students in First Entry Programs, see:

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

and for the Student Medical Certificate (SMC), see:

http://www.uwo.ca/univsec/pdf/academic_policies/appeals/medicalform.pdf.

Religious Accommodation

When a course requirement conflicts with a religious holiday that requires an absence from the University or prohibits certain activities, students should request accommodation for their absence in writing at least two weeks prior to the holiday to the course instructor and/or the Academic Counselling office of their Faculty of Registration. Please consult University's list of recognized religious holidays (updated annually) at

https://multiculturalcalendar.com/ecal/index.php?s=c-univwo.

Absences from Final Examinations

If you miss the Final Exam, please contact the Academic Counselling office of your Faculty of Registration as soon as you are able to do so. They will assess your eligibility to write the Special Examination (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" (e.g., more than 2 exams in 23-hour period, more than 3 exams in a 47-hour period).

If a student fails to write a scheduled Special Examination, the date of the next Special Examination (if granted) normally will be the scheduled date for the final exam the next time this course is offered. The maximum course load for that term will be reduced by the credit of the course(s) for which the final examination has been deferred. See the Academic Calendar for details (under Special Examinations).

6. Accommodation and Accessibility

Accommodation Policies
Students with disabilities work with Accessible Education (formerly SSD), 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,

7. Academic Policies

The website for Registrarial Services is http://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 his/her official university address is attended to in a timely manner.

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.

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.

8. Support Services

Please visit the Science & Basic Medical Sciences Academic Counselling 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/.

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 (519) 661-2147 if you have any questions regarding accommodations.

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/.

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/mentalhealth) 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.