

Calculus 1000A – Calculus I Fall/Winter 2021-2022 Course Outline

1. Course Information

Course Name: Calculus I
Course Number: CALC 1000A
Academic Term: FW21

Section	Dates	Time	Room	Instructor
Lecture (LEC 200) ONLINE	Asynchronous	N/A	N/A	N/A
Tutorial (TUT 002)	Monday/Wednesday	12:30pm – 1:30pm	SSC-2024	Khalkhali
Tutorial (TUT 003)	Monday/Thursday	1:30pm – 2:30pm	SSC-2028	Boudreaux
Tutorial (TUT 004)	Monday/Wednesday	1:30pm – 2:30pm	SSC-2036	Kiriushcheva
Tutorial (TUT 005)	Monday/Wednesday	9:30am – 10:30am	SSC-2032	Ghorbanpour
Tutorial (TUT 006)	Monday/Wednesday	8:30am – 9:30am	MC-105B	Franz
Tutorial (TUT 007)	Monday/Wednesday	7:00pm – 8:00pm	SSC-2032	Nguyen
Tutorial (TUT 008)	Monday/Wednesday	11:30am – 12:30pm	SSC-2024	Khalkhali
Tutorial (TUT 009)	Monday/Wednesday	10:30am – 11:30am	MC-105B	Yu
Tutorial (TUT 010)	Monday/Wednesday	6:30pm – 7:30pm	SSC-2024	Verhoeven
Tutorial (TUT 012)	Tuesday/Friday	12:30pm – 1:30pm	SSC-2028	Yu
Tutorial (TUT 013)	Wednesday/Friday	1:30pm – 2:30pm	MC-105B	Franz
Tutorial (TUT 014)	Tuesday/Thursday	1:30pm – 2:30pm	MC-105B	Ghorbanpour
Tutorial (TUT 015)	Tuesday/Thursday	9:30am – 10:30am	B&GS-0153	Reid
Tutorial (TUT 016)	Tuesday/Friday	8:30am – 9:30am	SSC-2028	Boudreaux
Tutorial (TUT 017)	Monday/Wednesday	8:30am – 9:30am	SSC-2024	Kiriushcheva
Tutorial (TUT 018)	Tuesday/Friday	11:30am – 12:30pm	MC-105B	Nguyen
Tutorial (TUT 019)	Tuesday/Thursday	10:30am – 11:30am	MC-105B	Kiriushcheva
Tutorial (TUT 020)	Tuesday/Thursday	7:00pm – 8:00pm	SSC-2028	Verhoeven

Tutorial (TUT 021)	Tuesday/Thursday	8:30am – 9:30am	SSC2024	Reid
Tutorial (TUT 022)	Monday/Wednesday	5:30pm – 6:30pm	SSC-2028	TBA
Tutorial (TUT 023)	Tuesday/Thursday	8:30am – 9:30am	HSB-35	TBA

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

Antirequisites: Calculus 1500A/B, the former Calculus 1100A/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

Students must use their Western (@uwo.ca) email addresses when contacting their instructors and put “CALC 1000A” in the subject line in addition to other identifiers. Feedback on calculus should be sought through office hours, in tutorial, or via the math help centre. Remember to check announcements and the FAQ on our OWL page before contacting the course coordinator or your instructor. Issues related to the business of a given tutorial should be directed to the instructor associated to that tutorial before involving the course coordinator. Instructors will endeavour to reply to student queries within five business days, although response times may be longer depending on the volume of emails received. It is your responsibility to ensure you raise your concerns in a timely manner.

Course Staff:

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Program Coordinator
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Dr. Blake Boudreaux
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Dr. Matthias Franz
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Dr. Pei Yu
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Office hours: Each instructor will offer weekly consultation time and the details can be located on the OWL page associated to your TUT section. These office hours may be held in person or online (Zoom/MS Teams) and it is important that you check OWL regularly for updates/changes to the scheduling of these times.

3. Course Description

Review of limits and derivatives of exponential, logarithmic, and rational functions. Trigonometric functions and their inverses. The derivatives of the trig functions and their inverses. L'Hospital's rules. The definite integral. Fundamental Theorem of Calculus. Simple substitution. Applications of integration, including areas of regions and volumes of solids of revolution.

Learning Outcomes

Upon successful completion of this course, students will be able to:

1. Compute the limits of functions at a point or at infinity using methods of algebra, limit laws, and related concepts.
2. Define the notion of continuous function and be able to determine if a given function is continuous using limits or other theorems.
3. Explain the role of limits in the definition of derivatives and integrals, and how the ideas of continuity, differentiability, and integrability are related to one another.
4. Compute derivatives and integrals of various algebraic, trigonometric, exponential, and logarithmic functions.
5. Deduce properties of the graph of a function from its derivatives and apply these concepts to solve optimization problems.
6. Apply the idea of the definite integral to compute areas between curves.

Course Content Schedule

Week	Dates	Topic	Text Reference Sections
1	Sept 8 – 12	Introduction and Review	1.1, 1.2
2	Sept 13 – 19	Exponential, Trigonometric, and Inverse functions	1.3, 1.4, 1.5
3	Sept 20 – 26	Limits and Continuity	2.2, 2.3, 2.4
4	Sept 27 – Oct 3	Limits at infinity/The Derivative	4.6, 3.1, 3.2
5	Oct 4 – 10	Derivative as a Function/Differentiation Rules	3.2, 3.3, 3.5, 3.7
6	Oct 11 – 17	The Chain Rule/Implicit Differentiation	3.6, 3.8
7	Oct 18 – 24	Derivatives of Logarithmic Functions/Related Rates	3.9, 4.1
8	Oct 25 – 31	Maximum and Minimum Values/Relationship Between Derivatives and the Shape of the Graph	4.3, 4.5
9	Nov 1 – 7	Reading Week	N/A
10	Nov 8 – 14	Optimization Problems/L'Hospital's Rules and Indeterminate Forms	4.7, 4.8
11	Nov 15 – 21	Antiderivatives/Sigma Notation	4.10, 5.1
12	Nov 22 – 28	The Definite Integral/Fundamental Theorem of Calculus	5.2, 5.3
13	Nov 29 – Dec 5	Simple Substitution/Areas Between Curves	5.4, 5.5, 5.6, 6.1
14	Dec 6 – 8	Volumes/Review	6.2

**The above schedule is *tentative*, and minor adjustments may be made as the course progresses.

Other Important Dates

Classes begin: September 8, 2021.

Reading Week: November 1–7, 2021.

Classes end: December 8, 2021.

Study Day: December 9, 2021.

Exam Period: December 10-21, 2021.

COVID Contingency plan

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 TUT sessions will be delivered entirely online via Zoom. The times for these synchronous meetings will coincide with those listed in the timetable. The course content will continue to be delivered asynchronously via OWL. The nature of the quizzes and homework assignments will remain the same. The grading scheme will **not** change. Any remaining term tests will also be conducted online as determined by the course staff.

4. Course Materials

Required Text:

Calculus: Volume 1, by Gilbert Strang and Edwin “Jed” Herman (OpenStax, 2016) – Access for free at <https://openstax.org/books/calculus-volume-1/pages/1-introduction>

Optional Additions:

CLP Calculus 1 and 2, by Joel Feldman, Andrew Rechnitzer, and Elyse Yaeger (UBC 2018) – Access for free at <https://secure.math.ubc.ca/~CLP/>

Single Variable Calculus: Early Transcendentals (8th edition), by James Stewart (Cengage/Brooks Cole) – This is another text used for the most versions of Calculus 1000A. While it is not required that you have access to this text, some students may benefit from an additional resource. The text is currently in its 9th edition.

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.

All course material will be posted to OWL: <http://owl.uwo.ca>.

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

Students will be required to purchase a license for the Mobius online assessment platform. The cost of this license is approximately 30 CAD. Purchases can be made through links provided in OWL. When registering your license make sure to use your @uwo.ca email address and have your Student ID ready. Deferred payment options may be available. Licences cannot be purchased after December 9, 2021.

Gradescope (<https://www.gradescope.ca/>) will be used as a grading platform for written work in the course. A free account will be created on your behalf, although you will be required to verify the account and change the password during the first week of class. Details regarding the set-up of your account and the submission requirements for your written work will be posted on OWL. It is the responsibility of the student to ensure their homework assignments are submitted in the correct format (PDF or PNG.) Submitting work in an improper format may result in your work not being graded, and this cannot form the basis of a regrade request. Additionally, the two term tests may be scanned by the course staff and uploaded to Gradescope for grading and viewing

Additionally, students will need:

- a laptop or computer;
- a stable internet connection;
- a working microphone and webcam;

- to have installed recent versions of Chrome AND Firefox browsers, a pdf reader, and Zoom on their computer;
- a device for scanning (either a scanner or an app that can be used in conjunction with your device's camera).

Students without reliable access to YouTube must install an mp4 player on their computer so they may view video lessons. An up-to-date browser like Chrome will likely satisfy this requirement.

5. Methods of Evaluation

Calculus 1000A is a blended course with asynchronous online delivery of lecture material and course content. Students are expected to attend lectures by completing various activities (reading prescribed sections of the text or completing video lessons, for example), although you are permitted to schedule these activities during a given week in a way that is personally optimal. A list of suggested exercises from the text will be provided in OWL to supplement the weekly lessons. All of the evaluations (homework, quizzes, tests, and exam) for Calculus 1000A are based on the course material distributed in this manner.

Additionally, your instructor will host in-person tutorial sessions each week to review and expand on the lesson(s) from the previous week. These may take the form of a supplementary lecture, problem session, or a discussion, depending on the week, but will always be scheduled to conclude within your allotted tutorial time. Attendance will not be taken but is very strongly encouraged.

The overall course grade will be calculated as listed below:

Assessment	Format	Weighting	Date
Submitted Homework	Online, asynchronous, via Gradescope	Equally weighted assessments totaling 10% of final grade	Weekly (varies)
Quizzes	Online, synchronous, via Mobius	Equally weighted assessments totaling 10% of final grade	Weekly (varies)
Test 1	In-person	20%	Saturday, October 16, 7pm until 9pm
Test 2	In-person	20%	Saturday, November 13, 7pm until 9pm
Final Exam	In-person	40%	TBA (3 Hours)

- Test 1 and test 2 will be 120 minutes in duration and will consist of a mixture of short answer and multiple-choice-style questions. *These will be closed book tests.*
- The final exam will be cumulative, 180 minutes in duration, and will consist of a mixture of short answer and multiple-choice-style questions. *This will be a closed book exam.*

Accommodated Evaluations

Missing a quiz, term test, the final exam, or the due date of a submitted homework assessment will result in a grade of zero unless appropriate permission is sought and granted (see section 6 below.) In the case of quizzes and homework assignments your mark will be re-weighted to exclude the missed assessment. In the case of a missed term test, a makeup test will be arranged. If a student misses a term test and the corresponding makeup test and has appropriate permission for both, then the final exam will be re-weighted to include the weight of the missed term test.

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).

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.

The use of calculators and other electronic devices during the term tests or final exam is prohibited.

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.

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.

In the event of a health lock-down 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>.