MATH*1200 Calculus I

Fall 2019
Section(s): C01, C02

Department of Mathematics & Statistics
Credit Weight: 0.50
Version 2.00 - September 13, 2019

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1 Course Details

1.1 Calendar Description

This is a theoretical course intended primarily for students who expect to pursue further studies in mathematics and its applications. Topics include inequalities and absolute value; compound angle formulas for trigonometric functions; limits and continuity using rigorous definitions; the derivative and derivative formulas (including derivatives of trigonometric, exponential and logarithmic functions); Fermat's theorem; Rolle's theorem; the mean-value theorem; applications of the derivative; Riemann sums; the definite integral; the fundamental theorem of calculus; applications of the definite integral; the mean value theorem for integrals.

Pre-Requisites:	1 of 4U Calculus and Vectors, 4U Advanced Functions and Calculus or Grade 12 Calculus
Restrictions:	IPS*1500, MATH*1080

1.2 Course Description

This course is an introductory course in Calculus. The objective of the course is to give you a strong mathematical background that you will require as you progress through your degree. The main goals of the course are (1) to teach students the Calculus concepts listed in the Calendar Description at a level that promotes a deep understanding and (2) to explain how such concepts are applicable in their various degrees by exploring real-world problems.

1.3 Timetable

Lectures (Section 01)		
Monday	11:30am-12:20pm	THRN*1200
Wednesday	11:30am-12:20pm	THRN*1200
Friday	11:30am-12:20pm	THRN*1200

Lectures (Section 02)		
Monday	5:30pm-6:50pm	WMEM*103
Wednesday	5:30pm-6:50pm	WMEM*103

Tutorials		
Friday	12:30pm-1:20pm	ROZH*104
Friday	4:30pm-5:20pm	ALEX*200

1.4 Final Exam

Thursday, December 12, 2019 from 8:30am-10:30am

Location to be announced on Courselink and in class.

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2 Instructional Support

2.1 Instructional Support Team

Instructor: Kimberly Levere PhD
Email: klevere@uoguelph.ca
Telephone: +1-519-824-4120 x56908
Office: MACN 539

Office Hours: Dates and times are as follows:

Mondays (Kim)	12:30pm - 1:30pm and 3:30pm - 4:30pm (THRN*1425)
Tuesdays (Connor)	10:00am-11:30am (MACN*536)
Wednesdays (Kim)	1:30pm - 2:30pm (THRN*1425)
Thursdays (Myles)	2:30pm-4:00pm (MACN*536)
Fridays (Kim)	10:00am - 11:00am (THRN*1425)

Due to large class size, office hours are held in a group setting. I have found this to be a very productive and supportive learning environment in the past. Should you require an individual, private appointment, please contact me by email to set up a meeting.

2.2 Teaching Assistants

Danielle St. Jean	Lia Humphrey
Momina Dar	Matthew Kreitzer
John Dewhurst	Myles Nahirniak
Eric Fernandes	Daiana Spataru
Roie Fields	Ali Tehrani
Liam Graham	Leann Tran
Connor Gregor	Britanny Howell

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3 Learning Resources

3.1 Required Resources

MATH*1200 - Calculus I - Course Manual (7th Edition) (Textbook)

M. Demers and K. Levere, MATH*1200 – Calculus I Course Manual (7^{th} Edition), available at the MacNaughton Bookstore.

This is the primary resource for this course and functions both as a textbook, and as a notebook that we will complete together in class as the course progresses. Please be sure that you have the current version, the 7^{th} edition, (only available at the MacNaughton Bookstore) as a number of changes have

been made to last year's manual.

3.2 Additional Resources

Completed Notes (Notes)

Completed lecture notes will be uploaded to the Course website at the end of every week. This is not a substitute for lecture attendance! I strongly recommend that you attend every class.

Courselink Website (Website)

Course material, news, announcements, and grades will be regularly posted to the MATH*1200 Courselink website. You are responsible for keeping up-to-date on this site.

3.3 Additional Questions/Tests/Exams

Past tests, supplementary questions, and other resources may be posted on the Course website as needed. Again, it is important that you check regularly to keep up-to-date.

3.3 Maple TA Miniquiz Link

A link to the Maple TA website is available through the Course website. Do not try to find the Maple TA site by doing a web search; you may find the wrong page if you do this. You can login using your Central Student ID and password. If you have any issues accessing the online quizzes, please contact me klevere@uoguelph.ca. Be as specific as you can so that I can more easily be helpful; include your name and student number.

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4 Learning Outcomes

4.1 Course Learning Outcomes

By the end of this course, you should be able to:

1. Evaluate, graph and know the properties of a variety of functions, including trigonometric, logarithmic, and exponential functions.
2. Establish a set of techniques for solving inequalities (perhaps involving absolute value).
3. Establish a set of techniques for treating a wide variety of limits including basic limits and indeterminate forms. Have an understanding of what a limit is calculating.
4. Prove limits using a delta-epsilon definition.
5. Understand what the derivative of a function is and how to calculate it using basic formulas, or the first-principles definition of the derivative.
6. Apply theoretical results in mathematical reasoning.
7. Calculate antiderivatives (definite and indefinite) of basic, through to complicated functions and compositions of functions.
8. Understand the Riemann sum and how it motivates the definite integral.
9. Calculate the area under a curve or between several curves.
10. Solve word problems by applying formulas and techniques learned in class.
11. Identify inadmissible solutions that arise mathematically but are not logical possibilities in a given problem.
12. Think critically about complicated mathematical problems. Question the potential subtleties of such problems and give a complete and correct answer.

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5 Teaching and Learning Activities

(schedule is approximate and subject to change depending on time constraints)

5.1 Lecture

When	Topic	Reference
	Review of Functions – basic functions, trigonometric functions, exponential and logarithmic functions.	Self Study - Chapter 1
Week 1	Piecewse functions, the absolute value function, and inequalities.	Chapter 2

When	Topic	Reference
Week 2	Limits & Continuity	Chapter 3
Week 3	The Formal Definition of a Limit	Chapter 4
Week 4	Continuity Theorems	Chapter 5
Week 5	Derivatives	Chapter 6
Week 6	Implicit Derivatives & Applications	Chapter 7
Week 7	Derivative Theory	Chapter 8
Week 8	Applications of Differentiation	Chapter 9
Week 9	Antiderivatives	Chapter 10
Week 10	Riemann Sums	Chapter 11
Week 11	Definite Integrals	Chapter 11
Week 12	Applications of Integration	Chapter 12

5.2 Tutorials

A weekly lab session will give you the opportunity to tackle tougher problems or extra practice questions. I may also use this time to cover course material directly from the Course Manual. It is your responsibility to obtain completed notes from lab tutorials if you cannot attend as **these will not be posted online** unless otherwise specified.

6 Assessments

6.1 Marking Schemes & Distributions

Name	Scheme A (%)	Scheme B (%)
Warm up Test	10	0
Term Test 1	20	20
Term Test 2	20	20
Final Exam	40	50
Maple TA Miniquizzes	10	10
Total	100	100

6.2 Assessment Details

Warm up Test (10%)

Date: Fri, Sep 20, 6:00 PM - 7:15 PM

Location: Last Names: A-Do report to ROZH*103

Last Names: Dr-Z report to ROZH*104

This assessment is intended to assist you in figuring out how prepared you are for this course. It also serves as an introduction to what the university testing environment looks like. Covering basic math constructs and functions (no Calculus at all on this one!), let's

make sure that we are all starting off on a good foot. This will help you to target any concepts that may not be a part of your from high school so that you can brush up and be ready to go with our course content. If the warm up goes well, you can count it as 10% of your final grade, or, if you find out that you have a few things to study, you can instead count the warm up as 0% of your final grade and shift the weight to your final exam. No need to tell me which grading scheme you want; I'll calculate your grade both ways at the end of the semester and give you the more favourable option automatically.

Term Test 1 (20%)
Date: Fri, Oct 18, 6:00 PM - 7:30 PM
Location: Last Names: A-Do report to ROZH*103

Last Names: Dr-Z report to ROZH*104

Details and content to be discussed in class and posted on Courselink.

Term Test 2 (20%)
Date: Fri, Nov 15, 6:00 PM - 7:30 PM
Location: Last Names: A-Do report to ROZH*103

Last Names: Dr-Z report to ROZH*104

Details and content to be discussed in class and posted on Courselink.

Final Exam (40%)
Date: Thu, Dec 12, 08:30 AM - 10:30 AM, TBA

Maple TA Miniquizzes (10%)
Date: Weekly, due Thursday's at 6:00pm
There will be 1-2 Maple TA miniquizzes posted each week for you to complete. The content of these quizzes will be material covered in the previous week of classes. You have unlimited attempted to do each miniquiz up until their assigned due date. Your grade for each miniquiz will be equal to the highest grade received from all attempts you have taken at the miniquiz within the allotted time. The first MapleTA miniquizzes that will count toward your final grade will be due on **Thursday, September 19th, at 6:00pm (Week 2)** Quizzes will continue to be due weekly, each Thursday at 6:00pm throughout the semester.

To help you to learn the Maple TA system, I have posted a syntax quiz that will help you to learn how to properly input your answers and navigate the system. I highly recommend that you attempt this quiz a few times so that you are comfortable.

6.3 Rule of 48

You must receive at least 50% of the marks available, in total, on term tests and final exam

that are used to calculate your final grade. That is,

(Total marks earned on term tests and exam) ÷ (Total marks available on term tests and exam) ≥ 50%

If you do not achieve this, your maximum possible final grade will be 48%, no matter what grade you receive on the Miniquizzes component. Provided that you satisfy the above equation, your final grade will be calculated using the more favourable of the above two grading schemes.

6.4 Catch-up Quizzes

Often times, the warm up test may indicate that there are a few areas that you may be a bit rusty on! That's ok! In an effort to help you brush up on those skills that you might be lacking, I spent some time this summer creating "Catch up Modules" and associated adaptive quizzes. These modules and quizzes appear in the online quizzing software used in this course, MapleTA under "Catch-up Modules".

How does it work?

Simply read through a module and complete the in-module problems. Then, complete the associated mastery quiz. Mastery quizzes are designed to graduate you through increasingly difficult questions according to your progress. Because of some software limitations, an incorrect response will immediately end the quiz. You'll need to keep trying this quiz and get enough consecutive questions right to achieve "mastery" on that quiz. Don't get frustrated; the practice is SO good for you! It is so often the little stuff that causes big mistakes on tests, so this effort is worth every minute you spend!

What's in it for you?

If you successfully "master" each of the available quizzes, you will be awarded a 2% bonus on your final grade.

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7 Course Statements

7.1 Religious Obligations

If you are unable to meet an in-course requirement due to religious obligations, please email the course instructor at the start of the semester to make alternate arrangements. See the undergraduate calendar for information on regulations and procedures for Academic Accommodation of Religious Obligations:
http://www.uoguelph.ca/registrar/calendars/undergraduate/current/c08/c08-accomrelig.shtml

7.2 Missed Assessments

Missed tests and/or miniquizzes will receive a grade of 0%, unless they are missed due to any of the above reasons, in which case the weight of the missed test or miniquiz will be added to the final exam. There will be no makeup tests or miniquizzes.

7.3 Other Important Dates

First day of classes:	Thursday, September 5th, 2019.
Thanksgiving:	Monday, October 14th, 2019. (no classes)
Fall Study Day:	Tuesday, October 15th,2019. (no classes)
Last day of regularly scheduled classes:	Friday, November 29th, 2019.

*****Note: Thursday, November 28 runs as a Tuesday (in lieu of Fall Study Day), Friday, November 29 runs as a Monday (in lieu of Thanksgiving)*****

8 University Statements

8.1 Email Communication

As per university regulations, all students are required to check their e-mail account regularly: e-mail is the official route of communication between the University and its students.

8.2 When You Cannot Meet a Course Requirement

When you find yourself unable to meet an in-course requirement because of illness or compassionate reasons please advise the course instructor (or designated person, such as a teaching assistant) in writing, with your name, id#, and e-mail contact. The grounds for Academic Consideration are detailed in the Undergraduate and Graduate Calendars.

Undergraduate Calendar - Academic Consideration and Appeals
https://www.uoguelph.ca/registrar/calendars/undergraduate/current/c08/c08-ac.shtml

Graduate Calendar - Grounds for Academic Consideration
https://www.uoguelph.ca/registrar/calendars/graduate/current/genreg/index.shtml

Associate Diploma Calendar - Academic Consideration, Appeals and Petitions
https://www.uoguelph.ca/registrar/calendars/diploma/current/index.shtml

8.3 Drop Date

Students will have until the last day of classes to drop courses without academic penalty. The deadline to drop two-semester courses will be the last day of classes in the second semester. This applies to all students (undergraduate, graduate and diploma) except for Doctor of Veterinary Medicine and Associate Diploma in Veterinary Technology (conventional and alternative delivery) students. The regulations and procedures for course registration are available in their respective Academic Calendars.

Undergraduate Calendar - Dropping Courses
https://www.uoguelph.ca/registrar/calendars/undergraduate/current/c08/c08-drop.shtml

Graduate Calendar - Registration Changes
https://www.uoguelph.ca/registrar/calendars/graduate/current/genreg/genreg-reg-regchg.shtml

Associate Diploma Calendar - Dropping Courses
https://www.uoguelph.ca/registrar/calendars/diploma/current/c08/c08-drop.shtml

8.4 Copies of Out-of-class Assignments

Keep paper and/or other reliable back-up copies of all out-of-class assignments: you may be asked to resubmit work at any time.

8.5 Accessibility

The University promotes the full participation of students who experience disabilities in their academic programs. To that end, the provision of academic accommodation is a shared responsibility between the University and the student.

When accommodations are needed, the student is required to first register with Student Accessibility Services (SAS). Documentation to substantiate the existence of a disability is required; however, interim accommodations may be possible while that process is underway.

Accommodations are available for both permanent and temporary disabilities. It should be noted that common illnesses such as a cold or the flu do not constitute a disability.

Use of the SAS Exam Centre requires students to book their exams at least 7 days in advance and not later than the 40th Class Day.

For Guelph students, information can be found on the SAS website
https://www.uoguelph.ca/sas

For Ridgetown students, information can be found on the Ridgetown SAS website
https://www.ridgetownc.com/services/accessibilityservices.cfm

8.6 Academic Integrity

The University of Guelph is committed to upholding the highest standards of academic integrity, and it is the responsibility of all members of the University community-faculty, staff, and students-to be aware of what constitutes academic misconduct and to do as much as possible to prevent academic offences from occurring. University of Guelph students have the responsibility of abiding by the University's policy on academic misconduct regardless of their location of study; faculty, staff, and students have the responsibility of supporting an environment that encourages academic integrity. Students need to remain aware that instructors have access to and the right to use electronic and other means of detection.

Please note: Whether or not a student intended to commit academic misconduct is not relevant for a finding of guilt. Hurried or careless submission of assignments does not excuse students from responsibility for verifying the academic integrity of their work before submitting it. Students who are in any doubt as to whether an action on their part could be construed as an academic offence should consult with a faculty member or faculty advisor.

Undergraduate Calendar - Academic Misconduct
https://www.uoguelph.ca/registrar/calendars/undergraduate/current/c08/c08-amisconduct.shtml

Graduate Calendar - Academic Misconduct
https://www.uoguelph.ca/registrar/calendars/graduate/current/genreg/index.shtml

8.7 Recording of Materials

Presentations that are made in relation to course work - including lectures - cannot be recorded or copied without the permission of the presenter, whether the instructor, a student, or guest lecturer. Material recorded with permission is restricted to use for that course unless further permission is granted.

8.8 Resources

The Academic Calendars are the source of information about the University of Guelph's procedures, policies, and regulations that apply to undergraduate, graduate, and diploma programs.

Academic Calendars
https://www.uoguelph.ca/academics/calendars
