

Elementary Calculus I - Fall 2022

Bit 1200 A / Math 1007 B

- **Instructor:** Gennady Shaikhet
- **Office:** 5259 HP
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- **Office hours:** Monday, 12:00 – 13:00, or by appointment

Class schedule

- **Lectures:** Monday and Wednesday 10:05 – 11:25, at Azrieli Theatre 301
- **Tutorials:** (**Starting Sept 19**) Monday, 14:35 – 15:25, at TBA.

Textbook and Required Resources

Hass, Weir, Thomas, *Single Variable University Calculus, Early Transcendentals*, 4th ed.,

This course will be using Pearson's MyLabMath for weekly homework assignments, and practice. **You are required to purchase MyLabMath** in one of the two options outlined below:

- MyLabMath Access Only - Use Link Provided:

<https://pearsonhighered.onthelhub.com/WebStore/OfferingDetails.aspx?o=623f781a-6a91-ea11-812b-000d3af41938>

No textbook access. Only MyLabMath. This is a good option if you do not want the textbook, already have the textbook, or find a cheap copy/older version of the textbook elsewhere.

- MyLabMath Access and eText Access – Use Link Provided:

<https://pearsonhighered.onthelhub.com/WebStore/OfferingDetails.aspx?o=58872712-6aee-ea11-812e-000d3af41938>

In addition to the MyLabMath, this option gives you an access to the textbook in an online format.

Note: When making purchases from the above links, you will be prompted to create an account with Pearson. Make sure to use your Carleton email address to create that account.

You may also be able to purchase an access through the Carleton Bookstore. The prices may be different.

Please Vincent Liardi Vincent.Liardi@pearson.com for technical questions regarding the purchase.

Prerequisites

Ontario Grade 12 Mathematics: Advanced Functions (or equivalent), or MATH 0005 & MATH 0006.

If you do not have the prerequisite, you will likely have a very difficult time in this course! It is suggested to drop the course and take MATH 0005 + MATH 0006 before taking this course if you did not do Grade 12 Advanced Functions (or equivalent)!

Course grade policy

The course grade is composed of weekly home assignments (20%), in-person quizzes (30%) and the in-person final exam (50%).

- **Homework:** there will be **11** home assignments. **10 best marks (out of 11) will be counted towards the final grade.**
- **Quizzes:** there will be **6** short in-person quizzes. **5 best marks (out of 6) will be counted towards the final grade.**
- **Final exam:** to be scheduled by the University, during the official examination period.

Homework Schedule

<u>Home assignment N</u>	<u>Due date</u>
1	Sep 23, 23:59
2	Sep 30, 23:59
3	Oct 7, 23:59
4	Oct 14, 23:59
5	Oct 21, 23:59
Break Week	Oct 28 - Break Week
6	Nov 4, 23:59
7	Nov 11, 23:59
8	Nov 18, 23:59
9	Nov 25, 23:59
10	Dec 2, 23:59
11	Dec 9, 23:59

Quizzes Schedule

<u>Quiz N</u>	<u>Date & time</u>
1	Sep 19, 14:35-15:05
2	Oct 3, 14:35-15:05
3	Oct 17, 14:35-15:05
4	Oct 31, 14:35-15:05
5	Nov 14, 14:35-15:05
6	Nov 28, 14:35-15:05

All quizzes are in-person, ~30 minutes in duration, and are scheduled for **Mondays**, during the **tutorials**. No make-up, early or late tests or quizzes will be arranged; absence is excused only for medical reasons (a doctor's note may be presented), or situations in accordance with Carleton's accommodation policies.

For your attention

- Students must respect the principles of academic integrity. For the university policy see: <https://carleton.ca/registrar/academic-integrity/>
- **No calculators** or other electronic aids are allowed for quizzes or for the final exam.
- It is each student's responsibility to be available at the time of the examination. In particular, no travel plans should be made until the examination schedule is published. It is each student's responsibility to find out the correct date and time of the exam and the room where it takes place.
- Students who miss the examination may be eligible for a deferred exam. Contact the Registrar's Office for more details.
- Students wishing to see their examination papers must make an appointment with the instructor within two weeks of the examination. Kindly note that this is a privilege for students to learn where they went wrong, not an opportunity to argue about the marking.

Intellectual property notice

Materials created for this course (including lecture notes, posted/recorded videos, assignments and tests and posted solutions, the final exam, etc..) remain the intellectual property of the instructor. These materials are intended for the personal and non-transferable use of students registered in the current offering of the course. Students registered in the course may take notes and make copies of course materials for their own educational use only. Students are not permitted to reproduce or distribute lecture notes and course materials publicly for commercial or non-commercial purposes without written consent from the instructor.

Deferrals, Petitions and Appeals

Students are expected to be available for the duration of a course including the examination period. Dates and deadlines are made available to students in the Carleton University Undergraduate Calendar well in advance of registration. For more information, please consult:

<https://carleton.ca/registrar/special-requests/deferral/>

Academic Accommodations for Students with Disabilities

The Paul Menton Centre for Students with Disabilities (PMC) provides services to students with Learning Disabilities (LD), psychiatric/mental health disabilities, Attention Deficit Hyperactivity Disorder (ADHD), Autism Spectrum Disorders (ASD), chronic medical conditions, and impairments in mobility, hearing, and vision. If you have a disability requiring academic accommodations in this course, please contact PMC at 613-520-6608 or pmc@carleton.ca for a formal evaluation. If you are already registered with the PMC, contact your PMC coordinator to send the course instructor your Letter of Accommodation at the beginning of the term, and no later than two weeks before the first in-class scheduled test or exam requiring accommodation (if applicable).

After requesting accommodation from PMC, communicate with the instructor to ensure accommodation arrangements are made. Please consult the PMC website for the deadline to request accommodations for the formally-scheduled exam. For more information, see: <https://carleton.ca/pmc/>

Other accommodations

Contact the instructor with any requests for academic accommodation during the first two weeks of class, or as soon as possible after the need for accommodation is known to exist. Visit

<https://carleton.ca/edc/teachingresources/administrative-pedagogy/academic-accommodations/>

Extra Help Options

Tutorial Centre: The tutorial centre is a drop-in centre where you can work with a TA to answer your questions/work on problems. <https://carleton.ca/math/math-tutorial-centre/>

MS-LAP: Online support is available for this course through MS-Learning Assistance Program. For more information and tutorials on how to access MS-LAP, please see: <https://carleton.ca/math/math-learning-assistance-program/>

Course Outline

Sections 1.1-1.3, 1.5, 1.6, 2.1, 2.2, 2.4-2.6, 3.1-3.9, 3.11, 4.1-4.5, 4.8, 5.1-5.4, 5.6 of the Textbook, with certain topics omitted or abbreviated, plus your own reading of Appendices 1 and 3.

The order of presentation will not always be the same as in the text.

List of topics:

Review of Basic Concepts

Function Notation

Parent Functions and Transformations

Domain and Range

Trigonometry

Inverse Trigonometric Functions

Log Laws

Piecewise Functions

Odd and Even Functions

Limit Notation & Graphical Representations

Evaluating Limit Expressions Using Limit Laws

Continuity and Intermediate Value Theorem

Limits Involving Squeeze Theorem

Limits Involving Infinity

Instantaneous Rates of Change & Average Rate of Change

Derivative Definition

Derivatives Rules using Constant Rule, Power Rule, and Sum Rule

Derivatives Rules using Product Rule, Quotient Rule, and Chain Rule

Derivatives of Trigonometric Functions, Exponential Functions, and Inverse Functions

Implicit Differentiation

Logarithmic Differentiation

Linearization

Critical Points

Absolute and Local Extrema

First Derivative Test

Concavity & Inflection Points

Second Derivative Test

Curve Sketching

L'Hopitals Rule ($\frac{0}{0}$ and $\frac{\infty}{\infty}$)

L'Hopitals Rule (1^∞ and $(\infty)^0$ and 0^0)

Antiderivatives

Definite and Indefinite Integrals

Fundamental Theorem of Calculus

Area Under Curves & Area Contained Between Curves