DALHOUSIE UNIVERSITY

Faculty of Science Course Syllabus
Department of Mathematics
MATH 1000
Differential & Integral Calculus I
Summer A, 2024 - Distance

Dalhousie University is located in Mi'kma'ki, the ancestral and unceded territory of the Mi'kmaq. We are all Treaty people.

We acknowledge the history, contributions and legacies of the African Nova Scotian people and communities who have been here for over 400 years.

Instructor: Obaidah Afghani: oafghani@dal.ca

Teaching Assistants: Diego Lopez Restrepo: diego.lopez@dal.ca

Time: May 6 - June 21

Live Lectures:

Monday	9:05-9:55 AM (Atlantic)
Wednesday	9:05-11:55 AM (Atlantic)

Student Hours:

Monday	10:05-10:55 AM (Atlantic)
Wednesday	10:05-11:55 AM (Atlantic)
Friday	9:05-10:55 AM (Atlantic)

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Course Description
This course offers a self-contained introduction to differential and integral calculus. The topics include functions, limits, differentiation of polynomial, trigonometric, exponential and logarithmic functions, product, quotient and chain rules, applications of differentiation, antiderivatives and definite integrals, integration by substitution. A sequel to this course is MATH 1010.03

Course Prerequisites Nova Scotia Mathematics advanced 11 and 12 or pre-calculus. Pre-calculus is highly recommended.

Course Objectives/Learning Outcomes
- Working with and demonstrating an understanding of the concepts of limits, continuity, differentiability and integrability of functions.
- Using and applying the Intermediate Value Theorem as well as the Mean Value Theorem / Rolle's Theorem to solve problems.
- Being able to identify the graph of a given function, using calculus.
- Being able to use calculus to solve optimization and related rates problems.
- Computing derivatives as well as basic integrals.
- Understanding the connection between differentiation and integration given by the Fundamental Theorem of Calculus and using it to solve problems.

Course Materials
- Course Notes (By Dr. Rob Noble): A summary of the second supplementary textbook sections, these notes are available under **Content** on Brightspace,
- Supplementary Textbook-1: https://openstax.org/details/books/calculus-volume-1. Volume 2 of this book will also be used in MATH1010.
- Supplementary Textbook-2: Single Variable Calculus - Early Transcendentals, ninth or eighth edition, by James Stewart, Daniel K. Clegg and Saleem Watson.
- Website: MATH 1000 Brightspace webpage.
- Webwork: Used for online assignments and quizzes and accessed through Brightspace. Contact TA for questions /help regarding assignments.

Resources
- Recorded Lessons: Lecture-style presentations of the sections in the textbook and course notes, recorded using Panopto.
- Videos: Short videos highlighting the important concepts.
- Online Math Learning Centre: https://tinyurl.com/b8xcx9nm
- Discussion Board: Accessed through Brightspace.

DALHOUSIE UNIVERSITY

Course Assessment:

Component	Weight (% of final grade)	Date
Seven Online Assignments (Asynchronous)	3.5 % each for the first 6 and 4% for the last	Due Wednesdays, first on May 15 and last on June 26.
Midterm (online)	15%	May 29, 9:00 am to 12:00 pm
Final Exam (in person)	60%	June 21: 9:00 am to 12:00 pm, Rowe Potter. (Make up: Aug. 26, 9:00 am to 12:00 pm, Rowe Potter)

Conversion of numerical grades to Final Letter Grades follows the Dalhousie Common Grade Scale

A+ (90-100)	B+ (77-79)	C+ (65-69)	D	(50-54)
A (85-89)	B (73-76)	C (60-64)	F	(<50)
A- (80-84)	B- (70-72)	C- (55-59)		

Course Content and Assessment Timeline

(Refer to course calendar for a more detailed layout of topics)

Date	Content	Assessment
May 6 - 10	Limits & Continuity	Assignment 1 (Due May 15)
May 13 - 17	Differentiation (Part I): Definition and Basic Rules	Assignment 2 (Due May 22)
May 20 - 24	Differentiation (Part II) (Implicit & Logarithmic Differentiation)	
May 23	**Last Day to Drop without a "W"**	
May 27 -31	Differentiation Applications (Part I) (Exponential Growth & Decay, Related Rates)	**Midterm (May 29)** Assignment 3 (Due May 29)
June 3 -7	Differentiation Applications (Part II) (Optimization, Graphing & L'Hospital's Rule)	Assignment 4 (Due June 5)
June 10	**Last Day to Drop with a "W"**	
June 10 - 14	Integration (Part I) (Riemann Sums & Fundamental Theorem of Calculus)	Assignment 5 (Due June 12)
June 17 - 20	Integration (Part II) (Indefinite Integrals & Integration by Substitution)	Assignment 6 (Due June 19) Assignment 7 (Due June 26)
June 21		**Final Exam:** 9:00 am to 12:00 pm, Rowe Potter.
August 26		**Final Exam Make-Up:** 9:00 am to 12:00 pm, Rowe Potter.

DALHOUSIE UNIVERSITY

Course Policies

1. The final exam, worth 60%, is the most important assessment component and is written in person. There will be no calculators, notes or cheat sheets allowed.

2. The best way to prepare for the final is to practice the posted test review problems. Please attend student hours and ask for help with these, if needed.

3. For online assessment, students are expected to only submit their own work reflecting their personal and individual effort. Any violation may result in disciplinary measures initiated by the instructor. Requesting online help from individuals or websites like Chegg, for example, is considered a violation of academic integrity.

4. Students are encouraged and welcome to email the instructor and teaching assistant anytime they need help. You will get a response within 24 hours or less.

5. Students are expected to take responsibility for progressing through the online course material (reading assignments, lecture recordings, videos, etc.) in a timely fashion. They should follow the posted schedule/timeline.

6. Students need to complete each assignment and quiz on time to insure they build up the necessary skills for the upcoming tasks.

7. Assignments are in webwork and can be accessed through the course webpage in Brightspace. If students need help/tips with assignments, they should use the "**Email Instructor**" link that appears with every problem rather than email the instructor directly.

8. One assignment is posted every week and students have about a week to finish it, upon which time the next assignment is posted.

9. When connecting to online resources from outside of Canada, students are responsible for ensuring they are aware of and are observing any applicable laws of the country they are connecting from.

University Policies and Statements

This course is governed by the academic rules and regulations set forth in the University Calendar and by Senate

Academic Integrity

At Dalhousie University, we are guided in all of our work by the values of academic integrity: honesty, trust, fairness, responsibility and respect (The Center for Academic Integrity, Duke University, 1999). As a student, you are required to demonstrate these values in all of the work you do. The University provides policies and procedures that every member of the university community is required to follow to ensure academic integrity.

Information: https://www.dal.ca/dept/university_secretariat/academic-integrity.html

Accessibility

The Advising and Access Services Centre is Dalhousie's centre of expertise for student accessibility and accommodation. The advising team works with students who request accommodation as a result of a disability, religious obligation, or any barrier related to any other characteristic protected under Human Rights legislation (Canada and Nova Scotia).

Information: https://www.dal.ca/campus_life/academic-support/accessibility.html

Student Code of Conduct

Everyone at Dalhousie is expected to treat others with dignity and respect. The Code of Student Conduct allows Dalhousie to take disciplinary action if students don't follow this community expectation. When appropriate, violations of the code can be resolved in a reasonable and informal manner—perhaps through a restorative justice process. If an informal resolution can't be reached, or would be inappropriate, procedures exist for formal dispute resolution.

Code: https://www.dal.ca/dept/university_secretariat/policies/student-life/code-of-student-conduct.html

Diversity and Inclusion – Culture of Respect

Every person at Dalhousie has a right to be respected and safe. We believe inclusiveness is fundamental to education. We stand for equality. Dalhousie is strengthened in our diversity. We are a respectful and inclusive community. We are committed to being a place where everyone feels welcome and supported, which is why our Strategic Direction prioritizes fostering a culture of diversity and inclusiveness

Statement: http://www.dal.ca/cultureofrespect.html

Recognition of Mi'kmaq Territory

Dalhousie University would like to acknowledge that the University is on Traditional Mi'kmaq Territory. The Elders in Residence program provides students with access to First Nations elders for guidance, counsel and support. Visit or e-mail the Indigenous Student Centre (1321 Edward St) (elders@dal.ca).

Information: https://www.dal.ca/campus_life/communities/indigenous.html

Important Dates in the Academic Year (including add/drop dates)

https://www.dal.ca/academics/important_dates.html

University Grading Practices

https://www.dal.ca/dept/university_secretariat/policies/academic/grading-practices-policy.html

Student Resources and Support

Advising

General Advising https://www.dal.ca/campus_life/academic-support/advising.html

Science Program Advisors: https://www.dal.ca/faculty/science/current-students/academic-advising.html

Indigenous Student Centre: https://www.dal.ca/campus_life/communities/indigenous.html

Black Students Advising Centre: https://www.dal.ca/campus_life/communities/black-student-advising.html

International Centre: https://www.dal.ca/campus_life/international-centre/current-students.html

Academic supports

Library: https://libraries.dal.ca/

Writing Centre: https://www.dal.ca/campus_life/academic-support/writing-and-study-skills.html

Studying for Success: https://www.dal.ca/campus_life/academic-support/study-skills-and-tutoring.html

Copyright Office: https://libraries.dal.ca/services/copyright-office.html

Fair Dealing Guidelines https://libraries.dal.ca/services/copyright-office/fair-dealing.html

Other supports and services

Student Health & Wellness Centre: https://www.dal.ca/campus_life/health-and-wellness/services-support/student-health-and-wellness.html

Student Advocacy: https://dsu.ca/dsas

Ombudsperson: https://www.dal.ca/campus_life/safety-respect/student-rights-and-responsibilities/where-to-get-help/ombudsperson.html

Safety

Biosafety: https://www.dal.ca/dept/safety/programs-services/biosafety.html

Chemical Safety: https://www.dal.ca/dept/safety/programs-services/chemical-safety.html

Radiation Safety: https://www.dal.ca/dept/safety/programs-services/radiation-safety.html

Scent-Free Program: https://www.dal.ca/dept/safety/programs-services/occupational-safety/scent-free.html

Dalhousie COVID-19 information and updates: https://www.dal.ca/covid-19-information-and-updates.html