DALHOUSIE UNIVERSITY

Faculty of Science Course Syllabus
Department of Mathematics and Statistics
Math 1000
Differential & Integral Calculus I
Fall 2021

Instructors

Lecture Section	Instructor	E-mail Address	Office Hours
1	Rob Noble	rnoble@mathstat.dal.ca	To be posted on BrightSpace
2	Rob Noble	rnoble@mathstat.dal.ca	To be posted on BrightSpace
3	Andrea Fraser	afraser@mathstat.dal.ca	To be posted on BrightSpace
4	Isaac McMullin	is374247@dal.ca	To be posted on BrightSpace
5	Obaidah Afghani	oafghani@dal.ca	To be posted on BrightSpace

Lectures

Lecture Section	Days	Time	Location
1	MWF	9:35 AM – 10:25 AM	CHEMISTRY 125
2	MWF	10:35 AM – 11:25 AM	CHEMISTRY 125
3	MWF	11:35 AM – 12:25 PM	Online-SYNCHRONOUS SESSION
4	MWF	11:35 AM – 12:25 PM	CHEMISTRY 125
5	TR	11:35 AM – 12:55 PM	CHEMISTRY 125

Tutorials

1 hour per week, commencing the week of September 20, 2021.

Course Delivery

Lecture Section	Days	Time	Course Delivery
1	MWF	9:35 AM – 10:25 AM	In person (not recorded)
2	MWF	10:35 AM – 11:25 AM	In person (not recorded)
3	MWF	11:35 AM – 12:25 PM	Online (not recorded)
4	MWF	11:35 AM – 12:25 PM	In person (not recorded)
5	TR	11:35 AM – 12:55 PM	In person (not recorded)

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.

Learning Objectives

- Understand the significance of limits, continuity, differentiability and integrability of functions.
- Understand the connection between differentiation and integration given by the Fundamental Theorem of Calculus.
- Understand the significance of the Intermediate Value Theorem as well as the Mean Value Theorem / Rolle's Theorem.
- Be able to sketch a reasonably accurate graph of a given function by hand, using calculus.
- Be able to use calculus to solve optimization and related rates problems.
- Be able to compute derivatives as well as basic integrals.

Course Materials

- Textbook: Single Variable Calculus – Early Transcendentals, 9th Edition, by James Stewart, Daniel K. Clegg, Saleem Watson. This textbook will also be used in Math 1010.
- Brightspace: This course has a major presence on Brightspace. To access your Math 1000 course on Brightspace you may login to: https://dal.brightspace.com/d2l/login. Alternatively, you can select the OWL link that appears on the Dalhousie homepage (http://www.dal.ca). It is important that you familiarize yourself with the systems requirement for proper access to Brightspace.

  You will need at various times to gain information from different areas of Brightspace. Most importantly:

  1. The course outline as well as links to the online assignments can be found under **Content**.
  2. Your grades can be found under **Assessments**.
- Webwork: Your online assignments will appear in webwork, accessed through links appearing under **Content** in BrightSpace.

Resources

- Dr. Noble's course notes will be available under **Content** on BrightSpace.
- Math & Stats Student Resource Centre (Room 119, first floor of the Chase Building). A calculus tutor will be available on weekdays and evenings on a first come, first served basis, free of charge. There are large tables where you can work together (on Math or Stats only, please). To see the current schedule, please visit the Resource Centre's webpage http://www.dal.ca/faculty/science/math-stats/about/learning-centre.html.

Course Assessment

The Final Grade will be computed as the maximum of the grades obtained from the following two schemes:

Scheme I:

Component	Weight (% of final grade)	Date
Tutorial Quizzes	15%	Weekly
Midterm Exam	25%	October 29, 2021 (7:00 PM – 9:00 PM)
Final Exam	50%	(Scheduled by Registrar)
Online Assignments	10%	∼3 per week

Scheme II:

Component	**Weight (% of final grade)**	**Date**
Tutorial Quizzes	15%	Weekly
Final Exam	75%	(Scheduled by Registrar)
Online Assignments	10%	∼3 per week

Note: It is strongly recommended that you prepare yourself to be graded on the first scheme; the second scheme is included in order to accommodate students who fail to perform up to their ability on the midterm due to circumstances beyond their control.

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

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

Course Policies

- Missed quizzes, midterms or final exams can be made up for documented illness or upon receipt of equivalent proof of inability to write at the scheduled time.
- If the university is closed on a particular day of a given week, due to a holiday, then **all** tutorials for that week will be cancelled.
- On exams, we recommend that answers be left in unsimplified form.
- Calculators will NOT be allowed during tutorial quizzes, the midterm or the final examination. In fact, only writing utensils (pencils, lead, erasers, pens, white-out) will be allowed.
- Information about the course may be given during class. It is the responsibility of the students to ensure that they are made aware of what occurs during classes.

Course Content

The material to be covered consists of the contents of Chapters 2 – 5 of Dr. Noble's course notes (based off of a previous edition of the textbook). Specifically, we will try to stick to the following lecture schedule:

Date	Topic
September 7 – 10	Tangents, Velocity, Limits (§2.1, 2.2)
September 13 – 17	Limit Laws, Continuity, Limits at Infinity (§2.3, 2.5, 2.6)
September 20 – 24	The Derivative, Differentiation Rules (§2.7, 2.8, 3.1)
September 27 – October 1	Differentiation Rules (cont'd) (§3.2, 3.3, 3.4)
September 30	**National Day for Truth and Reconciliation (No class)**
October 1	**Last day to drop without a "W"**
October 4 – October 8	Implicit Differentiation, Derivatives of Logarithmic Functions, Logarithmic Differentiation (§3.5, 3.6)
October 11 – 15	Rates of Change in Science, Exponential Growth and Decay (§3.7, 3.8)
October 11	**Thanksgiving (No class)**
October 18 – 22	Related Rates, Linear Approximations (§3.9, 3.10)
October 25 – 29	Max/Min Problems, Mean Value Theorem, (§4.1, 4.2)
October 29	**Midterm 7:00 PM – 9:00 PM**
October 31	**Midterm Make-up Exam 1:30 PM – 3:30 PM**
November 1 – 5	Graphing, L'Hospital's Rule (§4.3, 4.4, 4,5)
November 1	**Last day to drop with a "W"**
November 8 – 12	**Fall Study Break (No class)**
November 11	**Remembrance Day (No class)**
November 15 – 19	Optimization Problems, Antiderivatives, Area Under a Curve (§4.7, 4.9, 5.1)
November 22 – 26	Definite Integrals, Fundamental Theorem of Calculus (§5.2, 5.3)
November 29 – December 3	Indefinite Integrals, The Substitution Rule (§5.4, 5.5)
December 6, 7*	Final Exam Review / "Catch-up" Time

*Note that classes on Tuesday, December 7 will follow a Monday schedule.

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