

**Faculty of Science Course Syllabus**  
**Department of Mathematics**  
*MATH 1000*  
*Differential & Integral Calculus I*  
*Summer A, 2021 - Distance*

**Instructor:** Obaidah Afghani: [oafghani@dal.ca](mailto:oafghani@dal.ca)

**Teaching Assistants:** Catherine Antwi and Arvin Vaziry

**Time:** May 10- June 28

**Live Lectures & Synchronous Tests:**

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

Wednesday 10:00-12:00 (Atlantic)

**Virtual Office Hours:**

Monday 10:05-10:55 AM (Atlantic)

11:05-11:55 AM (Atlantic)

Wednesday 9:05-9:55 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

- Textbook: Single Variable Calculus - Early Transcendentals, Eighth Edition, by James Stewart.
- Website: MATH 1000 Brightspace webpage.
- Webwork: Used for online assignments and quizzes and accessed through Brightspace. Contact [ct797606@dal.ca](mailto:ct797606@dal.ca) for questions /help regarding assignments.

### Resources

- Course Notes (By Dr. Rob Noble): A summary of the textbook sections you are required to study. The notes are available under **Content** on Brightspace,
- Recorded Lessons: Lecture-style presentations of the sections in the textbook and course notes, recorded using Panopto.
- Videos: Short videos highlighting the important concepts.
- TA Online Help: For general math questions in which you may want to exchange scanned solutions, email Arvin Vaziry [arvinvaziry@dal.ca](mailto:arvinvaziry@dal.ca)
- Online Math Learning Centre: <https://tinyurl.com/b8xcx9nm>
- Discussion Board: Accessed through Brightspace.

**Course Assessment:** There will be no final exam.

Component	Weight (% of final grade)	Date
Six Weekly Quizzes (Synchronous)	15.5% for each	May 19, 26 and June 2, 9, 16 and 28
Seven Online Assignments (Asynchronous)	1% each	Due each Friday

**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)

<b>Date</b>	<b>Content</b>	<b>Assessment</b>
May 10 - 14	Limits & Continuity	Assignment 1 (May 14)
May 17 - 21	Differentiation (Part I): Definition and Basic Rules	Quiz 1 (May 19) Assignment 2 (May 21)
May 24 - 28	Differentiation (Part II) (Implicit & Logarithmic Differentiation )	Quiz 2 (May 26) Assignment 3 (May 28)
<b>May 25</b>	<b>Last Day to Drop without a “W”</b>	
May 31 - June 4	Differentiation Applications (Part I) (Exponential Growth & Decay, Related Rates)	Quiz 3 (June 2) Assignment 4 (June 4)
June 7 -11	Differentiation Applications (Part II) (Optimization, Graphing & L’Hospital’s Rule)	Quiz 4 (June 9) Assignment 5 (June 11)
<b>June 10</b>	<b>Last Day to Drop with a “W”</b>	
June 14 - 18	Integration (Part I ) (Riemann Sums & Fundamental Theorem of Calculus)	Quiz 5 (June 16) Assignment 6 (June 18)
June 21 - 28	Integration (Part II) (Indefinite Integrals & Integration by Substitution)	Assignment 7 (June 25) Quiz 6 (June 28)

## Course Policies

1. 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.
  2. Students are encouraged and welcome to email instructor anytime they need help. You will get a response within 24 hours or less.
  3. 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.
  4. Students need to complete each assignment and quiz on time to insure they build up the necessary skills for the upcoming tasks.
  5. Attendance of weekly live lectures is highly recommended to ensure students stay on track.
  6. 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.
  7. One assignment is posted every week on Friday and students have a week to finish it, upon which time the next assignment is posted.
  8. 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.
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## University Policies and Statements

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

### Missed or Late Academic Requirements due to Student Absence

As per Senate decision instructors may not require medical notes of students who must miss an academic requirement, **including the final exam**, for courses offered during fall or winter 2020-21 (until April 30, 2021).

Information on regular policy, including the use of the Student Declaration of Absence can be found here: [https://www.dal.ca/dept/university\\_secretariat/policies/academic/missed-or-late-academic-requirements-due-to-student-absence.html](https://www.dal.ca/dept/university_secretariat/policies/academic/missed-or-late-academic-requirements-due-to-student-absence.html).

### 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](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](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](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](mailto:elders@dal.ca)).

**Information:** [https://www.dal.ca/campus\\_life/communities/indigenous.html](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](https://www.dal.ca/academics/important_dates.html)

## **University Grading Practices**

[https://www.dal.ca/dept/university\\_secretariat/policies/academic/grading-practices-policy.html](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](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](https://www.dal.ca/campus_life/communities/indigenous.html)

**Black Students Advising Centre:** [https://www.dal.ca/campus\\_life/communities/black-student-advising.html](https://www.dal.ca/campus_life/communities/black-student-advising.html)

**International Centre:** [https://www.dal.ca/campus\\_life/international-centre/current-students.html](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](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](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](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](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>