

**Faculty of Science Course Syllabus  
Department of Mathematics  
MATH 2001, Intermediate Calculus  
Summer A, 2021**

**Instructor(s):** Kyle MacKeigan                      **Email:** [kyle.m.mackeigan@gmail.com](mailto:kyle.m.mackeigan@gmail.com) or [ky445802@dal.ca](mailto:ky445802@dal.ca)

**Office hours:** Online on Mondays and Wednesdays from 3:00pm – 6:00pm with blackboard collaborate

**Lectures:** Asynchronous (Recordings and PDFs of materials are posted weekly)

**Laboratories:** None

**Tutorials:** None

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### **Course Description**

Topics include review of parametric equations, polar coordinates, conic sections, coordinate systems and vectors, dot product and cross product, vector functions, derivatives and integrals of vector functions, arc length and curvature, functions of several variables and partial derivatives, directional derivatives, and double and triple integrals.

### **Course Prerequisites**

Math 1010, Differential and Integral Calculus II

### **Learning Objectives**

A successful student will be able to adequately demonstrate an understanding of the calculus concepts stated in the content.

### **Course Materials**

James Stewart, Multivariable Calculus, 8<sup>th</sup> edition (Purchasable online or through Dalhousie bookstore)

### **Course Delivery (online)**

- Course Brightspace page: <https://dal.brightspace.com/d2l/home/174994>
- Assignments are completed through webwork.
- Recordings and PDFs of materials are posted weekly.

### **Course Assessment**

<b>Component</b>	<b>Weight (% of final grade)</b>	<b>Date</b>
Class Exercises	10%	Due Sundays at Midnight (Four per week)
Assignments	25%	Due Sundays at Midnight (Two per week)
Midterm Exam	20%	Monday, June 7 <sup>th</sup> (Time limit: 24hours)
Final Exam	45%	Scheduled by Registrar

**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    (&lt;50)

A- (80-84)    B- (70-72)    C- (55-59)

**Course Policies on Missed or Late Academic Requirement**

- Missed assignments will not be excused without a valid reason.
- Missed midterm exam will result in the value of the midterm being allotted to the final.
- Missed final exam can be replaced with a make-up exam rewritten on an alternative date.
- Lowest assignment grade is dropped.
- Lowest class exercise grade is dropped.
- Students are not required to use the Student Declaration of Absence form for late or missed requirements.
- Medical notes should not be requested, as many doctors, including those at Dalhousie Health and Wellness, are no longer issuing notes for short-term illnesses.

**Course Content****Chapter 12:**

- Three-Dimensional Coordinate Systems,
- Vectors
- Dot Product
- Cross Product
- Equations of Lines and Plane
- Cylinders and Quadric Surfaces

**Chapter 13:**

- Vector Functions and Space Curves
- Derivatives and Integrals of Vector Functions
- Arc Length and Curvature
- Motion in Space

**Chapter 14:**

- Functions of Several Variables
- Limits and Continuity
- Partial Derivatives
- Tangent Plane and Linear Approximations
- The Chain Rule
- Directional Derivatives and the Gradient Vector
- Max and Min Values
- Lagrange Multipliers

**Chapter 15:**

- Double Integrals over Rectangles
- Double Integrals over General Regions
- Double Integrals over Polar Coordinates
- Surface Area

## 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**

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>