DALHOUSIE UNIVERSITY

MATH 2001

Intermediate Calculus I

Summer 2018 (May 7 – June 15)

Instructor:	Asmita Sodhi (acsodhi@dal.ca)
Office:	Chase 326
Lectures:	MW 9:05am-12:25pm, LSC P5260
Office Hours:	MTh 1:30-3:30pm in the Math Learning Centre (Chase 119), or by appointment
Website:	Brightspace

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 integrals.
Prerequisite: MATH 1010.03

Textbook:

Multivariable Calculus Early Transcendentals, 8th ed., by James Stewart.
This book is available at the bookstore. Note that while earlier editions are also acceptable, there may be some differences in problem and section numbering between editions. A copy of the 7th edition and the complete solutions manual are available through course reserves at the Killam Memorial Library.

Course Objectives:

At the completion of this course, students will be able to:

1. extend many of the concepts learned in MATH 1000/1010 to three dimensions
2. have a clear understanding of vectors, and how they apply to motion in space
3. understand what is meant by the partial derivative of a function of several variables, and be able to apply this to the concept of maximum and minimum points
4. set up and compute double integrals over general regions

Course Assessment:

Maximum of:

Scheme 1:	
Assignments	15%
In-class Activities	10%
Midterm Exam	25%
Final Exam	50%

Scheme 2:	
Assignments	15%
In-class Activities	10%
Final Exam	75%

The midterm exam will be held during class on **Monday, May 28**, and will be 2 hours in length.
The final exam will be held during class on **Wednesday, June 13**, and will be 3 hours in length.

Course Assessment, continued:

There will be eight assignments total, with the following schedule. All assignments are through WeBWorK on Brightspace and will **open at 12:30pm** on the date given, and **close at 11:59pm** on the date given.

	A1	**A2**	**A3**	**A4**	**A5**	**A6**	**A7**	**A8**
Opens:	May 7	May 9	May 14	May 16	May 23	May 30	June 4	June 6
Closes:	May 11	May 13	May 18	May 20	May 27	June 3	June 8	June 12

Note on In-Class Activities: There will be about 15-20 in-class activities throughout the course which will be done, as their name suggests, within the class time. They must be handed in at the end of the time allocated by the instructor for their completion, and will not be accepted after that time. Students are allowed and encouraged to work with their peers, and may hand in a single activity with up to three names on it. The lowest two activity marks will be dropped. Marks for these activities will be awarded as follows:

4 pts	full, correct solution
3 pts	mostly correct solution with minor mistake
2 pts	substantial effort made
1 pt	minimal effort made
0 pts	no submission

Letter Grade Distribution:

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 Policies:

- All assignments are to be completed on WeBWorK (via Brightspace). There will be no extension of assignments.
- Textbooks, course notes, and calculators are not permitted on midterm or final exams.
- A missed midterm or final exam counts as 0 unless a Student Declaration of Absence form or alternate verification of the absence is provided, or prior arrangements have been made with the instructor.
- Students can get help with this course in the Math Learning Centre, which is located in Chase 119 (first floor of the Chase Building).

Tentative Course Outline:

The daily coverage may change slightly as it depends on the progress of the class.

Monday, May 7	3-D Coordinate Systems (12.1) Vectors (12.2) Dot Product (12.3)
Wednesday, May 9	Cross Product (12.4) Lines and Planes (12.5)
Monday, May 14	Conic Sections [Review] (10.5) Quadric Surfaces (12.6) 2-D Parametric Curves [Review] (10.1, 10.2) **Last day to change and add classes for registered students**
Wednesday, May 16	Space Curves (13.1) Derivatives and Integrals of Vector Functions (13.2) Arclength and Curvature (13.3) Velocity and Acceleration (13.4)
Monday, May 21	**No Class** – Victoria Day **Last day to drop without "W" (May 22)** **Last day to change from audit to credit and vice versa (May 22)**
Wednesday, May 23	Functions of Several Variables (14.1) Limits and Continuity (14.2) Partial Derivatives (14.3)
Monday, May 28	**Midterm Exam (2h)** Tangent Planes and Linear Approximation (14.4)
Wednesday, May 30	Tangent Planes and Linear Approximation, continued (14.4) Chain Rule (14.5) Directional Derivatives (14.6)
Monday, June 4	The Gradient (14.6) Max and Min Values (14.7) Lagrange Multipliers (14.8)
Wednesday, June 6	Double Integrals over Rectangles (15.1) Double Rectangles over General Regions (15.2) **Last day to drop with "W" (June 7)**
Monday, June 11	Double Rectangles in Polar Coordinates (15.3) Applications of Double Integrals (15.4) Review
Wednesday, June 13	**Final Exam (3h)**

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 mannerperhaps 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`

Missed or Late Academic Requirements due to Student Absence (policy)
`https://www.dal.ca/dept/university_secretariat/policies/academic/missed-or-late-academic-requirements-due-to-student-absence.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-responsibiliti 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
- ScentFree Program: https://www.dal.ca/dept/safety/programs-services/occupational-safety/scent-free.html