COURSE SYLLABUS

COURSE TITLE: MATH-250B: Intermediate Calculus 2

CLASS SECTION: Sections X01 and X02

TERM: Fall 2021

COURSE CREDITS: 3

DELIVERY METHOD(S):   Face-to-Face

For COVID-19 information please visit https://legacy.camosun.ca/covid19/index.html

Camosun College requires mandatory attendance for the first class meeting of each course. If you do not attend, and do not provide your instructor with a reasonable explanation in advance, you will be removed from the course and the space offered to the next waitlisted student.

INSTRUCTOR DETAILS

NAME: Leah Howard

EMAIL: HowardL@camosun.ca

OFFICE: CBA 151

HOURS: Mon/Tues/Fri 11:30-1:20 and Thurs 12:30-1:20

WEBSITE: www.leahhoward.com

As your course instructor, I endeavour to provide an inclusive learning environment. However, if you experience barriers to learning in this course, do not hesitate to discuss them with me. Camosun College is committed to identifying and removing institutional and social barriers that prevent access and impede success.

CALENDAR DESCRIPTION

Restricted to students in Engineering Bridge This course in multivariable calculus includes evaluating partial derivatives, computing directional derivative and gradient, solving optimization problems using Lagrange Multipliers, setting up and evaluating multiple integrals for various applications in engineering, vector calculus, evaluating line integral using Green's Theorem, evaluating surface integral using divergence theorem, and evaluating line integral using Stokes' Theorem.

PREREQUISITE(S):
All of:
• C in MATH 250A
CO-REQUISITE(S):
Not Applicable
EXCLUSION(S):
Not Applicable

COURSE LEARNING OUTCOMES / OBJECTIVES

Upon completion of this course students will be able to:

1. Differentiate functions of many variables and use chain rules to differentiate composite functions.
2. Compute gradients and directional derivatives.
3. Solve constrained optimization problems using Lagrange multipliers.
4. Set up and evaluate multiple integrals to find areas, volumes, masses, centres of mass, and moments of inertia.
5. Change variables in multiple integrals to cylindrical, spherical, or general coordinates.
6. Compute the divergence and the curl of a vector field, and find the potential function for conservative fields.
7. Set up and evaluate line and surface integrals.
8. Use Green's theorem to evaluate line integrals.
9. Use Stokes' theorem and the divergence theorem to evaluate line and surface integrals.

REQUIRED MATERIALS & RECOMMENDED PREPARATION / INFORMATION

* Any scientific calculator

* There is no required textbook. Suggested homework problems and answers will be provided for free on D2L.

* An optional textbook is Calculus (11th Edition) by Larson and Edwards.

COURSE SCHEDULE, TOPICS, AND ASSOCIATED PREPARATION / ACTIVITY / EVALUATION

The following schedule and course components are subject to change with reasonable advance notice, as deemed appropriate by the instructor.

A detailed pacing schedule can be found on the last page of this outline.

Course Topics:
1. Partial Differentiation
Introduction (12.1)
Cylinders and Quadric Surfaces (11.7)
Functions of Several Variables (12.2)
Limits and Continuity (12.3)
Partial Derivatives (12.4)
Multivariable Optimization Problems (12.5)
Increments and Linear Approximations (12.6)
The Multivariable Chain Rule (12.7)
Directional Derivatives and the Gradient Vector (12.8)
Lagrange Multipliers and Constrained Optimization (12.9)
Critical Points of Functions of Two Variables (12.10)

2. Multiple Integrals
Double Integrals (13.1)
Double Integrals over more general regions (13.2)
Area and Volume by Double Integration (13.3)
Double Integrals in Polar Coordinates (13.4)
Applications of Double Integrals (13.5)
Triple Integrals (13.6)
Cylindrical and Spherical Coordinates (11.8)
Integration by Cylindrical and Spherical Coordinates (13.7)
Surface Area (13.8)
Change of Variables in Multiple Integrals (13.9)

3. Vector Calculus
Vector Fields (14.1)
Line Integrals (14.2)
The Fundamental Theorem and Independence of Path (14.3)
Green's Theorem (14.4)
Surface Integrals (14.5)
The Divergence Theorem (14.6)
Stokes' Theorem (14.7)

Students registered with the Centre for Accessible Learning (CAL) who complete quizzes, tests, and exams with academic accommodations have booking procedures and deadlines with CAL where advanced noticed is required. Deadlines scan be reviewed on the CAL exams page. http://camosun.ca/services/accessible-learning/exams.html

EVALUATION OF LEARNING

DESCRIPTION		WEIGHTING
Test 1		20%
Test 2		20%
Test 3		20%
Final Exam		40%
Tests and exam will be closed-book.		
The exam period is Dec 13-21. You must be available at the scheduled time.		
	TOTAL	100%

If you have a concern about a grade you have received for an evaluation, please come and see me as soon as possible. Refer to the Grade Review and Appeals policy for more information. http://camosun.ca/about/policies/education-academic/e-1-programming-and-instruction/e-1.14.pdf

COURSE GUIDELINES & EXPECTATIONS

Academic Integrity

Academic dishonesty is NOT tolerated and the consequences can be severe.

Possible disciplinary actions include:
* You receive zero on the test
* An Academic Infraction Report is added to your academic record.

SCHOOL OR DEPARTMENTAL INFORMATION

Free math help is available in the MATH LAB in TEC 142.

STUDENT RESPONSIBILITY

Enrolment at Camosun assumes that the student will become a responsible member of the College community. As such, each student will display a positive work ethic, assist in the preservation of College property, and assume responsibility for their education by researching academic requirements and policies; demonstrating courtesy and respect toward others; and respecting expectations concerning attendance, assignments, deadlines, and appointments.

SUPPORTS AND SERVICES FOR STUDENTS

Camosun College offers a number of services to help you succeed in and out of the classroom. For a detailed overview of the supports and services visit http://camosun.ca/students/.

Academic Advising	http://camosun.ca/advising
Accessible Learning	http://camosun.ca/accessible-learning
Counselling	http://camosun.ca/counselling
Career Services	http://camosun.ca/coop
Financial Aid and Awards	http://camosun.ca/financialaid
Help Centres (Math/English/Science)	http://camosun.ca/help-centres
Indigenous Student Support	http://camosun.ca/indigenous
International Student Support	http://camosun.ca/international/

Learning Skills	http://camosun.ca/learningskills
Library	http://camosun.ca/services/library/
Office of Student Support	http://camosun.ca/oss
Ombudsperson	http://camosun.ca/ombuds
Registration	http://camosun.ca/registration
Technology Support	http://camosun.ca/its
Writing Centre	http://camosun.ca/writing-centre

If you have a mental health concern, please contact Counselling to arrange an appointment as soon as possible. Counselling sessions are available at both campuses during business hours. If you need urgent support after-hours, please contact the Vancouver Island Crisis Line at 1-888-494-3888 or call 911.

COLLEGE-WIDE POLICIES, PROCEDURES, REQUIREMENTS, AND STANDARDS

Academic Accommodations for Students with Disabilities
The College is committed to providing appropriate and reasonable academic accommodations to students with disabilities (i.e. physical, depression, learning, etc). If you have a disability, the Centre for Accessible Learning (CAL) can help you document your needs, and where disability-related barriers to access in your courses exist, create an accommodation plan. By making a plan through CAL, you can ensure you have the appropriate academic accommodations you need without disclosing your diagnosis or condition to course instructors. Please visit the CAL website for contacts and to learn how to get started: http://camosun.ca/services/accessible-learning/

Academic Integrity
Please visit http://camosun.ca/about/policies/education-academic/e-1-programming-and-instruction/e-1.13.pdf for policy regarding academic expectations and details for addressing and resolving matters of academic misconduct.

Academic Progress
Please visit http://camosun.ca/about/policies/education-academic/e-1-programming-and-instruction/e-1.1.pdf for further details on how Camosun College monitors students' academic progress and what steps can be taken if a student is at risk of not meeting the College's academic progress standards.

Course Withdrawals Policy
Please visit http://camosun.ca/about/policies/education-academic/e-2-student-services-and-support/e-2.2.pdf for further details about course withdrawals. For deadline for fees, course drop dates, and tuition refund, please visit http://camosun.ca/learn/fees/#deadlines.

Grading Policy
Please visit http://camosun.ca/about/policies/education-academic/e-1-programming-and-instruction/e-1.5.pdf for further details about grading.

Grade Review and Appeals

Please visit http://camosun.ca/about/policies/education-academic/e-1-programming-and-instruction/e-1.14.pdf for policy relating to requests for review and appeal of grades.

Mandatory Attendance for First Class Meeting of Each Course

Camosun College requires mandatory attendance for the first class meeting of each course. If you do not attend, and do not provide your instructor with a reasonable reason in advance, you will be removed from the course and the space offered to the next waitlisted student. For more information, please see the "Attendance" section under "Registration Policies and Procedures" (http://camosun.ca/learn/calendar/current/procedures.html) and the Grading Policy at http://camosun.ca/about/policies/education-academic/e-1-programming-and-instruction/e-1.5.pdf.

Medical / Compassionate Withdrawals

Students who are incapacitated and unable to complete or succeed in their studies by virtue of serious and demonstrated exceptional circumstances may be eligible for a medical/compassionate withdrawal. Please visit http://camosun.ca/about/policies/education-academic/e-2-student-services-and-support/e-2.8.pdf to learn more about the process involved in a medical/compassionate withdrawal.

Sexual Violence and Misconduct

Camosun is committed to creating a campus culture of safety, respect, and consent. Camosun's Office of Student Support is responsible for offering support to students impacted by sexual violence. Regardless of when or where the sexual violence or misconduct occurred, students can access support at Camosun. The Office of Student Support will make sure students have a safe and private place to talk and will help them understand what supports are available and their options for next steps. The Office of Student Support respects a student's right to choose what is right for them. For more information see Camosun's Sexualized Violence and Misconduct Policy: http://camosun.ca/about/policies/education-academic/e-2-student-services-and-support/e-2.9.pdf and camosun.ca/sexual-violence. To contact the Office of Student Support: oss@camosun.ca or by phone: 250-370-3046 or 250-3703841

Student Misconduct (Non-Academic)

Camosun College is committed to building the academic competency of all students, seeks to empower students to become agents of their own learning, and promotes academic belonging for everyone. Camosun also expects that all students to conduct themselves in a manner that contributes to a positive, supportive, and safe learning environment. Please review Camosun College's Student Misconduct Policy at http://camosun.ca/about/policies/education-academic/e-2-student-services-and-support/e-2.5.pdf to understand the College's expectations of academic integrity and student behavioural conduct.

Changes to this syllabus: Every effort has been made to ensure that information in this syllabus is accurate at the time of publication. The College reserves the right to change courses if it becomes necessary so that course content remains relevant. In such cases, the instructor will give the students clear and timely notice of the changes.

Math 250B-X01 Schedule

	Monday	Wednesday	Thursday	Friday
Sept 6-10	**Holiday**	11.7/12.1/12.2	11.7/12.1/12.2	11.7/12.1/12.2
Sept 13-17	12.3	12.4	12.5	12.6
Sept 20-24	12.6	12.7	12.8	12.8
Sept 27-Oct 1	12.9	**Test**	**Holiday**	12.9
Oct 4-8	12.10	13.1	13.2	13.3
Oct 11-15	**Holiday**	13.4	13.4	13.5
Oct 18-22	13.5	13.6	13.6	11.8
Oct 25-29	13.7	**Test**	13.7	13.7
Nov 1-5	13.8	13.8	13.9	13.9
Nov 8-12	14.1	14.1	14.2	**Holiday**
Nov 15-19	14.2	14.2	14.3	14.3
Nov 22-26	14.4	**Test**	14.4	14.4
Nov 29-Dec 3	14.5	14.5	14.5	14.6
Dec 6-10	14.7	14.7	Review	Review

Tentative Test Coverage

Test 1: 11.7, 12.1-12.7
Test 2: 12.8-12.10, 13.1-13.6
Test 3: 13.7-13.9, 14.1-14.2

Math 250B-X02 Schedule

	Monday	Tuesday	Wednesday	Thursday
Sept 6-9	**Holiday**	11.7/12.1/12.2	11.7/12.1/12.2	11.7/12.1/12.2
Sept 13-16	12.3	12.4	12.5	12.6
Sept 20-23	12.6	12.7	12.8	12.8
Sept 27-30	12.9	12.9	**Test**	**Holiday**
Oct 4-7	12.10	13.1	13.2	13.3
Oct 11-14	**Holiday**	13.4	13.4	13.5
Oct 18-21	13.5	13.6	13.6	11.8
Oct 25-28	13.7	13.7	**Test**	13.7
Nov 1-4	13.8	13.8	13.9	13.9
Nov 8-11	14.1	14.1	14.2	**Holiday**
Nov 15-18	14.2	14.2	14.3	14.3
Nov 22-25	14.4	14.4	**Test**	14.4
Nov 29-Dec 2	14.5	14.5	14.5	14.6
Dec 6-9	14.7	14.7	Review	Review

Tentative Test Coverage

Test 1: 11.7, 12.1-12.7
Test 2: 12.8-12.10, 13.1-13.6
Test 3: 13.7-13.9, 14.1-14.2