

COURSE SYLLABUS



COURSE TITLE: MATH-250B-Intermediate Calculus 2
CLASS SECTION: X01
TERM: 2025 Winter
COURSE CREDITS: 3
DELIVERY METHOD(S): Interurban Campus

Camosun College respectfully acknowledges that our campuses are situated on the territories of the Ləkʷəŋən (Songhees and Kosapsum) and WSÁNEĆ peoples. We honour their knowledge and welcome to all students who seek education here.

INSTRUCTOR DETAILS

NAME: Raymond Lai	OFFICE: CBA 152
PHONE: 250-370-4491	OFFICE HOURS: Monday 3:30pm – 4:20pm; Tuesday 1:30pm – 3:20pm; Thursday 1:30pm – 2:20pm, and by appointment
EMAIL: lai@camosun.ca	

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

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

- (a) Course Notes (accessible from the course D2L site)
- (b) Text (Optional Reference): Gilbert Strang, Edwin “Jed” Herman, Calculus: Volume 1, 2, and 3, OpenStax, 2016 [all available for free at BCCampus Open Education <https://open.bccampus.ca/>]
- (c) Non-graphing non-programmable scientific calculator.

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.

WEEK or DATE RANGE	ACTIVITY or TOPIC	
Week 1 (1/6 – 1/10)	Section 1.1 Partial Derivatives of Functions of Several Variables and Critical Points of Functions of Two Variables (5 – 10 hrs)	Chapter 1: Partial Differentiation
	Section 1.2 The Multivariable Chain Rule (1 – 2 hrs)	
Week 2 (1/13 – 1/17)	Section 1.3 Gradient Vector and Directional Derivatives (1 – 2 hrs)	
	Section 1.4 Lagrange Multipliers and Constrained Optimization (3 hrs)	
Week 3 (1/20 – 1/24)	Section 2.5 Area and Volume by Double Integration (2 hrs)	Chapter 2: Multiple Integrals
	Study Sessions to prepare for Test 1	
Week 4 (1/27 – 1/31)	Section 2.6 Mass, Centre of Mass, and Moment of Inertia by Double Integration (1 hr)	
	Test 1: sections 1.1 – 1.4 (tentatively on 1/28)	
Week 5 (2/3 – 2/7)	Section 2.7 Change of Variables in Double Integrals (3 hrs)	
	Section 2.8 Triple Integrals in Rectangular Coordinates (2 hrs)	
Week 6 (2/10 – 2/14)	Section 2.9 Change of Variables in Triple Integrals (1 hr)	
	Study Sessions to prepare for Test 2	
Week 7 (2/17 – 2/21)	Family Day (Feb 17) and Reading Break (Feb 18 - 21) – College Closed	
Week 8 (2/24 – 2/28)	Section 2.10 Triple Integrals in Cylindrical and Spherical Coordinates (3 hrs)	
	Test 2: sections 2.5 – 2.8 (tentatively on 2/25)	
Week 9 (3/3 – 3/7)	Section 3.11 Line Integrals (1 hr)	Ch 3: Vector Calculus
	Section 3.12 Potential Function for Conservative Fields and The Fundamental Theorem of Line Integrals (2 hrs)	

WEEK or DATE RANGE	ACTIVITY or TOPIC	
Week 10 (3/10 – 3/14)	Section 3.13 Green's Theorem (1 hr) Study Sessions to prepare for Test 3	Chapter 3: Vector Calculus
Week 11 (3/17 – 3/21)	Section 3.14 Surface Integrals (3 hrs) Test 3: sections 2.9 – 3.12 (tentatively on 3/18)	
Week 12 (3/24 – 3/28)	Section 3.15 Divergence Theorem (1 hr) Section 3.16 Stokes' Theorem (1 hr)	
Week 13 (3/31 – 4/4)	Study Sessions to prepare for Test 4	
Week 14 (4/7 – 4/11)	Study Sessions to prepare for Test 4 Test 4: sections 3.13 – 3.16 (tentatively on 4/8)	
Apr 14 – Apr 25	Final Exam Period (Plan your travel and book your flights wisely)	

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 notice is required. Deadlines can be reviewed on the [CAL exams page](https://camosun.ca/services/academic-supports/accessible-learning/academic-accommodations-exams). <https://camosun.ca/services/academic-supports/accessible-learning/academic-accommodations-exams>

EVALUATION OF LEARNING

WEIGHTS (DATES)	Assignments	Term Tests
Assignment/Test 1	5% (due in class Tuesday Jan 21)	20% (Tuesday Jan 28)
Assignment/Test 2	5% (due in class Tuesday Feb 11)	20% (Tuesday Feb 25)
Assignment/Test 3	5% (due in class Tuesday Mar 11)	20% (Tuesday Mar 18)
Assignment/Test 4	6% (due in class Tuesday Apr 1)	19% (Tuesday Apr 8)
TOTAL	100%	

Note:

- Assignment solutions will be posted in D2L soon after the due time, hence late assignments will not earn credits.
- According to the requirements of the Engineering Bridge Programs, you need to get 60% (letter grade C) if you are a first-timer and 65% (letter grade C+) if you are repeating the course.

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](https://camosun.ca/sites/default/files/2021-05/e-1.14.pdf) policy for more information. <https://camosun.ca/sites/default/files/2021-05/e-1.14.pdf>

SCHOOL OR DEPARTMENTAL INFORMATION

Interurban Math Lab (TEC 142)

Services: Individual free tutoring and study space

Schedule: posted on the door

Format: Drop in – first-come first-served

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 camosun.ca/services.

Support Service	Website
Academic Advising	camosun.ca/services/academic-supports/academic-advising
Accessible Learning	camosun.ca/services/academic-supports/accessible-learning
Counselling	camosun.ca/services/health-and-wellness/counselling-centre
Career Services	camosun.ca/services/co-operative-education-and-career-services
Financial Aid and Awards	camosun.ca/registration-records/financial-aid-awards
Help Centres (Math/English/Science)	camosun.ca/services/academic-supports/help-centres
Indigenous Student Support	camosun.ca/programs-courses/iecc/indigenous-student-services
International Student Support	camosun.ca/international
Learning Skills	camosun.ca/services/academic-supports/help-centres/writing-centre-learning-skills

Support Service	Website
Library	camosun.ca/services/library
Office of Student Support	camosun.ca/services/office-student-support
Ombudsperson	camosun.ca/services/ombudsperson
Registration	camosun.ca/registration-records/registration
Technology Support	camosun.ca/services/its
Writing Centre	camosun.ca/services/academic-supports/help-centres/writing-centre-learning-skills

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 Integrity

Students are expected to comply with all College policy regarding academic integrity; which is about honest and ethical behaviour in your education journey. The following guide is designed to help you understand your responsibilities: <https://camosun.libguides.com/academicintegrity/welcome>
Please visit <https://camosun.ca/sites/default/files/2021-05/e-1.13.pdf> for Camosun's Academic Integrity policy and details for addressing and resolving matters of academic misconduct.

Academic Accommodations for Students with Disabilities

Camosun College is committed to achieving full accessibility for persons with disabilities. Part of this commitment includes arranging appropriate academic accommodations for students with disabilities to ensure they have an equitable opportunity to participate in all of their academic activities. If you are a student with a documented disability and think you may need accommodations, you are strongly encouraged to contact the Centre for Accessible Learning (CAL) and register as early as possible. Please visit the CAL website for more information about the process of registering with CAL, including important deadlines: <https://camosun.ca/cal>

Academic Progress

Please visit <https://camosun.ca/sites/default/files/2023-02/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 <https://camosun.ca/sites/default/files/2021-05/e-2.2.pdf> for further details about course withdrawals. For deadline for fees, course drop dates, and tuition refund, please visit <https://camosun.ca/registration-records/tuition-fees#deadlines>.

Grading Policy

Please visit <https://camosun.ca/sites/default/files/2021-05/e-1.5.pdf> for further details about grading.

Grade Review and Appeals

Please visit <https://camosun.ca/sites/default/files/2021-05/e-1.14.pdf> for policy relating to requests for review and appeal of grades.

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 (see [Medical/Compassionate Withdrawals policy](#)). Please visit <https://camosun.ca/services/forms#medical> to learn more about the process involved in a medical/compassionate withdrawal.

Sexual Violence

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 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 Policy: <https://camosun.ca/sites/default/files/2021-05/e-2.9.pdf> and camosun.ca/services/sexual-violence-support-and-education.

To contact the Office of Student Support: oss@camosun.ca or by phone: 250-370-3046 or 250-370-3841

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 <https://camosun.ca/sites/default/files/2021-05/e-2.5.pdf> to understand the College's expectations of academic integrity and student behavioural conduct.

Looking for other policies?

The full suite of College policies and directives can be found here: <https://camosun.ca/about/camosun-college-policies-and-directives>

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.