COURSE SYLLABUS

COURSE TITLE: MATH-250A: Intermediate Calculus 1

CLASS SECTION: X01 and X02

TERM: FALL 2023

COURSE CREDITS: 3

DELIVERY METHOD(S): FACE-TO-FACE

Camosun College campuses are located on the traditional territories of the Lək̓ʷəŋən and W̱SÁNEĆ peoples. We acknowledge their welcome and graciousness to the students who seek knowledge here.
Learn more about Camosun's [Territorial Acknowledgement](#).

INSTRUCTOR DETAILS

NAME: LEAH HOWARD

EMAIL: HowardL@camosun.ca

OFFICE: CBA 151

HOURS: Monday to Friday, 11:30-12:20

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 single variable calculus includes integrating using various techniques, evaluating limits in indeterminate forms, testing convergence and approximating value of infinite series, integrating in polar coordinates, and calculus of vector-valued functions.

PREREQUISITE(S):
Not Applicable
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 inverse trig functions.
2. Integrate polynomials, trigonometric and inverse trigonometric functions, and exponential and logarithmic functions.

3. Evaluate limits of indeterminate forms, and calculate improper integrals.

4. Use integration to find area, volume, arc length, surface area of revolution, work, moments and centroids.

5. Integrate using substitution, parts, trigonometric integrals, trigonometric substitution, and partial fractions.

6. Test a sequence for convergence and explain the difference between convergence of a sequence and convergence of a series.

7. Test series for convergence using the integral test, p-test, comparison tests, alternating series test and ratio test and explain the difference between convergence and absolute convergence.

8. Estimate the error in approximating a series using improper integrals and the alternating series remainder.

9. Calculate Taylor polynomials, power series, Taylor series, and MacLaurin series and estimate the error in an approximation using Taylor's Theorem.

10. Determine the interval of convergence of a power series.

11. Graph and analyze parametric and polar curves and find their first and second derivatives.

12. Perform integration computations with parametric and polar curves to compute area, arc-length, volume and surface area.

13. Sketch, differentiate, and integrate vector-valued functions to find velocities, accelerations, tangents, and normals.

REQUIRED MATERIALS & RECOMMENDED PREPARATION / INFORMATION

Any scientific calculator. (Graphing calculators are prohibited).

No required textbook. Suggested homework problems and answers are on D2L.

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

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

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

1.2-1.5 Limits and Continuity
2.2-2.4 Derivatives of Polynomials and Trig Functions
5.1 Derivatives of Exponential and Logarithmic Functions
2.5 Implicit Differentiation
4.4 and 4.5 Integrals of Polynomials
5.2 and 5.4 Integrals of Exponential and Logarithmic Forms
5.7 Derivatives of Inverse Trig Functions
5.8 Integrals of Inverse Trig Functions
5.9 Hyperbolic Functions
8.1 Integrals of Trig Functions

8.2 Integration by Parts
8.3 Trig Integrals
8.4 Trig Substitution
8.5 Partial Fractions

5.6 Indeterminate Forms
8.8 Improper Integrals

9.1 Sequences
9.2 Series
9.3 The Integral Test
9.4 Comparison Tests
9.5 Alternating Series
9.6 The Ratio and Root Tests
9.7 Taylor and Maclaurin Polynomials
9.8 Power Series
9.9 Power Series Representations
9.10 Taylor and Maclaurin Series

10.2 Parametric Curves
10.3 Parametric Curves and Calculus
10.4 Polar Graphs
10.5 Polar Area and Arc Length

12.1 Vector-Valued Functions
12.2 Derivatives and Integrals of Vector-Valued Functions
12.3 Velocity and Acceleration
12.4 Tangent and Normal Vectors
12.5 Arc Length

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 can be reviewed on the CAL exams page. http://camosun.ca/services/accessible-learning/exams.html

EVALUATION OF LEARNING

DESCRIPTION		WEIGHTING
Test One (50 minutes) Tentative Coverage: Up to and including Section 8.1 Fri Sept 29.		15%
Test Two (50 minutes) Tentative Coverage: 8.2-8.5, 5.6, 8.8 Fri Oct 20.		15%
Test Three (50 minutes) Tentative Coverage: 9.1-9.8 Fri Nov 10.		15%
Test Four (50 minutes) Tentative Coverage: 9.9, 9.10, 10.2-10.5, 12.1 Fri Dec 1.		15%
Final Exam (3 hours) Covers the entire course. Exam Period is Dec 11-19.		40%
	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

Do the suggested homework problems after we finish each section.

If you have questions: Ask me before class, after class, email me, or drop by office hours.

SCHOOL OR DEPARTMENTAL INFORMATION

Free math help is available in the Math Lab, TEC 142. Hours are posted on the door.

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 250-370-3841

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 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.

WEEK	COVERAGE	COMMENTS
Mon Sept 4-	1.2-1.5, 2.2-2.4	Monday is a holiday.
Mon Sept 11-	5.1, 2.5, 4.4-4.5, 5.2 & 5.4	
Mon Sept 18-	5.7, 5.8, 5.9, 8.1	
Mon Sept 25-	8.2, 8.3	**Test on Friday Sept 29.**
Mon Oct 2-	8.4, 8.5	Monday is a holiday.
Mon Oct 9-	5.6, 8.8	Monday is a holiday.
Mon Oct 16-	9.1, 9.2, 9.3	**Test on Friday Oct 20.**
Mon Oct 23-	9.3, 9.4, 9.5	
Mon Oct 30-	9.6, 9.7, 9.8	
Mon Nov 6-	9.9, 9.10	**Test on Friday Nov 10.**
Mon Nov 13-	10.2, 10.3	Monday is a holiday.
Mon Nov 20-	10.4, 10.5, 12.1	
Mon Nov 27-	12.2, 12.3	**Test on Friday Dec 1.**
Mon Dec 4-	12.4, 12.5, Exam Review	