COURSE SYLLABUS

COURSE TITLE: MATH-100: Calculus 1

CLASS SECTION: 002

TERM: WINTER 2024

COURSE CREDITS: 3

DELIVERY METHOD(S): LEC

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.

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: Bogdan Verjinschi

EMAIL: Verjinschi @camosun.bc.ca

OFFICE: E244

HOURS: see below

	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY
8:30-9:20		M109-001 Y227		M109-001 Y219	
9:30-10:20		M109-001 Y227	M109-002 Y219	M109-001 Y219	M109-002 Y219
10:30-11:20		OFFICE HOUR	M109-002 Y219	OFFICE HOUR	M109-002 Y219
11:30-12:20	OFFICE		OFFICE		OFFICE
12:30-1:20	M100-002 Y219		M100-002 Y219		M100-002 Y219
1:30-2:20	M100-002 Y219				M100-002 Y219

CALENDAR DESCRIPTION

For mathematics and science students. Topics include: limits, derivatives of algebraic, trigonometric, logarithmic and exponential functions, applications of differentiation and the Fundamental Theorem of Calculus. Students will complete some assignments using Maple.

PREREQUISITE(S):

One of:
B in Pre-calculus 12; B in MATH 097; A in MATH 107; B in MATH 115; A in MATH 173

CO-REQUISITE(S):

Not Applicable

EXCLUSION(S):

Notes: Only one of MATH 100 or MATH 108 may be used towards a Camosun College credential.

COURSE LEARNING OUTCOMES / OBJECTIVES

Upon completion of this course a student will be able to:

1. Find the limit of elementary functions as the independent variable approaches some finite value or approaches infinity.
2. Define continuity.
3. Find the derivative of simple functions using the definition.
4. Find the derivative of functions (polynomial, trigonometric, logarithmic and exponential functions) using the product, quotient and chain rule.
5. Find the derivative using implicit differentiation.
6. Solve problems involving rates of change.
7. Find relative and absolute extrema of functions.
8. Sketch graphs of functions identifying such features as relative extrema, intervals where the function is increasing and decreasing, points of inflection, intervals where the function is concave up and concave down, and asymptotes.
9. Solve problems that involve maximizing or minimizing some variable associated with the problem.
10. Solve equations using Newton's method.
11. Find the area under a curve using the limit of the area of a set of approximating rectangles.
12. Evaluate a definite and an indefinite integral of polynomial, trigonometric, logarithmic and exponential functions using the Fundamental theorem of Calculus.
13. Use the Mean Value Theorem of integrals to find the mean value of a continuous function.
14. Evaluate integrals using the method of substitution.
15. Evaluate definite integrals using the trapezoidal rule and Simpson's rule.
16. Solve elementary differential equations using the method of separation of variables.

REQUIRED MATERIALS & RECOMMENDED PREPARATION / INFORMATION

Textbook: Calculus (12th. Edition) by Larson & Edwards
Calculator: SHARP EL-531 Scientific Calculator

Test	Sections of Textbook	Test Date
TEST 1	P.1 Graphs and Models P.2 Linear Models and Rates of Change P.3 Functions and Their Graphs *P.4 Review of Trigonometric Functions* 1.1 A Preview of Calculus 1.2 Finding Limits Graphically and Numerically 1.3 Evaluating Limits Analytically 1.4 Continuity and One-Sided Limits …… 1.5 Infinite Limits 2.1 The Derivative and the Tangent Line Problem 2.2 Basic Differentiation Rules and Rates of Change 2.3 Product and Quotient Rules and Higher-Order Derivatives 2.4 The Chain Rule	**Wednesday** **February 7**
TEST 2	2.5 Implicit Differentiation 2.6 Related Rates 3.1 Extrema on an Interval 3.2 Rolle's Theorem and the Mean Value Theorem 3.3 Increasing and Decreasing Functions and the First Derivative Test 3.4 Concavity and the Second Derivative Test …… 3.5 Limits at Infinity 3.6 A Summary of Curve Sketching 3.7 Optimization Problems 3.8 Newton's Method 3.9 Differentials	**Wednesday** **March 13**
TEST 3	4.1 Antiderivatives and Indefinite Integration 4.2 Area 4.3 Riemann Sums and Definite Integrals 4.4 The Fundamental Theorem of Calculus 4.5 Integration by Substitution **8.6** Numerical Integration …… 5.1 The Natural Logarithmic Function: Differentiation 5.2 The Natural Logarithmic Function: Integration 5.3 Inverse Functions 5.4 Exponential Functions: Differentiation and Integration 5.5 Bases Other Than e and Applications	**Wednesday** **April 3**
Assignment **practice only**	***The final exam will also cover the following sections***: 6.2 Differential Equations: Growth and Decay 6.3 Separation of Variables and the Logistic Equation	

EVALUATION OF LEARNING

DESCRIPTION	WEIGHTING
10 Quizzes (best 10 of 11): weeks 2 to 14 (not W1,7 &13)	5%
3 Term Tests: all test count no make-up tests.	55%
Final Exam: 3h comprehensible Students must be available to write the exam during the scheduled date, time and place.	40%
TOTAL	100%

Quizzes Every Monday during the first hour of class.

1-2 question(s) based on the previous lectures content.

All tests count. *If you must miss one test due to illness or family affliction, contact me via e-mail, phone, or in person **before** the test to make alternate arrangements.*

If you don't provide a reason for a missed test, you may get a zero on that test.

There will be no "make-up" tests.

Final Exam: There will be a comprehensive three-hour final exam scheduled during the Final Exam Period (April15-23).

COURSE GUIDELINES & EXPECTATIONS

Have a good review of the material every weekend. Work at least 2h every day. Some of the sections covered in this course could be very difficult so please be sure you spend enough time to understand the concepts presented in class and that you can work the assigned problems (HW).

If you need help, please see me, my Office is E244, or go to The Camosun Math Help Center E224

SCHOOL OR DEPARTMENTAL INFORMATION

The Camosun Math Help Center in located in E224. This is a drop-in centre where you can get help with your homework. The hours will be posted on 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

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.