COURSE SYLLABUS

COURSE TITLE: MATH-115-Precalculus
CLASS SECTION: 001

TERM: 2024F

COURSE CREDITS: 3

DELIVERY METHOD(S): Lecture

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

INSTRUCTOR DETAILS

NAME: Chedo Barone

EMAIL: baronec@camosun.ca

OFFICE: Ewing 266

HOURS: Monday, Wednesday, and Friday 9:30 – 10:20; Tuesday and Thursday 12:30 – 1:30.

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 provides excellent preparation for MATH 100 - Calculus 1. If your prerequisite is more than two years old, consider refreshing your skills with MATH 077 before taking 115. Topics: polynomial, rational, exponential, logarithmic, trigonometric and inverse trigonometric functions; sequences and series; a brief introduction to calculus.

PREREQUISITE(S):

One of:

B in Pre-calculus 11

C in Pre-calculus 12

B in MATH 073

B in MATH 077

C in MATH 097

C in MATH 107

B in MATH 137

CO-REQUISITE(S):

EQUIVALENCIES:

COURSE LEARNING OUTCOMES / OBJECTIVES

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

Read and write mathematics at a level sufficient for entry into first-year calculus.

Write equations of circles and ellipses in standard form and graph these relations. Expand binomials using Pascal's triangle. Factor and simplify expressions with rational exponents. Solve polynomial and rational inequalities. State the Remainder, Factor and Rational Zeros Theorems and use these theorems to factor polynomials and find their real zeros.

Define the term function. Find the domain of functions. Compose and decompose functions. Construct algebraic functions to model simple real-life problems. Solve optimization problems modelled with quadratic functions.

Identify the graphs of common algebraic functions. Evaluate and graph piecewise defined functions. Interpret and graph multiple transformations of functions. Analyze and graph polynomial and rational functions.

Find inverse functions algebraically and graphically. Explain the relationship between exponential and logarithmic functions. Graph exponential and logarithmic functions and their transformations. Prove the properties of logarithms and use these properties to simplify expressions and solve equations. Solve applied problems involving pH, the Richter scale, decibels, compound interest, exponential growth, exponential decay and logistic growth.

State the right triangle definitions for the trigonometric functions. Use reference triangles to find exact values of trigonometric functions of special angles. Define a radian and work with radian measure. State the unit circle definitions for the sine and cosine functions. Graph the six trigonometric functions and transformations of these functions. Analyze sinusoidal graphs and construct possible equations. Graph the inverse sine, cosine and tangent functions. Find exact values for compositions of trigonometric and inverse trigonometric functions. Write compositions as algebraic expressions.

Derive the Pythagorean identities, the sum and difference identities, the double angle identities, the power reducing identities, and the half angle identities. Use these identities to simplify expressions

and verify other identities. Find exact and approximate solutions of trigonometric equations, including equations involving identities and multiples of angles.

Identify patterns in sequences and write formulas for the general terms. Simplify and evaluate basic sums of sequences. Derive formulas for the nth terms of arithmetic and geometric sequences and for the sums of the first n terms of these sequences. Solve word problems involving arithmetic and geometric sequences and series.

Evaluate limits graphically, numerically and algebraically. Use the definition of a derivative to differentiate basic polynomial, rational and radical functions. Differentiate polynomials using standard rules. Demonstrate an understanding of both the geometrical and physical interpretations of derivatives.

REQUIRED MATERIALS & RECOMMENDED PREPARATION / INFORMATION

Textbook: Algebra & Trigonometry (11th. Edition) by Sullivan
Calculator: SHARP EL-531 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.

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WEEK or DATE RANGE	TOPICS/TEXTBOOK SECTIONS	TESTS/QUIZZES/ASSIGNMENTS
Week 1: Sep 2 – 6	Introduction, R.5 – R.8, 1.1, 1.2	
Week 2: Sep 9 – 13	1.4,1.5, 2.1-2.4, 11.3,11.4, 3.1	Quiz 1 on Wednesday Sep 11
Week 3: Sep 16 – 20	3.2 – 3.6, 4.1, 4.3, 4.4	Quiz 2 on Wednesday Sept 18
Week 4: Sep 23 – 27	4.5, 5.1-5.3	Quiz 3 on Wednesday Sept 25
Week 5: Sep 30 – Oct 4	5.4, 5.5	Midterm 1: Wednesday October 2 coverage: R.5 to 4.5
Week 6: Oct 7 – 11	6.1 – 6.4	Quiz 4 on Wednesday Oct 9

WEEK or DATE RANGE	TOPICS/TEXTBOOK SECTIONS	TESTS/QUIZZES/ASSIGNMENTS
Week 7: Oct 14 – 18	6.4 – 6.7	Quiz 5 on Wednesday Oct 17
Week 8: Oct 21 – 25	6.8, 7.1 – 7.4	Quiz 6 on Wednesday Oct 23
Week 9: Oct 28 – Nov 1	7.5 – 7.7	**Midterm 2: Wednesday October 30** coverage: 5.1 to 6.8
Week 10: Nov 4 – 8	7.8, 8.1 – 8.3	Quiz 7 on Wednesday November 6
Week 11: Nov 11 – 15	8.4 – 8.6	Quiz 8 on Wednesday Nov 13
Week 12: Nov 18 – 22	8.6, 13.1, 13.2, 13.3	Quiz 9 on Wednesday Nov 20
Week 13: Nov 25 – 29	Calc 1.2, Calc 1.3	**Midterm 3: Wednesday November 27** coverage: 7.1 to 8.6
Week 14: Dec 2 – 6	Calc 1.3, Calc 1.4, Final Exam Review	Quiz 10 on Wednesday December 4
Final Exam Period: Dec 9 -17		

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.
https://camosun.ca/services/academic-supports/accessible-learning/academic-accommodations-exams

EVALUATION OF LEARNING

DESCRIPTION	WEIGHTING
Quizzes	8%
WeBWorK	7%
3 Midterm Exams (15% for each exam)	45%
Final Exam	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.

https://camosun.ca/sites/default/files/2021-05/e-1.14.pdf

COURSE GUIDELINES & EXPECTATIONS

WeBWorK Online Practice Assignments: Every week, a selection of practice problems will be assigned through the WeBWorK platform, due to be completed by the following week. The link to our WeBWorK page can be found on our D2L page. You will be allowed to attempt the assignment questions as many times as you would like. Each assignment will remain open after its due date for *half of the original marks*, until the day of the final exam. You can find the link to WeBWorK on our D2L page.

Quizzes: There will be 10 short quizzes, each with a duration of 10 minutes. The content of each quiz will be from the previous five or six classes, and there will usually be two questions in each quiz. The quizzes will be held during the **last** ten minutes of class on the scheduled quiz days.

Midterms: There are 3 midterm exams, each with a duration of 50 minutes. The coverage of each midterm is given in the schedule given above in this syllabus. The midterms will be held during the **last** 50 minutes of class time on the scheduled days.

Quiz and Midterm Absences: If you miss a quiz/midterm for a legitimate reason such as illness, accident or family affliction, you should notify me (by email, or in person) as soon as possible and before the quiz/midterm (unless circumstances reasonably prevent you from doing so).

There will be no "make-up" quizzes or midterms. In the case of a missed quiz, the weight for this missed quiz will be spread among the remaining quizzes. **I will excuse a student from a maximum of two quizzes.**

In the case of a missed midterm exam, I will use the mark from the relevant portions of your final exam to calculate a mark for that missed exam. **I will excuse a student from a maximum of one midterm exam.**

SCHOOL OR DEPARTMENTAL INFORMATION

A&S Math Lab (Ewing 224): This drop-in centre is freely available for your use to work on math homework and to seek help from the instructional assistant. Hours are posted on the door or online at camosun.ca/services/academic-supports/help-centres/math-help.

Academic Integrity: The Department of Mathematics and Statistics has prepared a handout called Student Guidelines for Academic Integrity to help you interpret college policies involving student conduct, academic dishonesty, plagiarism, etc. It is your responsibility to become familiar with the contents of the document and the college policies it references.

Calculator Policy: As per department policy, the only calculator permitted for use on tests and the final exam is the Sharp EL-531 (or EL-510R) scientific calculator. No other calculator or any other electronic device including cell phones, smartwatches, etc. is allowed.

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
Library	camosun.ca/services/library
Office of Student Support	camosun.ca/services/office-student-support
Ombudsperson	camosun.ca/services/ombudsperson

Support Service	Website
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.