COURSE SYLLABUS

COURSE TITLE:	Math 097 – College Prep Math 2
CLASS SECTION:	DS01
TERM:	Winter 2025
COURSE CREDITS:	3
DELIVERY METHOD(S):	Online self-paced

INSTRUCTOR DETAILS

NAME:	Crystal Lomas
EMAIL:	LomasC@camosun.ca
OFFICE:	Online
HOURS:	To be determined and by appointment

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

Students will build the knowledge and skills in algebra and trigonometry necessary for entry into technical, vocational and career programs that require Math 12 equivalency as a prerequisite and for future study in higher-level math courses at college/university. Students will improve their knowledge of functions and graphs, expanding knowledge of exponential and trigonometric functions to enable analysis of applied problems.

PREREQUISITE(S):	One of:	C in Pre-calculus 11
		C in MATH 073
		C in MATH 077
		C in MATH 137
		C in MATH 139
		Assessment
CO-REQUISITE(S):	None.	
EQUIVALENCIES:	None.	

COURSE LEARNING OUTCOMES / OBJECTIVES

The learning outcomes in this course meet the required learning outcomes in ABE Mathematics: Provincial Algebra and Trigonometry outlined in the BC ABE Articulation Handbook 2019/20 Edition. Upon successful completion of this course a student will be able to:
 Employ advanced graphing techniques for relations and functions, including discontinuous applications. In particular, students will be able to:

- Find the distance between two points in the plane and find the midpoint of a segment,
- Apply the distance formula and midpoint formula to solve problems,
- Recognize graphs of common functions: linear, constant, quadratic, cubic, square root, absolute value, reciprocal,
- Use the vertical line test to identify functions,
- Graph functions and analyze graphs of functions, identifying: domain and range; intervals on which the function is increasing, decreasing or constant,
- Write formulas of functions to model real life applications,
- Determine whether a graph is symmetric with respect to the x-axis, y-axis, and the origin,
- Identify even or odd functions and recognize their symmetries,
- Graph transformations of functions: translations, reflections, stretchings and shrinkings,
- Graph functions defined piecewise,
- Find the sum, difference, product and quotient of two functions and determine their domains,
- Find the composition of two functions f and g, finding formulas for f(g(x)) and g(f(x)), identifying the domain of the composition and evaluating the composite function,
- Given an equation defining a relation, write an equation of the inverse relation,
- Given a graph of a relation or function, sketch a graph of its inverse,
- Use the horizontal line test to determine if a function is one-to-one and therefore has an inverse that is a function,
- Find a formula for the inverse of a function, and
- Find $f^{-1}(f(x))$ and $f(f^{-1}(x))$ for a number x in the domains of the functions when the inverse of a function is also a function.

Apply the algebraic and visual properties of polynomial and rational functions to modelling of continuous and discontinuous phenomena. In particular, students will be able to:
- Graph quadratic functions and analyze graphs of quadratic functions identifying the vertex, line of symmetry, maximum/minimum values, and intercepts,
- Solve applied problems involving maximum and minimum function values,
- Determine the behavior of the graphs of polynomial functions of higher degree using the leading coefficient test,
- Determine whether a function has a real zero between two real numbers,
- Recognize characteristics of the graphs of polynomial functions including real zeros, y-intercept, relative maxima and minima, domain and range,
- Divide polynomials using long division,
- Use synthetic division to divide a polynomial by $x - r$,
- Use the remainder and factor theorems to find function values and factors of a polynomial,
- List the possible rational zeros for a polynomial function with integer coefficients,
- Factor polynomial functions and find the zeros,
- Find a polynomial with specified zeros, and
- Solve polynomial and rational inequalities.

Apply the fundamental algebraic and visual properties of exponential and logarithmic functions to simple examples. In particular, students will be able to:
- Evaluate exponential functions including functions with base e,
- Recognize the inverse relationship between exponential and logarithmic equations,
- Graph exponential and logarithmic functions including transformations and analyze the graphs in terms of: x- or y- intercepts, asymptotes, increasing or decreasing, domain and range,
- Convert between exponential and logarithmic equations
- Find common and natural logarithms using a calculator
- Use basic and inverse properties of logarithms: $\log_b b = 1$, $\log_b 1 = 0$, $\log_b b^x = x$, $b^{\log_b x} = x$,
- Use the product rule, quotient rule and power rule to expand or condense logarithmic expressions,
- Use the change of base property to find a logarithm with base other than 10 or e,
- Solve exponential and logarithmic equations, and

- Use exponential and logarithmic equations to model and solve real-life applications including exponential growth and decay.

Apply the fundamental algebraic and visual properties of trigonometric functions to simple examples of periodic phenomena. In particular, students will be able to:

- Identify angles in standard position, positive and negative angles, coterminal angles and reference angles,
- Convert between degree and radian measures of angles,
- Find the length of an arc, radian measure of central angle, or radius of a circle using the formula $s = r\theta$,
- Identify special angles on a unit circle,
- Determine the six trigonometric functions of an angle in standard position given a point on its terminal side,
- Find the exact values of the trigonometric functions of special acute angles 30° (π/6), 45° (π/4), and 60° (π/3) or any angles that are multiples of these special angles,
- Graph the six trigonometric functions and state their properties,
- Graph transformations of the sine and cosine functions and determine period, amplitude, and phase shift,
- Recognize and use the reciprocal, quotient and Pythagorean identities,
- Apply the sum or difference formulas and double angle formulas to find exact values and to verify trigonometric identities,
- Recognize and use inverse trigonometric function notation,
- Use a calculator to evaluate inverse trigonometric functions,
- Find exact values of composite functions with inverse trigonometric functions,
- Solve trigonometric equations over the interval (0,2π), and
- Use trigonometric functions to model and solve real-life problems.

Apply the fundamental algebraic properties of sequences and series to describe geometric growth patterns. In particular, students will be able to:

- Find terms of sequences given the general or nth term,
- Find a formula for the general or nth term of a given sequence,
- Use summation notation to write a series and evaluate a series designated in summation notation,
- Construct the terms of a sequence defined by a recursive formula,
- Recognize and write terms of arithmetic and geometric sequences,
- Use nth term formulas for arithmetic and geometric sequences to find a specified term, or to find n when an nth term is given,
- Find the sum of the first n terms of arithmetic and geometric sequences,
- Find the sum of an infinite geometric series, if it exists, and
- Use sequences and series to model and solve real-life problems.

REQUIRED MATERIALS & RECOMMENDED PREPARATION / INFORMATION

This class uses the free open textbook *Algebra and Trigonometry 2e* by Jay Abramson, published by OpenStax. The full text is available at https://openstax.org/books/algebra-and-trigonometry-2e/pages/1-introduction-to-prerequisites and individual relevant sections will be linked on D2L.

Required: Sharp-EL 531 calculator
Device capable of taking and emailing scans/pictures of written work
Reliable internet connection

A computer with headphones, camera, and microphone is recommended, along with enough quiet desk space to do written work.

College computers and copiers are available on campus if needed.

There are no due dates in this course, but all coursework must be completed by **April 17th**.
Stick to the schedule below to make sure you're on pace to finish and able to take advantage of any lectures or peer support that may be offered.

Wk	Monday	Tuesday	Wednesday	Thursday	Friday
1	January 6	7	8	9	10
	Review	Review	1.1	1.2	1.3
2	Jan 13	14	15	16	17
	1.4	1.5	1.6	1.7	Unit 1 Assignment
3	Jan 20	21	22	23	24
	Unit 1 Practice Test	Review	Unit 1 Test	2.1	2.2
4	Jan 27	28	29	30	31
	2.3	2.4	2.5	2.6	2.7
5	Feb 3	4	5	6	7
	Unit 2 Assignment	Unit 2 Practice Test	Review	Unit 2 Test	3.1
6	Feb 10	11	12	13	14
	3.2	3.3	3.4	3.5	3.6
7	Feb 17	18	19	20	21
	Family Day	Reading Break	Reading Break	Reading Break	Reading Break
8	Feb 24	25	26	27	28
	3.7	Unit 3 Assignment	Unit 3 Practice Test	Review	Unit 3 Test
9	Mar 3	4	5	6	7
	4.1	4.2	4.3	4.4	4.4
10	Mar 10	11	12	13	14
	4.5	4.6	4.7	4.8	4.9
11	Mar 17	18	19	20	21
	Unit 4 Assignment	Review	Unit 4 Practice Test	Review	Unit 4 Test
12	Mar 24	25	26	27	28
	5.1	5.2	5.3	5.4	Unit 5 Assignment
13	Mar 31	April 1	2	3	4
	Unit 5 Practice Test	Review	Unit 5 Test	Final Exam Review Assignment	Final Exam Review Assignment
14	Apr 7	8	9	10	11
	Review	Practice Final Exam	Review	Review	Final Exam
15	Apr 14	15	16	17	18
					Good Friday

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
Assignments (6)		12%
Practice Tests (6)		18%
Unit Tests (5)		40%
Final Exam (1)		30%
	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

All course work is done through D2L with assessments in MyOpenMath. Students will progress through materials at their own pace, generally using textbook readings and videos in place of lectures.

Office hours and optional class meetings will be scheduled after consultation with students.

Assignments
- Resources and collaboration allowed.
- 3 attempts per question with no penalty.
- 10 "similar questions" with 10% penalty per version after the first.
- Some questions require written work submission (scan & email).

Practice Tests
- No resources or collaboration permitted.
- 3 attempts per question with 10% penalty per attempt after the first.
- No "similar questions" – may retry entire test with no penalty. Best score counts.
- Written work submission required (scan & email).
- Time limit.

Unit Tests
- No resources or collaboration permitted.
- 3 attempts per question with 15% penalty per attempt after the first.
- No "similar questions" – may retry entire test with no penalty if score < 65%. Best score counts.
- Written work submission required (scan & email).
- Time limit.

Final Exam
- Covers entire course.
- No resources or collaboration permitted.
- 3 attempts per question with 15% penalty per attempt after the first.
- No "similar questions" and **no rewrites**.
- Written work submission required (scan & email).
- Time limit.

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
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.

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.