CAMOSUN COLLEGE
School of Arts & Science
Department of Mathematics & Statistics

MATH-115-001
Precalculus
Winter 2019

COURSE OUTLINE

The course description is online @ http://camosun.ca/learn/calendar/current/web/math.html

Ω *Please note: This outline will not be kept indefinitely. It is recommended students keep this outline for their records, especially to assist in transfer credit to post-secondary institutions.*

1. Instructor Information

(a)	**Instructor**	Crystal Lomas
(b)	**Office hours**	Mon, Tues, Thurs 10:30 – 11:20 am; Mon-Thurs 1:30-2:20 pm
(c)	**Location**	Ewing 270
(d)	**Phone**	250-370-3428 **Alternative:**
(e)	**E-mail**	lomasc@camosun.bc.ca
(f)	**Website**	D2L: http://online.camosun.ca

2. Intended Learning Outcomes

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

1. Read and write mathematics at a level sufficient for entry into first-year calculus.
2. 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.
3. 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.
4. 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.
5. 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.
6. 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.
7. 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.

8. 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.

9. 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.

3. Required Materials

(a) Texts: *Algebra & Trigonometry,* 10th edition by Sullivan. If you do not want a print text, a code can be purchased for digital textbook and solution manual access. The CourseID you'll need for this is math47758.

(b) Calculator: The Sharp EL-531 is required for this course.

4. Course Content and Schedule

Note: A detailed pacing schedule is posted on D2L.

Week	Content	Graded Work
1	Intro, Ch R, Ch 1	
2	Ch 2, Ch 11, Ch 3	Assignment 1, Jan 15
3	Ch 3, Ch 4	Quiz 1, Jan 24
4	Ch 4, Ch 5	Test 1, Jan 29
5	Ch 5	
6	Ch 6	Assignment 2, Feb 12
7	Ch6	Quiz 2, Feb 28
8	Ch 7	Test 2, Mar 5
9	Ch 7	
10	Ch 7, Ch 8	Assignment 3, Mar 19
11	Ch 8	Quiz 3, Mar 28
12	Ch 8, Ch 13	Test 3, Apr 2
13	Ch 13, Review	Assignment 4, Apr 11

5. Basis of Student Assessment (Weighting)

(a) **Assignments and Quizzes 10%:** 4 hand-in assignments (7%) and 3 in-class quizzes (3%).
Solutions will be available soon after the due date. As such, late assignments will not be accepted. There are no make-up assignments or quizzes. If you have an emergency that prevents you from completing an assignment or quiz, send me an email as soon as possible and I will drop the item from your grade calculation.

(b) **Term Tests 40%:** 3 in-class tests.
- There are no rewrites for term tests.
- If you have an emergency and must miss a test, email me as soon as possible and provide documentation (i.e. doctor's note). Otherwise, you may receive a zero for your missed test.
- No electronic device other than the approved calculator may be used on term tests.
- Papers, references, books, etc., may not be used on tests.

(c)   **Final Exam 50%:** The final exam is cumulative and 3 hours long.
- You must write the final exam at the scheduled time, except in emergency situations (scheduled flights and vacations are not considered emergencies).
- The final exam schedule will be posted on Feb 22nd and spans April 15-26. Do not make commitments for this period until you know your exam dates.

6. Grading System

| X | Standard Grading System (GPA)

| | Competency Based Grading System

7. Recommended Materials to Assist Students to Succeed Throughout the Course

Academic Integrity
The Department of Mathematics and Statistics has prepared a "red 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.

Math Lab
You can get free face-to-face tutoring from our instructional assistant in the Math Lab in E224. Hours are posted on the door and on the website: http://camosun.ca/services/help-centres/

D2L
This class uses Desire2Learn (D2L), an online course management system. Course-related materials, grades and announcements will be available on D2L. It is your responsibility to ensure you have access to D2L and to check it regularly. I recommend setting up alerts by clicking on your name in the top right corner and navigating to Notificiations.

Class Time
It is expected that you will attend each class and be an active learner. This means participating in class discussions and attempting any problems the class is working on. Please come prepared with paper, pencils, ruler, an approved calculator, and a digital or print copy of the textbook. If you must miss a class, catch up as soon as you can with the notes in our shared folder.

8. College Supports, Services and Policies

Immediate, Urgent, or Emergency Support
If you or someone you know requires immediate, urgent, or emergency support (e.g. illness, injury, thoughts of suicide, sexual assault, etc.), **SEEK HELP**. Resource contacts @ http://camosun.ca/about/mental-health/emergency.html or http://camosun.ca/services/sexual-violence/get-support.html#urgent

College Services
Camosun offers a variety of health and academic support services, including counselling, dental, disability resource centre, help centre, learning skills, sexual violence support & education, library, and writing centre. For more information on each of these services, visit the **STUDENT SERVICES** link on the College website at http://camosun.ca/

College Policies
Camosun strives to provide clear, transparent, and easily accessible policies that exemplify the college's commitment to life-changing learning. It is the student's responsibility to become familiar with

the content of College policies. Policies are available on the College website at http://camosun.ca/about/policies/. Education and academic policies include, but are not limited to, Academic Progress, Admission, Course Withdrawals, Standards for Awarding Credentials, Involuntary Health and Safety Leave of Absence, Prior Learning Assessment, Medical/Compassionate Withdrawal, Sexual Violence and Misconduct, Student Ancillary Fees, Student Appeals, Student Conduct, and Student Penalties and Fines.

A. GRADING SYSTEMS *http://camosun.ca/about/policies/index.html*

The following two grading systems are used at Camosun College:

1. Standard Grading System (GPA)

Percentage	Grade	Description	Grade Point Equivalency
90-100	A+		9
85-89	A		8
80-84	A-		7
77-79	B+		6
73-76	B		5
70-72	B-		4
65-69	C+		3
60-64	C		2
50-59	D		1
0-49	F	Minimum level has not been achieved.	0

2. Competency Based Grading System (Non GPA)

This grading system is based on satisfactory acquisition of defined skills or successful completion of the course learning outcomes

Grade	Description
COM	The student has met the goals, criteria, or competencies established for this course, practicum or field placement.
DST	The student has met and exceeded, above and beyond expectation, the goals, criteria, or competencies established for this course, practicum or field placement.
NC	The student has not met the goals, criteria or competencies established for this course, practicum or field placement.

B. Temporary Grades

Temporary grades are assigned for specific circumstances and will convert to a final grade according to the grading scheme being used in the course. See Grading Policy at http://camosun.ca/about/policies/index.html for information on conversion to final grades, and for additional information on student record and transcript notations.

Temporary Grade	Description
I	*Incomplete*: A temporary grade assigned when the requirements of a course have not yet been completed due to hardship or extenuating circumstances, such as illness or death in the family.

IP	*In progress*: A temporary grade assigned for courses that are designed to have an anticipated enrollment that extends beyond one term. No more than two IP grades will be assigned for the same course.
CW	*Compulsory Withdrawal*: A temporary grade assigned by a Dean when an instructor, after documenting the prescriptive strategies applied and consulting with peers, deems that a student is unsafe to self or others and must be removed from the lab, practicum, worksite, or field placement.