COURSE OUTLINE

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

Ω   *Please note: the College electronically stores this outline for five (5) years only.*
*It is **strongly recommended** you keep a copy of this outline with your academic records.*
You will need this outline for any future application/s for transfer credit/s to other colleges/universities.

1.   Instructor Information

(a)	Instructor:	Laura Shepherd		
(b)	Office Hours:	8:00 – 8:45 &11:30 – 12:30 Monday - Thursday		
(c)	Location:	E258		
(d)	Phone:	3499	Alternative Phone:	
(e)	Email:	shepherd@camosun.bc.ca		
(f)	Website:	http://online.camosun.bc.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 applied calculus.
2.   Factor polynomials. Simplify rational expressions, complex fractions and radicals. Factor and simplify expressions containing rational exponents.
3.   Choose efficient strategies to solve quadratic equations. Solve radical equations and equations involving rational expressions.
4.   State the formulas for the slope *y*-intercept and point slope form of lines and use the formulas to find equations of lines. Graph linear equations and find equations from graphs. Model real-life problems with linear equations.
5.   Write the equations of circles and ellipses in standard form and graph these relations.
6.   Define the term function. Determine if relations are functions. Find the domains of functions. Define even and odd functions and test functions to determine if they are even, odd or neither. Form and simplify difference quotients and explain their graphical interpretation and significance.
7.   Identify the graphs of common algebraic functions. Evaluate and graph piecewise defined functions.
8.   Construct algebraic functions to model simple real-life problems.
9.   Translate verbal descriptions of transformations to function notation and vice versa. Interpret and graph multiple transformations of functions.
10.   Analyze and graph quadratic functions. Solve optimization problems modelled with quadratic functions.
11.   Graph polynomial functions using symmetry, end behaviour and behaviour near their *x*-intercepts. Analyze graphs of polynomial functions and construct possible equations.
12.   Determine the domain, intercepts and the equations of horizontal and vertical asymptotes for rational functions.
13.   Solve polynomial and rational inequalities.
14.   State the Remainder, Factor and Rational Zeros Theorems and use these theorems to factor polynomials and find the real zeros.
15.   Compose and decompose functions. Verify that two functions are inverses using the definition of inverse functions. Find inverse functions algebraically and graphically.
16.   Explain the relationship between exponential and logarithmic functions. Graph exponential and logarithmic functions and their transformations.
17.   Use the properties of logarithms to simplify expressions and solve equations.
18.   Solve applied problems involving pH, the Richter scale, decibels, compound interest, exponential growth, exponential decay and logistic growth.
19.   Convert between degree and radian measure.
20.   Sketch graphs of the sine and cosine functions using their unit circle definitions. Graph transformations of these functions.

21. Define the tangent, cotangent, secant and cosecant functions in terms of the sine and cosine functions. Graph the tangent, cotangent, secant and cosecant functions using the sine and cosine graphs.
22. State the right triangle definitions for the trigonometric functions. Use reference triangles to find exact values of trigonometric functions.
23. Derive the Pythagorean identities and the double angle identities. Use the Pythagorean identities, the sum and difference identities and the double angle identities to simplify expressions and verify other identities.
24. Find exact values for compositions of trigonometric and inverse trigonometric functions.
25. Find exact and approximate solutions of basic trigonometric equations.
26. Identify patterns in sequences and write formulas for the general terms. Write the terms of recursively defined sequences. Express sums using summation notation.
27. Identify arithmetic and geometric sequences and derive formulas for their nth terms. Find the sums of the first n terms of these sequences. Solve word problems involving arithmetic and geometric sequences and series.

3. Required Materials

(a) **Texts:** Algebra and Trigonometry, Sullivan, 2nd custom edition.

(b) **Calculator**: Sharp EL-531X scientific calculator. No other make/model of calculator is permitted, nor are any other electronic devices.

4. Course Content and Schedule

Quiz 1: July 15th   Quiz 2: July 29th   Trig Proof Quiz: Aug. 13th   Quiz 3: Aug. 18th

5. Basis of Student Assessment (Weighting)

(a) **Daily Questions:** Every day, with the exception of test days during the first five minutes of class, there will be a question and/or formula based on the previous days material. Please see the homework set for the exact questions. These daily questions will count for 10% of your grade. There will be a total of 18 daily questions of which each student may miss three without penalty. These three dropped questions are in case a student misses a class or gets one wrong.

(b) **Quizzes:** There will be a total of 3 in class quizzes which will count for 35% of your grade. The tests are weighted equally. There are no make-up tests. If you miss a test for any reason please see me as soon as possible so that I can give you a copy of the missed test to help you study for the final exam.

(c) **Trigonometric Proof Test:** This is a test on the proofs of some of the trigonometry formulas. The solutions for this test are currently posted on the website and we will go over the key in class. The trig proof test is worth 5% of your grade.

(d) **Final Exam:** Comprehensive final exam worth 50% of your grade. The final exam will be written during the week following the end of classes, the time and place will be scheduled by the college. Students MUST show up to the final exam.

6. Grading System

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	Minimum level of achievement for which credit is granted; a course with a "D" grade cannot be used as a prerequisite.	1
0-49	F	Minimum level has not been achieved.	0

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 E-1.5 at **camosun.ca** 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, due to design may require a further enrollment in the same course. No more than two IP grades will be assigned for the same course. *(For these courses a final grade will be assigned to either the 3rd course attempt or at the point of course completion.)*
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.

7. **Recommended Materials or Services to Assist Students to Succeed Throughout the Course**

LEARNING SUPPORT AND SERVICES FOR STUDENTS

There are a variety of services available for students to assist them throughout their learning.
This information is available in the College calendar, at Student Services, or the College web site at
camosun.ca.

STUDENT CONDUCT POLICY

There is a Student Conduct Policy **which includes plagiarism**.
It is the student's responsibility to become familiar with the content of this policy.
The policy is available in each School Administration Office, at Student Services,
and the College web site in the Policy Section.

6. **Where to Get Help.**

(a) **Office Hours:** I am here each day from 8:00 – 8:45 & 11:30 – 12:30. I usually get here by 7:30 in the morning so do not hesitate to stop by I am always happy to help.

(b) **Math Lab:** This is a drop in centre where you can get help with your homework. The lab is located in E342 and the hours will be posted on the door. [Hours are usually Monday – Thursday 4 – 8.]

(c) **Website:** This website has practice tests as well as other useful information.
    http://online.camosun.b.ca/

(d) **Wolfram Alpha:** This is a useful free website that can help you with your homework.
    http://www.wolframalpha.com/examples/Math.html