CAMOSUN COLLEGE	**School of Arts & Science** **MATHEMATICS DEPARTMENT** **MATH 115** **Precalculus** **Fall 2013**

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:	Monday, Tuesday, Thursday 10:30 – 2:20		
(c)	Location:	E258		
(d)	Phone:	3499	Alternative Phone:	
(e)	Email:	shepherd@camousn.bc.ca		
(f)	Website:	https://sites.google.com/site/lmds5637/115		

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 modeled 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 and Trigonometry, 8th ed. by M. Sullivan, available in the College Bookstore.

(b) **Other:** Calculator: As per Math Department policy, the only calculator permitted for use on the tests and the final exam is the Sharp EL-531X (or the discontinued EL-531W) scientific calculator. No other make/model of calculator is permitted, nor are other electronic devices such as cell phones, iPods, electronic translators, etc.

4. Course Content and Schedule

Classes: Monday, Tuesday, Thursday Y217

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 for the tutor on staff (see hours posted on door).

5. Basis of Student Assessment (Weighting)

(a**) Assignments**: (10%)

At the beginning of each class, first 5 minutes, there will be a question asked based on the previous days material (see the homework set for exact questions). There will be a total of approximately 40 daily questions of which you get 4 'freebees' that will not count towards your grade. The four 'free' questions are to be used if you miss a class for any reason, your late to class, or you get one wrong.

(b) **Term Tests:** Tentative Quiz Dates:

Quiz 1: (11.5%) Thursday Sept. 26th (11.5%)

Quiz 2: (11.5%) Thursday Oct. 24th (11.5%)

Quiz 3: (5.5%) Thursday Nov. 21st (11.5%)

Quiz 4: (11.5%) Thursday Nov. 28th (11.5%)

*There are no make-up tests. If you miss a test for any reason please see me as soon as possible.

(c**) Exam:** Comprehensive final exam (50%)

The Final Exam Period is December 9th – 17th. Students **MUST** be available to write the final exam at the scheduled date and time.

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.

ADDITIONAL COMMENTS AS APPROPRIATE OR AS REQUIRED