	School of Arts & Science **MATHEMATICS DEPARTMENT** **MATH 115** **Precalculus** **Quarter 1/Fall 2009 (Sep-Dec)**	

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:	Richard Tschritter		
(b)	Office Hours:	Monday & Wednesday 11:30am-12:30pm, Tuesday &Thursday 3:00-5:00pm		
(c)	Location:	E-268		
(d)	Phone:	370-3494	Alternative Phone:	
(e)	Email:	Tschritter@camosun.bc.ca		
(f)	Website:	Tschritter.disted.camosun.bc.ca		

2.   Intended Learning Outcomes
(No changes are to be made to these Intended Learning Outcomes as approved by the Education Council of Camosun College.)

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

1. Evaluate functions, find the domain of functions, compose and decompose functions and find inverse functions.
2. Graph polynomial and rational functions using symmetry, intercepts, long run behaviour, asymptotes and a table of signs.
3. Prove the Remainder and Factor Theorems and use the theorems to factor polynomials and find their real and complex zeros.
4. Graph exponential and logarithmic functions and their transformations.
5. Prove the properties of logarithms and use these properties to simplify expressions, and solve equations and applied problems.
6. Graph the six trigonometric functions and their transformations and the three basic inverse trigonometric functions.
7. Use the unit circle definitions to derive the Pythagorean identities, the sum and difference formulas, and the double angle and half angle formulas. Use these identities to simplify expressions, solve equations and verify other identities.
8. Use trigonometric functions to model real-life problems involving cyclical patterns.
9. Evaluate limits, find derivatives using the definition, find equations of tangent lines and solve optimization problems using polynomial calculus.
10. Read and write mathematics at a level sufficient for entry into first year calculus.

3.   Required Materials

(a) Texts: Sullivan,M. Algebra & Trigonometry, 8th edition

(b) Other: Calculator: Scientific-Sharp EL-531W

4.   Course Content and Schedule

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COURSE OUTLINE FOR MATH 115 Fall /09

Instructor: Rich Tschritter, Ewing-268   Office hours: Monday & Wednesday, 11:30am-12:30 pm;
 3:00 pm-5:00 pm Tuesday & Thursday,
Class Times: Monday to Thursday: 8:30 am to 9:20 pm, Room E-201, **Friday 8:30-9:20 am F-306**.

Text: Sullivan, M. Algebra & Trigonometry, 8th edition
 Calculator: Scientific- Sharp EL-531W

CHAPTER A: APPENDIX A Review

#	Text	Time	
1	R-4-5	1-2	Polynomial Expressions
2	R-6	1	Synthetic Division
3	R-7	2	Rational Exponents & Radicals
4	R-8	1	n[th] roots, Rational Exponents

CHAPTER 1: Equations & Inequalities Chapter 2: Graphs

#	Text	Time	
4	1-2	1.5	Quadratic Equations

TAKE-HOME TEST # 1

5	1-4	1	Other Types of Equations
6	2-1	1	Distance & Midpoint Formulas
7	2-2	1	Graphs, Intercepts, & Symmetry
8	2-3	1.5	Lines: graphing, finding equations of lines
9	2-4	2	Conics, Text & Handout

13 hours

1   TEST 1, Lessons 1 to 9

Chapter 3: Functions and Their Graphs

10	3-1	2	Functions
11	3-2	0.5	Graphs of Functions
12	3-3	1.5	Properties of Functions
13	3-4	1.5	Library of Functions
14	3-5	2	Transformations
15	3-6	1	Building Functions

TAKE-HOME TEST #2

Chapter 4: Linear and Quadratic Functions

16	4-1	0.5	Linear Functions
17	4-3	1	Quadratic Functions & Their Properties
18	4-4	1	Quadratic Models
19	4-5	0.5	Inequalities Involving Quadratic Functions

12 hours

1   **Test # 2, Lessons 10 to 19**

Math 115 Syllabus

Sullivan, M. Algebra & Trigonometry, 8'th ed.

Section	Hr	Examples	Homework Do the **odd** numbered questions in the ranges unless answers are provided for both the evens and the odds.	Comment **Self Study** sections are review topics that provid self study material is not directly tested.
R.1 Real Numbers	0	all	**No calculator** 1 – 13, 21 – 27, 41 – 47, 61 – 97	**Self Study**: set builder notation; set union & inte numbers: integers, rational numbers and irration of real numbers: commutative, associative & dis Review working with fractions.
R.2 Algebra Essentials	0	omit 13	**No calculator** 37, 53, 55, 65, 67, 73 – 105, 123 – 129, 135 – 155	**Self Study**: evaluating expressions with absolut expression and exponent rules.
R.3 Geometry Essentials	0	all	13, 27, 29, 31, 35, 37, 41, 43, 47, 49, 51	**Self Study**: Pythagorean Theorem; formulas for area of a triangle, area and circumference of a ci similar triangles
R.4 Polynomials	0.5	all	**No calculator** 1 – 8, 39, 41, 55, 63, 69, 75, 79, 85, 87, 93 – 101	**Self Study**: degree of a polynomial; adding, sub **In class**: polynomial division (examples 12 – 14 Sections 5.2 and 5.5.
R.5 Factoring Polynomials	1	all	**No calculator** 21, 31, 33 – 37, 45, 47, 53, 57 –125	Review factoring rules and work on building up Common binomial factors (example15, exercise cover harder problems of this type in section R.8
R.6 Synthetic Division	0.5	all	**No calculator** 1 – 4, 7, 17 – 21	Could wait and cover in section 5.5.
R.7 Rational Expressions	1	all	**No calculator** 9, 11, 15, 19, 21, 29, 33, 41, 49, 57, 59, 65 – 71, 75 – 97	**Self Study**: reducing, opposites (additive invers and subtracting, least common multiple, comple
R.8 *n*'th Roots; Rational Exponents	1	all	**No calculator** 1 – 73, 75 – 97	**Self Study**: simplifying radicals, rationalizing d with rational exponents **In class**: Factoring expressions containing ration exercises 75 - 97)
Review			**Chapter Review 37-103 odd**	**Pp 82-83**
1.1 Linear Equations	0	all	29 – 35, 43, 51, 55, 63, 69, 71, 77 – 89, 97	**Self Study**: Notice in example 2 that the easiest multiply both sides of the equation by the LCM denominators. However, when simplifying a rati page 66) we cannot eliminate the denominators; each fraction and then we combine the expressio
1.2 Quadratic Equations	1.5	all	1 – 7, 15, 23, 27, 33, 41, 45, 61, 65, 69, 75, 85, 91 – 97, 101, 105, 107, 119	Know the four methods (factoring, square root r using the quadratic formula) for solving quadrat Know the derivation of the quadratic formula.

5.   Basis of Student Assessment (Weighting)
(This section should be directly linked to the Intended Learning Outcomes.)

(a) Assignments: see course outline

(b) Quizzes: see course outline

(c) Exams: see course outline

(d) Other (e.g., Attendance, Project, Group Work)

6.   Grading System
(No changes are to be made to this section unless the Approved Course Description has been forwarded through the Education Council of Camosun College for approval.)

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