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

MATH-107-001
Applied Precalculus
Summer 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.*

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1. Instructor Information

(a) Instructor	Fan Wu		
(b) Office hours	Monday – Thursday 11:00 AM – 12:00 PM		
(c) Location	E266		
(d) Phone		**Alternative:**	
(e) E-mail	wuf@camosun.bc.ca		
(f) Website			

2. Intended Learning Outcomes

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

- Demonstrate proficiency in the fundamental concepts of Intermediate Algebra necessary to analyze and interpret single variable functions. This includes but is not limited to: factorization of polynomials and expressions with rational exponents, simplification of rational expressions, complex fractions and radicals, solving subsequent polynomial, radical, and rational equations, and single variable linear and quadratic inequalities.
- Demonstrate the ability to understand and interpret visual 2-D representation of single variable relationships. This includes working with the basic concepts of graphing in the co-ordinate plane with an emphasis on linear equations, circles, and ellipses.
- Work with analytic representations of single variable relationships and connect basic models to their visual representations. This includes building a foundation of understanding of terminology and notation for functions, including basic definitions and examples.
- Work with more advanced functions to enable more complex modelling and analysis in follow-on courses. Examples include: quadratic, polynomial, rational, exponential, trigonometric and inverse trigonometric functions.
- Solve word problems involving arithmetic and geometric sequences and series.

3. Required Materials

(a) Textbook *Algebra & Trigonometry*, Tenth Edition, by Michael Sullivan

(b) Sharp EL-531X calculator (or other comparable non-programmable scientific calculator)

4. Course Content and Schedule

Chapter R:	Sections R.5-R.8
Chapter 1:	Sections 1.1, 1.2, 1.4, 1.5
Chapter 2:	Sections 2.1-2.4
Ellipses	loosely based on 11.3
Chapter 3:	Sections 3.1-3.6
Chapter 4:	Sections 4.1, 4.3-4.5
Chapter 5:	Sections 5.1-5.5
Chapter 6:	Sections 6.1-6.8
Chapter 7:	Sections 7.1-7.8
Chapter 8:	Sections 8.1-8.5, 8.7, 8.8
Chapter 13:	Sections 13.1-13.3

Quizzes
We will have a quiz at the end of each Wednesday class. These will consist of 2 questions on a topic taken from the previous 2 lectures, and are to be handed in for marks. Missed quizzes will result in a mark of 0; however, I will drop your lowest 1 quiz marks when calculating your final grade (the lowest 1 marks will include the 0 marks from any missed quizzes).

Estimated out-of-class hours
To be successful in this course, you should expect to spend about **7 hours per week** studying and doing the suggested problems.

Math Lab
Free tutoring is available in the Math Labs in Ewing 224 and 342. The hours are posted on the doors. It is a great idea to do your homework there and get help whenever needed

5. Basis of Student Assessment (Weighting)

(a) Tests 45%

(b) Quizzes 10%

(c) Final Exam 45%

*If your term work is complete and satisfactory, then your final exam may count for 100% of your final mark if this increases your final mark.

6. Grading System

[X] Standard Grading System (GPA)

[ ] Competency Based Grading System

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

Suggested Problems
Do the **odd** numbered questions in the given ranges unless otherwise stated. Answers to these questions are in the back of the textbook. Questions in **BOLD** are recommended for those going on to Math 100.

R.5 Factoring Polynomials 15-115 every second odd
R.7 Rational Expressions 11, 15, 19, 23, 29, 33, 41, 49, 59, 65, 69, 75, 79, 83, 85 – 91, **93**
R.8 *n*th Roots; Rational Exponents 13-33 every second odd, 41, 47, 53, 59, 65, 71, 73, 75-79, 81-97

1.1 Linear Equations 29, 33, 37, 41, 51, 57, 63, 73, 77, 79, 97
1.2 Quadratic Equations 15, 23, 27, 33, 41, 45, 61, 65, 69, 75, 89, 91, 97, 101, 103, 105
1.4 Other Equations 23, 27- 31, 35, 39, 45, 49, 51, 59, 61, 65, 69, 71, 83, 85, **91, 93, 95**
1.5 Solving Inequalities 23, 31, 35, 65, 67, 73, 75, 81, 83, 87, 89, 91-97, 101, 105

2.1 Distance & Midpoint Formulas 8, 13, 19, 27, 29, 35, 39, 45, 47, 49, **54**, 55, 57, 61
2.2 Graphs, Intercepts & Symmetry 11, 23, 33, 55, 61, 65, 69, 75, 79, 81**, 85**
2.3 Lines 4, 10, 11, 17, 25, 31, 35, 41, 43, 47 – 69, 77, 83, 85, 93, 97, 101, 102, 105, 131
2.4 Circles 5, 6, 9, 15, 19, 23, 27, 31- 41, **47**

11.3 Ellipse 17-25, 37, 39, 43-53 no foci

3.1 Functions 15, 19, 29, 33, 39, 43, 45, 47, 51, 57, 61, 69, 73-80, 81, 85, **87**
3.2 Graphs of Functions 6, 7, 8, 9, 13, 23, 25, 35
3.3 Properties of Functions 8, 9, 10, 11-19, 21, 29, 33 – 43, 53, 59, 63a, **75a, 80a, 81**
3.4 Library of Functions 6, 8, 17-21, 25-37, **42**
3.5 Transformations 4, 5, 6, 7-33, 41, 45, 48, 51 – 61, 69, **71**
3.6 Building Functions 1(a,b,c), 3a, 5, 7(a&b), 9(a&b), 11(a&b), **13**, **15**, **23**

4.1 Linear Functions 10, 11, 12, 17, 19, 29, 31, 41, 45, 49, 51
4.3 Quadratic Functions and Their Properties 8, 9, 10, 11-17, 21, 27, 33, 35, 39, 47, 57, 61, 65, 69
4.4 Quadratic Models 5, 7, 8, 9, 10, 15, **17**
4.5 Inequalities Involving Quadratic Functions 11-17, **19**, **25**, **29**

5.1 Polynomial Functions 8, 9, 12, 13, 27, 33, 35, 37, 39, 43, 47, 55, 57, 61, 69, 75, 77, 85, 87
5.2 Properties of Rational Functions 8, 9, 10, 19, 21, 30, 31, 33, 39, 41, 45, 51 no oblique asymptotes
5.3 The Graph of a Rational Function 4, 5, 9, 13, 23, 35
5.4 Rational and Polynomial Inequalities 2, 15, 17, 23, 27, 31, **39**, **45**
R.6 Synthetic Division 7, 15 – 21, **25, 27**
5.5 The Real Zeros of a Polynomial Function 8, 9, 11, 15, 19, 33,37, 39, 45, 55, 57, 61, 69, 75, 77, **89**, **103**, **105**

6.1 Composite Functions 5, 9, 10, 13-19, 21, 35, 43, 53 – 57, 59, **65, 71**
6.2 Inverse Functions 7, 8, 13,15, 21, 22, 31-39, 57, 61, 63, 65, 73, 75, **82**
6.3 Exponential Functions 3, 5, 9, 10, 37, 43, 49 – 53, 57-79, **104a**
6.4 Logarithmic Functions 7, 8, 9- 47 (every second odd), 51, 57, 59,71, 79, 83, 87 – 109, 111, 113
6.5 Properties of Logarithmic Functions 4, 5, 6, 7- 63 (every second odd), 65, 67, 79, 81, **83-87**, **91, 95, 100**
6.6 Logarithmic and Exponential Equations 1-59 (every second odd), 75, 79, 81, **85, 87, 99**
6.7 Compound Interest 3, 11, 15, 19, 23, 31, 35, 41, **45**
6.8 Growth and Decay 1 - 9, 10, **11**, **21,** 25

7.1 Angles and Their Measure 6, 7, 8,9, 17, 19, 35, 39, 43, 49, 53, 57, 61, 67, 71, 75, 79, **91**
7.2 Right Triangle Trig I 7, 8, 9, 10, 13, 23, 25-53 (every second odd), 55, 57, 59, **72**
7.3 Right Triangle Trig II 3, 4, 5, 6, 10, 12, 15, 17-29, 35, 39, **49, 55, 59**
7.4 Trig Functions of Any Angle 4, 5, 6, 13, 19, 23, 29, 33-99 (every second odd), **107, 117**
7.5 Unit Circle Approach 8, 9, 11, 15, 19-53 (every second odd), 55, 59, 60, 61, 63, 67, **73, 81**
7.6 Graphs of the Sine and Cosine Functions 6, 7, 8, 19, 21, 25, 27, 43, 46, 47, 51, 53, 55, 57, 61, 65, 67, 69
7.7 Graphs of the Other Four Trig Functions 2, 6, 7, 11, 13, 15, 21, **22, 23, 29, 38, 39, 43**
7.8 Phase Shift; Sinusoidal Curve Fitting 2, 3, 5, 9, 11, 15, 17, **19, 20, 21, 22**

8.1 Inverse Sine, Cosine and Tangent Functions 4, 10,11,12,13,15, 17,19, 23, 27, 37, 39, 41, 43, 45, 47, 49, 51, 53, 55, 61, 63 , **65**
8.2 Inverse Trig Functions II **6, 7, 8, 9-45 (every second odd), 47- 55 (every second odd), 57 - 65**
8.3 Trig Identities 6, 9 – 91 (every second odd), **93 -101**
8.4 Sum & Difference Formulas 6, 7, 8, 9-61 (every second odd), **69, 73, 75, 79, 81, 83, 87, 89, 93, 95**
8.5 Double Angle & Half Angle Identities 4, 5, 6, 7a&b, 9a&b, 15a&b, **21, 27, 41,** 47, 51, **56,** 62, 64, **68, 69, 75, 79**
8.7 Trig Equations I 5, 6, 7, 9, 11, 19, 21, 23, 25, 31, 33, 35, 41, **55**
8.8 Trig Equations II 5-9**, 23, 29, 31, 37, 39, 43, 45, 49**

13.1 Sequences 6, 7, 8, 17, 19, 25, **27 – 33**, 35, 41, 43, 45, 49, 51, 57, 59, 61, 65, 69-79
13.2 Arithmetic Sequences & Finite Series 2, 5, 7, 15, 19, 21, 27, 31, 35, 39, 41, **51**

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.