	School of Access Department of Mathematics & Statistics MATH 139 Algebra, Triangle Trigonometry, and Geometry Fall 2016
CAMOSUN COLLEGE	

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:	Dr. Michelle Edwards
(b)	Office Hours:	Monday/Tuesday/Thursday 11:30-12:30, Wednesday 12:30-1:30
(c)	Location:	CBA 156
(d)	Phone:	250-370-3879
(e)	Email:	medwards@camosun.bc.ca
(f)	Website:	D2L (online.camosun.ca)

2.   Intended Learning Outcomes

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

1. Demonstrate basic numeracy by performing arithmetic with and without a scientific calculator.
2. Use set notation to find the union and intersection of two or more sets. Define and identify real, rational, irrational, integer, whole, and natural numbers. Graph intervals of real numbers on the number line. Use the properties of real numbers to perform arithmetic operations and evaluate expressions.
3. Solve linear equations in one variable. Solve and graph inequalities and compound inequalities in one variable. Solve absolute value equations. Solve word problems involving linear equations in one variable.
4. Determine whether or not relations are functions. Evaluate functions. Find the domain and range of functions from their graphs. Interpret mathematical statements involving function notation.
5. Graph linear equations and inequalities in two variables. Calculate the slope and y-intercept of a line. Find the equation of a line using the point-slope form. State the equation of a line in slope-intercept and standard form.
6. Solve systems of linear equations in two variables by graphing, substitution, and the addition method. Solve word problems involving systems of linear equations.
7. Express real numbers in scientific notation. Use the power rules to simplify and evaluate expressions with integral exponents. Expand products of polynomials. Factor polynomials completely using a variety of strategies, including the difference of squares and the sum and difference of cubes. Solve equations and word problems involving factoring.
8. Use the properties of rational expressions to simplify terms. Perform arithmetic operations on rational expressions. Simplify complex fractions. Divide polynomials using long division. Solve equations and word problems involving rational expressions.
9. Perform arithmetic operations with radicals. Take quotients and powers of terms involving radicals and rational exponents. Rationalize denominators. Solve equations with radicals and exponents. Perform arithmetic operations on complex numbers, including rationalizing the denominator.
10. Solve quadratic equations by factoring, by completing the square, and by using the quadratic formula. Solve word problems involving quadratic equations.

11. Graph quadratic functions and identify the vertex, axis of symmetry, and maximum/minimum values. Solve word problems involving optimization of quadratic functions.
12. Calculate angles for problems involving parallel lines and/or triangles. Solve geometry problems involving similar triangles. Calculate sides of triangles using the Pythagorean theorem.
13. Calculate trigonometric functions for any angle. Solve right triangles using trigonometry. Solve word problems involving right-angled triangles. Solve triangles using the laws of sines and cosines.

3. Required Materials

(a) Text: Bittinger / Beecher / Johnson, Intermediate Algebra, 12th edition, Pearson Education Inc, 2015. (Print and electronic versions of the book are acceptable and identical.)

(b) Calculator: Only regular scientific calculators (non-programmable, non-graphing) will be permitted for quizzes and exams. The use of other electronic devices such as cell phones, MP3 players, iPods, electronic translators, etc., during exams is not allowed.

Optional Material:
(c) My Math Lab Access – for purchase at the bookstore with a new copy or an electronic copy of the text. If you buy a used copy of the text and still want My Math Lab access, you must buy an electronic copy of the text. My Math Lab will not be needed for graded homework, but additional practice problems will be available through the site.

4. Course Content and Schedule

Chapter R - Review of Basic Algebra
    Section R.1: The Set of Real Numbers
    Section R.2: Operations with Real Numbers
    Section R.3: Exponential Notation and Order of Operations
    Section R.4: Introduction to Algebraic Expressions
    Section R.5: Equivalent Algebraic Expressions
    Section R.6: Simplifying Algebraic Expressions
    Section R.7: Properties of Exponents and Scientific Notation

Chapter 1 - Solving Linear Equations and Inequalities
    Section 1.1: Solving Equations
    Section 1.2: Formulas and Applications
    Section 1.3: Applications and Problem Solving
    Section 1.4: Sets, Inequalities, and Interval Notation
    Section 1.5: Intersections, Unions, and Compound Inequalities (omit compound inequalities)

Chapter 2 - Graphs, Functions, and Equations
    Section 2.1: Graphs of Equations
    Section 2.2: Functions and Graphs
    Section 2.3: Finding Domain and Range
    Section 2.4: Linear Functions: Graphs and Slope
    Section 2.5: More on Graphing Linear Equations
    Section 2.6: Finding Equations of Lines; Applications

Chapter 3 - Systems of Equations
    Section 3.1: Systems of Equations in Two Variables
    Section 3.2: Solving by Substitution
    Section 3.3: Solving by Elimination
    Section 3.4: Solving Applied Problems: Two Equations

Chapter 4 - Polynomials and Polynomial Functions
    Section 4.1: Introduction to Polynomials and Polynomial Functions
    Section 4.2: Multiplication of Polynomials
    Section 4.3: Introduction to Factoring
    Section 4.4: Factoring Trinomials: x^2+bx+c
    Section 4.5: Factoring Trinomials: ax^2+bx+c, $a\neq1$
    Section 4.6: Special Factoring
    Section 4.7: Factoring: A General Strategy
    Section 4.8: Applications of Polynomial Equations and Functions

Chapter 5 - Rational Expressions, Equations, and Functions
    Section 5.1: Rational Expressions and Functions: Multiplying, Dividing, and Simplifying
    Section 5.2: LCMs, LCDs, Addition, and Subtraction

Section 5.3: Division of Polynomials
Section 5.4: Complex Rational Expressions
Section 5.5: Solving Rational Equations
Section 5.6: Applications and Proportions
Section 5.7: Formulas and Applications
Section 5.8: Variation and Applications

Chapter 6 - Radical Expressions, Equations, and Functions
Section 6.1: Radical Expressions and Functions
Section 6.2: Rational Numbers as Exponents
Section 6.3: Simplifying Radical Expressions
Section 6.4: Addition, Subtraction, and More Multiplication
Section 6.5: More on Division of Radical Expressions
Section 6.6: Solving Radical Equations
Section 6.7: Applications Involving Powers and Roots
Section 6.8: The Complex Numbers

Chapter 7 - Quadratic Equations and Functions
Section 7.1: The Basics of Solving Quadratic Equations
Section 7.2: The Quadratic Formula
Section 7.3: Applications Involving Quadratic Equations
Section 7.4: More on Quadratic Equations
Section 7.5: Graphing $f(x) = a(x-h)^2+k$
Section 7.6: Graphing $f(x) = ax^2 + bx + c$

Geometry Supplement (In class notes and custom suggested problems)
Section G1: Lines and Angles
Section G2: Triangles
Section G3: Similar Triangles

Trigonometry Supplement (Sections 6.1, 6.2, 6.3, 8.1, 8.2 of J.A. Beecher, J.A. Penna, and M.L. Bittinger, Algebra and Trigonometry, 4th edition, Pearson Addison-Wesley, 2012.)
Section T1: Trigonometric Functions of Acute Angles
Section T2: Applications of Right Triangles
Section T3: Trigonometric Functions of Any Angle
Section T4: The Law of Sines
Section T5: The Law of Cosines

5. Basis of Student Assessment (Weighting)

In Class Assignments (lowest 2 will be dropped)	5%
Take Home Assignments	15%
Test 1 - Friday September 30th	10%
Test 2 - Friday November 4th	10%
Test 3 - Friday December 2nd	10%
Final Exam:	50%

As stated in the current college calendar, "students are expected to write tests and final examinations at the scheduled time and place." Exceptions will only be considered due to **emergency** circumstances as outlined in the calendar. Holidays or scheduled flights are not considered to be emergencies.

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.

Math Lab:
The Interurban Math Lab is located in the Technologies Centre (TEC) 142 (phone: 370-4492). **Free** one-on-one tutoring is available here for you to seek help with homework or understanding concepts covered in class. This is a drop in, first come first serve service. Hours are posted on the door, and also at http://camosun.ca/services/help-centres/math.html.

D2L:
This course will use **Desire2Learn (D2L)**, an online course management system, as our website. All course related materials, grades, and announcements (including test coverage and any changes to homework due dates) will be available on D2L. **It is your responsibility to ensure you have access to D2L and that you check it regularly.**

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.

Class Time:
It is expected that you will attend each class and be an active learner. This includes participating with in class discussions, attempting any problems the class is working on, and working on in class assignments. While you may not find it necessary to take notes in class, please come prepared with paper, pencils, a calculator, a ruler, etc. for other in class activities. Bringing your textbook to class is not required, but you may find it useful.