



COURSE OUTLINE

1. Instructor Information

(a)	Instructor:	Gilles Cazalais
(b)	Office Hours:	http://pages.pacificcoast.net/~cazalais/schedule.html
(c)	Location:	CBA 158
(d)	Phone:	250-370-4495
(e)	Email:	Cazalais@camosun.bc.ca
(f)	Website:	http://pages.pacificcoast.net/~cazalais/139.html

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 tests and exams. The use of other electronic devices such as cell phones, MP3 players, iPods, electronic translators, etc., during exams is not allowed.

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: x^2+bx+c
- 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

- 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)

Best 5 of 6 tests:	50%
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	<i>Incomplete</i> : 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	<i>In progress</i> : 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 3 rd course attempt or at the point of course completion.)
CW	<i>Compulsory Withdrawal</i> : 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>.

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.