# Mathematics 137
## Intermediate Algebra
## Fall, 2011

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| Time | Monday | Tuesday | Wednesday | Thursday | Friday |
|---|---|---|---|---|---|
| 1:30pm -2:30pm | | | Office Hour | | |
| 2:30 am-3:50pm | Math 137 Y219 | Math 137 Y219 | Math 137 Y219 | Math 137 Y219 | |
| 4:00pm-5:30pm | Office Hour | | Office Hour | | |
| 5:30pm-8:10 pm | | Math 072/73 E346 | | Math 072/73 E346 | |
| Additional Office Hours by Appointment | | | | | |

**Important Dates:**

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|---|---|
| Sep 6 | First day of classes for Fall term |
| Sep 20 | Fee Deadline |
| Oct 10 | Holiday |
| Nov 8 | Withdrawal Deadline |
| Nov 11 | Remembrance Day |
| Dec 10 | Last day of classes for Fall term |
| Dec 12-17,19,20 | Final Exam Period |

### 1. Intended Learning Outcomes

To learn the basic algebra skills necessary to be successful both in your chosen field of study and in future math courses. This involves learning the vocabulary, notation, rules, and techniques of intermediate algebra, as well as solving applied problems.

To learn to write mathematics correctly and also to be able to write about the mathematics that you are learning.

To be able to talk about the mathematics you are learning.

Use Mathematics at an ABE Advanced level with competence

Use skills in foundational algebra and triangle trigonometry to solve problems

Use knowledge of algebra and triangle trigonometry as a basis for further study in pre-calculus, the sciences and other fields

Build on your ability to read, write and talk about the mathematics that you are learning.

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### 2. Course Materials and Support

(a) **Required Materials:**textbook: *Intermediate Algebra*, 11th edition, Marvin Bittinger
(b) module: *Trigonometry* (2005) Beecher/Penna/Bittinger
(c) scientific calculator
[Note: Sharp EL 531W model will be the only calculator allowed for most fall/05 math courses]

**Supplementary Materials**

(d) *Student's Solutions Manual*, Judith Penna (for sale at the bookstore)

**Math Labs:** Ewing 342 & 224 (LANS) and Tec142 (INT)**:** These drop-in centres are available for you to work on math homework and to seek free help from the tutor on staff. See the hours posted on the math lab doors (most current) or go to http://camosun.ca/learn/programs/math/labs.html .

**Study Tips:** It is recommended that approximately 10-12 hours per week be spent studying for this course outside of class time. Find a study buddy to discuss math problems and use the math labs.

**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, Registrar's Office or the College web site at http://camosun.ca/

**3. Prerequisites and Exit Grade**

**Prerequisite(s):** "B" in Applications of Math 11; or "C" in Principles of Math 10, or Foundations of Math & Pre-calculus 10, or Foundations of Math 11, or Applications of Math 12, or MATH 053; or "C-" in Principles of Math 11, or Pre-calculus 11; or assessment.

**Exit Grade:** A grade of C+ (65%) or better in Math 135 is necessary to continue into all Business Diploma programs. A grade of C or better is needed for Math 116 (Elementary Statistics).

**4. Basis of Student Assessment (Grading)**

**Assignments:**

**Tests:** There are 7 tests. . No calculators are allowed for part of Test 1. If you miss a test for any reason a zero will be assigned unless you make alternate arrangements with your instructor.

**Grade Calculation:** The final grade will be calculated according to the following breakdown:

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|---|---|
| 7 Assignments | 20% |
| 7 Tests: | 30% |
| Comprehensive Final Exam: | 50% or 100%* |

All assignments count. If your term average is at least 50% and if your final exam mark is higher than your term mark, then your final exam will count for 100% of your final mark.

**Grade Scale:**

| 0-49 | 50-59 | 60-64 | 65-69 | 70-72 | 73-76 | 77-79 | 80-84 | 85-89 | 90-100 |
|---|---|---|---|---|---|---|---|---|---|
| **F** | **D** | **C** | **C+** | **B–** | **B** | **B+** | **A–** | **A** | **A+** |

For information on Camosun College's grading policy, see the webpage http://camosun.ca/about/policies/education-academic/e-1-programming-&-instruction/e-1.5.pdf

**Academic Progress:** The College has an academic progress policy geared mainly toward "at risk" students, the stated intention for which is to improve a student's likelihood of success. To view the policy, see the webpage http://camosun.ca/about/policies/education-academic/e-1-programming-&-instruction/e-1.1.pdf

**5. Course Content and Schedule**

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| | **NO CALCULATOR** | | | |
| | **R.1** | The set of real numbers | 1 | |
| | **R.2** | Operations with real numbers | 1 | |
| | **R.3** | Exponential notation and order of operations | 1 | |
| | **R.4** | Introduction to algebraic expressions | 1 | |
| | **R.5** | Equivalent algebraic expressions | 2 | |
| | **R.6** | Simplifying algebraic expressions | 2 | |
| | **R.7** | Properties of exponents and scientific notation | 2 | |
| | | Summary and review, Chapter Test | | |
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| | **1.1** | Solving equations | 3 | |
| | **1.2** | Formulas and applications | 3 | |

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| | **1.3a** | Applications and problem solving | 3 | |
| | **1.4** | Sets, inequalities, and interval notation | 4 | |
| | **1.5** | Intersections, unions, and compound inequalities | 4 | |
| | **1.6a-d** | Absolute-value equations | 4 | |
| | | Summary and review (S/R), ChapterTest (CT) | | |
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| | **2.1** | Graphs of equations | 5 | |
| | **2.2** | Functions and graphs | 5 | |
| | **2.3** | Finding domain and range | 5 | |
| | **2.4** | Linear functions: graphs and slope | 6 | |
| | **2.5** | More on graphing linear equations | 6 | |
| | **2.6** | Finding equations of lines; applications | 6 | |
| | | Summary and review, Chapter Test | | |
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| | **3.1** | Systems of equations in two variables | 7 | |
| | **3.2** | Solving by substitution | 7 | |
| | **3.3** | Solving by elimination | 7 | |
| | **3.4a** | Solving applied problems: two equations | 7 | |
| | **3.7ab** | Inequalities in two variables | 8 | |
| | | Summary and review, Chapter Test | | |
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| | **4.1** | Introduction to polynomials and polynomial functions | 9 | |
| | **4.2** | Multiplication of polynomials | | |
| | **4.3** | Introduction to factoring | 9 | |
| | **4.4** | Factoring trinomials: $x^2 + bx + c$ | 9 | |
| | **4.5** | Factoring trinomials: $ax^2 + bx + c$, $a \neq 1$ | 9 | |
| | **4.6** | Special factoring | 10 | |
| | **4.7** | Factoring: a general strategy | 10 | |
| | | Summary and review, Chapter Test | | |
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| | 5.1 | Rational expressions and functions: multiplying, dividing, and simplifying | 11 | |
| | 5.2 | LCMs, LCDs, addition, and subtraction | 11 | |
| | 5.3 | Division of polynomials | 11 | |
| | 5.4 | Complex rational expressions | 11 | |
| | 5.5 | Solving rational equations | 12 | |
| | 5.6 | Applications and proportions (omit section b) | 12 | |
| | 5.7 | Formulas and applications | 12 | |
| | 5.8 | Variation and applications | 12 | |
| | | Summary and review, Chapter Test | | |
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| | 6.1 | Radical expressions and functions | 13 | |
| | 6.2 | Rational numbers as exponents | 13 | |
| | 6.3 | Simplifying radical expressions | 13 | |
| | 6.4 | Addition, subtraction, and more multiplication | 13 | |
| | 6.5 | More on division of radical expressions | 14 | |
| | 6.6 | Solving radical equations | 14 | |
| | 6.7 | Applications involving powers and roots | 14 | |
| | 6.8 | The complex numbers | 14 | |
| | | Summary and review, Chapter Test | | |
| | | Unit 3 Test | | |
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| | 7.1 | The basics of solving quadratic equations | 15 | |
| | 7.2 | The quadratic formula | 15 | |
| | 7.3 | Applications involving quadratic equations | 15 | |
| | 7.4 | More on quadratic equations | 15 | |
| | 7.5 | Graphing $f(x) = a(x - h)^2 + k$ | 16 | |
| | 7.6 | Graphing $f(x) = ax^2 + bx + c$ | 16 | |
| | 7.7a | Mathematical modeling with quadratic functions | 16 | |
| | | Summary and review, Chapter Test | | |
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| | 5.1 | Trigonometric functions of acute angles | | |
| | 5.2 | Applications of right triangles | | |
| | 5.3 | Trigonometric functions of any angle | | |
| | 7.1 | The law of sines | | |
| | 7.2 | The law of cosines | | |
| | | Trig Practice Test | | |
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