

**School of Access  
Mathematics Department**

**MATH 173 Basic Technical Mathematics 2  
2005 Quarter 2 (January – March)**

**COURSE OUTLINE**

---

The Approved Course Description is available on the web @  
<http://www.camosun.ca/calendar/2004/math.php>

---

**1. Instructor Information**

- (a) Instructor: Raymond Lai
- (b) Office hours: Refer to the table on the last page (or by appointment)
- (c) Location: CBA 152
- (d) Phone: 370-4491
- (e) E-mail: [lai@camosun.bc.ca](mailto:lai@camosun.bc.ca)
- (f) Website: <http://www.camosun.bc.ca/~lai/>

**2. Intended Learning Outcomes**

Topics: functions and their graphs, graph transformations, polynomial, exponential and logarithmic functions, trigonometric functions and their inverses, trigonometric identities, systems of equations and inequalities, vectors, dot products, complex numbers, sequences and series, the Binomial Theorem, topics in analytic geometry and plane geometry.

**3. Required Materials**

- (a) Text  
*Algebra and Trigonometry (2/e)*, Beecher, Penna, and Bittinger
- (b) Other  
*Notes on Geometry* (to be distributed in class)

**4. Course Content and Schedule**

**ORGANIZATION**

IN-CLASS WORKLOAD: 8 hours/week  
OUT-OF-CLASS WORKLOAD: 6 – 12 hours/week  
PREREQUISITES: MATH 172 or Math 11 by assessment.

No class on: Friday 11 February 2005 (Reading Break)

## TENTATIVE OUTLINE:

(\*.\* refers to a section in the text and G.\* refers to a section on the Geometry Notes, for example, 1.2 refers to chapter 1 section 2 in the text and G.1 refers to section 1 in the Geometry Notes)

- G.1 Triangles
- G.2 Similar Triangles
  
- 1.2 Functions and Graphs
- 1.3 Linear Functions, Slopes, and Applications
- 1.4 Equations of Lines (and Modeling)
- 1.6 The Algebra of Functions
- 1.7 Symmetry and Transformations
  
- 5.1 Trigonometric Functions of Acute Angles
- 5.2 Applications of Right Triangles
- 5.3 Trigonometric Functions of Any Angle
- 5.5 Circular Functions: Graphs and Properties
- 5.6 Graphs of Transformed Sine and Cosine Functions
  
- 4.1 Inverse Functions
- 6.4 (a) Inverses of the Trigonometric Functions
- 7.1 The Law of Sines
- 7.2 The Law of Cosines
  
- 2.3 Quadratic Equations, Functions, and Models
- 2.4 Analyzing Graphs of quadratic Functions
- 3.1 Polynomial Functions and Models
- 3.2 Polynomial Division; The Remainder and Factor Theorem
- 3.3 Theorems about Zeros of Polynomial Functions
- 3.4 Rational Functions
  
- 4.2 Exponential Functions and Graphs
- 4.3 Logarithmic Functions and Graphs
- 4.4 Properties of Logarithmic Functions
- 4.5 Solving Exponential and Logarithmic Functions
- 4.6 Applications and Models: Growth and Decay
  
- G.3 Circles
- 5.4 Radians, Arc Length, and Angular Speed
  
- 6.1 Identities: Pythagorean and Sum and Difference
- 6.2 Identities: Cofunction, Double-Angle, and Half-Angle
- 6.3 Proving Trigonometric Identities
- 6.4 (b) Inverses of the Trigonometric Functions (Continued)
- 6.5 Solving Trigonometric Equations
  
- 7.4 Polar Coordinates and Graphs
- 7.5 Vectors and Applications (if time permits)
- 7.6 Vector Operations (if time permits)
  
- 8.1 Systems of Equations in Two Variables
- 8.2 Systems of Equations in Three Variables
- 8.6 Determinants and Cramer's Rule (if time permits)
  
- 9.1 The Parabola
- 9.2 The Circle and the Ellipse
- 9.3 The Hyperbola
  
- 10.1 Sequences and Series
- 10.2 Arithmetic Sequences and Series

- 10.3 Geometric Sequences and Series
- 10.7 The Binomial Theorem
  
- 2.2 The Complex Numbers
  
- 8.7 Systems of Inequalities
  
- G.4 Congruent Triangles
- G.5 Angles and Parallel Lines
- G.6 Parallelograms and Trapezoids
- G.7 Rectangles and Squares
- G.8 Prisms and Circular Cylinders
- G.9 Pyramids and Circular Cones
- G.10 Spheres

### CALCULATOR POLICY

Only regular scientific (non programmable, non-graphing) calculator is allowed in term tests and final examination.

## 5. Basis of Student Assessment (Weighting)

### (a) Assignments (10%)

- Problems will be assigned each class (they will be posted at the class's website <http://www.camosun.bc.ca/~laj>); they are due at the beginning of the class on Tuesdays (starting 11 January 2005).
- Solutions should be presented in a neat and clear fashion and the paper should be well organized (and stapled if there is more than one page – penalty applies to “sloppy papers”).
- Late assignments will be given a penalty of 25%.
- Complete solutions will be posted online at the class's website.

### (b) Quizzes (40%)

- There will be a quiz every Friday, starting 14 January 2005 (last one on 11 March 2005).
- Complete understanding of the examples done in class and the exercises in the assignments will be essential for success on the quizzes.
- The lowest quiz grade will be dropped when calculating the average of your quizzes. This allows a student to be absent on any one quiz day for any reason, including illness, without penalty. There is no provision for “making up” a missed quiz.
- Complete solutions will be posted online at the class's website.

### (c) Final Exam (50%)

- The comprehensive final exam will cover the entire course and will be 3 hours long.
- As stated in the current college calendar on page 39, “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.
- Final examination period 21 – 29, March (specific date, time, and location TBA)

## 6. Grading System

The following percentage conversion to letter grade will be used:

A+ = 95 - 100%	B = 75 - 79%	D = 50 - 59%
A = 90 - 94%	B- = 70 - 74%	F = 0.0 - 49%
A- = 85 - 89%	C+ = 65 - 69%	
B+ = 80 - 84%	C = 60 - 64%	

## 7. Recommended Materials or Services to Assist Students to Succeed Throughout the Course

How to do well in the course and where to get help

- Do not skip classes.
- Start working on the exercises as soon as they are assigned.
- Studying in groups is an efficient way to learn mathematics; however, make sure you can solve problems yourself.
- Extra help available from assistant at the Interurban Math Room: Technologies Centre (TEC) Room 142. This drop-in centre is freely available for your use to work on math homework and to seek help from the tutor on staff (see hours posted on door).
- Need a tutor/Want to become a tutor? Visit [http://www.camosun.bc.ca/resources/ses/tutors\\_list.php](http://www.camosun.bc.ca/resources/ses/tutors_list.php)

### 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://www.camosun.bc.ca>

### ACADEMIC CONDUCT POLICY

There is an Academic 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, Registration, and on the College web site in the Policy Section.

[www.camosun.bc.ca/divisions/pres/policy/2-education/2-5.html](http://www.camosun.bc.ca/divisions/pres/policy/2-education/2-5.html)

	Monday	Tuesday	Wednesday	Thursday	Friday
08:30-09:20	Math173-001 (CBA121)	Math173-001 (CBA121)		Math173-001 (TEC177)	Math173-001 (TEC173)
09:30-10:20	Math173-001 (CBA121)	Math173-001 (CBA121)		Math173-001 (TEC177)	Math173-001 (TEC173)
10:30-11:20					
11:30-12:20	Office Hour	Office Hour		Office Hour	Office Hour
12:30-13:20	Office Hour	Office Hour		Office Hour	Office Hour
13:30-14:20					
14:30-15:20					
15:30-16:30					