

	School of Arts & Science MATHEMATICS DEPARTMENT MATH 174A Mathematics for Electronics 3 Quarter 1 2010
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COURSE OUTLINE

1. Instructor Information

(a)	Instructor:	Gilles Cazelaïs		
(b)	Office Hours:	http://pages.pacificcoast.net/~cazelais/schedule.html		
(c)	Location:	CBA 158		
(d)	Phone:	370-4495	Alternative Phone:	
(e)	Email:	Cazelaïs@camosun.bc.ca		
(f)	Website:	http://pages.pacificcoast.net/~cazelais/174a.html		

2. Intended Learning Outcomes

(No changes are to be made to these Intended Learning Outcomes as approved by the Education Council of Camosun College.)

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

1. Solve basic exponential and logarithmic equations. Plot graphs of exponential and logarithmic functions. Use the number “e” as a base in exponential and logarithmic expressions.
2. Perform basic operations on complex numbers. Represent complex numbers graphically, and in polar and exponential form. Compute products, quotients, and powers of complex numbers.
3. Solve trigonometric equations. Plot sine and cosine graphs. Simplify expressions using fundamental trigonometric identities (including Pythagorean identities, the sum and difference formula, and the double angle formula).
4. Plot and analyze frequency distributions, relative frequency polygons and histograms. Calculate measures of central tendency (mean, median, and mode) for a data set. Calculate the standard deviation of a data set. Perform calculations involving the mean and standard deviation for normal distributions. Calculate confidence intervals.
5. Evaluate limits of functions. Find the derivative of a function using the definition. Differentiate polynomials. Calculate the derivative of a function using the product rule, quotient rule, and power rule. Use implicit differentiation to calculate the derivative. Solve problems involving applications of derivatives.
6. Perform basic operations on matrices, including multiplication. Find the inverse of a matrix. Solve linear systems using Gauss-Jordan elimination and inverse matrices.

3. Required Materials

Allyn J. Washington, *Basic Technical Mathematics with Calculus*, 9th Edition

4. Course Content and Schedule

See: <http://pages.pacificcoast.net/~cazelais/schedule.html>

5. Basis of Student Assessment (Weighting)

- Four term tests: 50%
- Comprehensive final exam: 50%

Test 1 October 15, Test 2 October 29, Test 3 November 19, Test 4 December 3

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.

Calculator Policy

Only scientific calculators are allowed for the tests and final exam. Programmable or graphing calculators are not allowed.

Mathlab

Located in room TEC 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 the door).

Topics Covered

1. Review

- Review of Basic Trigonometric Functions (sections 8.1-8.3)
- Review of Sine and Cosine Graphs (sections 10.1-10.3)
- Review of Trigonometric Identities (sections 20.1-20.3)
- Solving Trigonometric Equations (section 20.5)
- Review of Exponentials and Logarithms (sections 13.1-13.5)

2. Complex Numbers

- Basic Definitions (section 12.1)
- Basic Operations with Complex Numbers (section 12.2)
- Graphical Representation of Complex Numbers (section 12.3)
- Polar Form of a Complex Number (section 12.4)
- Exponential Form of a Complex Number (section 12.5)
- Products, Quotients, Powers, and Roots of Complex Numbers (section 12.6)

3. The Derivative

- Limits (section 23.1)
- The Slope of a Tangent to a Curve (section 23.2)
- The Derivative (section 23.3)
- The Derivative as an Instantaneous Rate of Change (section 23.4)
- Derivatives of Polynomials (section 23.5)
- Derivatives of Products and Quotients of Functions (section 23.6)
- The Derivative of a Power of a Function (section 23.7)
- Differentiation of Implicit Functions (section 23.8)
- Higher Derivatives (section 23.9)

4. Matrices; Systems of Linear Equations

- Definitions and Basic Operations (section 16.1)
- Multiplication of Matrices (section 16.2)
- Finding the Inverse of a Matrix (section 16.3)
- Matrices and Linear Equations (section 16.4)
- Gaussian Elimination (section 16.5)

5. Introduction to Statistics

- Frequency Distributions (section 22.1)
- Measures of Central Tendency (section 22.2)
- Standard Deviation (section 22.3)
- Normal Distributions (section 22.4)