

	<p>School of Arts & Science MATHEMATICS DEPARTMENT MATH 175-X01 Mathematics for Electronics 5 Quarter 3, 2014</p>
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COURSE OUTLINE

The course description is online @ <http://camosun.ca/learn/calendar/current/web/math.html>

* 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

Instructor:	Raymond Lai
Office Hours:	<ul style="list-style-type: none"> • Monday to Thursday: 11:30am – 12:20pm • Drop in, and by appointment
Office Location:	CBA 152
Phone:	250-370-4491
Email:	lai@camosun.bc.ca
Website:	http://faculty.camosun.ca/raymondlai/

2. Course Description

Topics include: methods of integration, Maclaurin and Taylor series, Fourier series, differential equations and Laplace transforms.

Offered: Quarter 3

Credit: 4

In-Class Workload and Format: 6 hours of lecture/week for 11 weeks

Out-of-Class Workload: 6-12 hours/week (more for students with weak background)

Prerequisites: MATH 174B or MATH 101

3. Intended Learning Outcomes

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

1. Evaluate integrals in power, logarithmic, exponential, trigonometric, and inverse trigonometric forms.
2. Evaluate integrals using the method of substitution, integration by parts, trigonometric substitution, and partial fractions.
3. Find the Maclaurin and Taylor series of functions, and use them to perform numerical computations.
4. Find the Fourier series of simple periodic functions.
5. Solve first order separable and linear differential equations and applied problems.

6. Solve non-homogeneous second order linear differential equations and applied problems, including LRC circuits.
7. Use the method of Laplace transform to solve first and second order initial value problems and problems involving step functions.

4. Required Materials

(Optional Reference) Allyn J. Washington, *Basic Technical Mathematics with Calculus*, 9th Edition
 Scientific calculator is required in term tests and final examination (except in calculator-free sections, if any); graphing calculator (such as TI-89) is not allowed.

5. Course Content and Schedule

Methods of Integration

- Section 1.1 (Reference: section 28.1) The General Power Formula
- Section 1.2 (Reference: section 28.2) The Basic Logarithmic Form
- Section 1.3 (Reference: section 28.3) The Exponential Form
- Section 1.4 (Reference: section 28.4) Basic Trigonometric Forms
- Section 1.5 (Reference: section 28.5) Other Trigonometric Forms
- Section 1.6 (Reference: section 28.6) Inverse Trigonometric Forms
- Section 1.7 (Reference: section 28.7) Integration by Parts
- Section 1.8 (Reference: section 28.8) Integration by Trigonometric Substitution
- Section 1.9 (Reference: sections 28.9 and 28.10) Integration by Partial Fractions

Expansion of Functions in Series

- Section 2.1 (Reference: section 30.1) Infinite Series
- Section 2.2 (Reference: section 30.2) Maclaurin Series
- Section 2.3 (Reference: section 30.3) Certain Operations with Series
- Section 2.4 (Reference: section 30.4) Computation by Use of Series
- Section 2.5 (Reference: section 30.5) Taylor Series
- Section 2.6 (Reference: sections 30.6 and 30.7) Fourier Series

Differential Equations

- Section 3.1 (Reference: section 31.1) Solutions of Differential Equations
- Section 3.2 (Reference: section 31.2) Separations of Variables
- Section 3.3 (Reference: section 31.4) The Linear Differential Equations of First Order
- Section 3.4 (Reference: section 31.5) Numerical Solutions of First-order Equations
- Section 3.5 (Reference: section 31.6) Elementary Applications
- Section 3.6 (Reference: sections 31.7 and 31.8) Higher-Order Homogeneous Equations
- Section 3.7 (Reference: section 31.9) Solutions of Nonhomogeneous Equations

- Section 3.8 (Reference: section 31.10) Applications of Higher-Order Equations
- Section 3.9 (Reference: section 31.11) Laplace Transforms
- Section 3.10 (Reference: section 31.12) Solving Differential Equations by Laplace Transforms
- Section 3.11 Step and Impulse Functions
- Section 3.12 Convolution

Lectures, Reviews, Help Sessions	Tests	Holiday	Total
61 hours	3 hours	2 hours	66 hours

6. Basis of Student Assessment (Weighting)

To get a C or better in the course, you must get 50% or higher in the final exam and have an overall average of 60% or higher; your numerical grade will be computed using the following two components:

- 3 Tests (total 50%)
 - Tentatively on 17 April (10%), 9 May (20%), 30 May (20%)
 - Some tests may have a calculator free section that does not allow use of calculator
 - Thorough understanding of the examples discussed in class and the homework exercises will be essential for success on the term tests.
 - Solutions will be emailed to you.
 - There is no makeup for missed test (except for documented medical reasons)
- Comprehensive Final Exam (50%)
 - During the week of 23 June – 27 June.
 - As stated in the college calendar, “Students are expected to write tests and final examinations at the scheduled time and place. ... Exceptions, due to emergency circumstances, such as unavoidable employment commitments, health problems, or unavoidable family crisis, require approval of the appropriate instructor. Holidays or scheduled flights are not considered to be emergencies. The student may be required to provide verification of the emergency circumstances.”

which is then converted to a letter grade using the standard Camosun grade scale (see Grading System (7) below).

Use the table below to record your grades:

	Test 1	Test 2	Test 3	Final	Course
Grade (%)					
x Weight	x 0.1	x 0.2	x 0.2	x 0.5	
	+	+	+	=	

7. 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. (<i>For these courses a final grade will be assigned to either the 3^d course attempt or at the point of course completion.</i>)
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.

8. Course Policy

- Students are required to have their mobile phones either set on vibrate or turned off while attending class and writing term tests and final examination.
- Students are responsible for announcements made in class (check with your fellow students if you have to miss a class).

9. 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.