![Camosun College logo] CAMOSUN COLLEGE	**School of Arts & Science** **Department of Mathematics & Statistics** **MATH 189-X01, X02** **MATH FOR CIVIL/MECH 3** **Quarter 1 2015**

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

(a)	Instructor:	Raymond Lai
(b)	Office Hours:	Monday to Friday 12:30pm – 1:20pm
(c)	Location:	CBA 152
(d)	Phone:	250-370-4491
(e)	Email:	lai@camosun.bc.ca
(f)	Website:	http://faculty.camosun.ca/raymondlai/

2.   Intended Learning Outcomes

Upon completion of this course, using a calculator as necessary, the student will be able to:

1.   Solve separable and linear first-order differential equations.
2.   Use the numerical methods of Euler and Runge-Kutta to find approximate solutions to first-order differential questions.
3.   Solve second-order linear homogeneous and non-homogeneous differential equations with constant coefficients.
4.   Solve application problems involving first and second-order differential equations, including mass-spring systems.
5.   Calculate probabilities using the following: basic properties, simple events, counting techniques, conditional probability, independence, and Bayes' theorem.
6.   Graph a data set using a variety of presentations. Calculate the mean, median, and standard deviation of a data set and interpret the results.
7.   Solve problems involving discrete probability distributions such as binomial, Poisson, and hyper-geometric, and continuous probability distributions such as the normal distribution. Calculate point estimates and confidence intervals for both large and small samples.
8.   For a bivariate data set, calculate the linear regression line using the method of least squares, either using a scientific calculator or using appropriate software (Excel, Matlab, etc.). Calculate and interpret the coefficients of correlation and determination.

3.   Required Materials

(a) Refernece Text: Allyn J. Washington, Basic Technical Mathematics with Calculus, SI Version, 10th Ed.
(b) Scientific Calculator (Graphing Calculators are not permitted.)

4. Course Content and Schedule

Differential Equations   (Reference: Washington)
    Section 1   Solutions of Differential Equations (Ref: Section 31.1)
    Section 2   Separation of Variables (Ref: Section 31.2)
    Section 3   First Order Linear Differential Equations (Ref: Section 31.4)
    Section 4   Numerical Solution: Euler's Method and Runge-Kutta (RK4) Method (Ref: Section 31.5)
    Section 5   Applications of First Order Differential Equations (Ref: Section 31.6)
    Section 6   Higher Order Homogeneous Linear Differential Equations (Ref: Sections 31.7, 31.8)
    Section 7   Higher Order Nonhomogeneous Linear Differential Equations (Ref: Section 31.9)
    Section 8   Applications of Higher Order Linear Differential Equations (Ref: Section 31.10)
Statistics and Probability
    Section 9   Counting Techniques
    Section 10   Introduction to Probability
    Section 11   Bayes' Theorem
    Section 12   Introduction to Statistics
    Section 13   Pictures of Data
    Section 14   Measures of Central Tendency
    Section 15   Measures of Variation
    Section 16   Interpretation of Standard Deviation
    Section 17   Binomial Distribution
    Section 18   Hypergeometric Distribution
    Section 19   Poisson Distribution
    Section 20   Continuous Probability Density Functions (
    Section 21   Normal Distribution
    Section 22   Estimate of Population Mean
    Section 23   Estimate of Population Variance
    Section 24   Linear Regression

5. Basis of Student Assessment (Weighting)

4 Term Tests
- o   Tentatively scheduled on
  Wed14th Oct (test 1), Thurs 5th Nov (test 2), Thurs 26th Nov (test 3) , Thurs 10th Dec (test 4)
- o   Among the first three test grades, the highest two will count for 30% each and the lowest will count for 25%, the grade of test 4 will count for 15%.
- o   Thorough understanding of the examples discussed in class and the assignment problems will be essential for success on the term tests.
- o   Requests for makeup term tests due to illness must be supported by your physician's note.

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	*Incomplete*: 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	*In progress*: 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 3rd course attempt or at the point of course completion.)*
CW	*Compulsory Withdrawal:* 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.