CAMOSUN COLLEGE	**School of Arts & Science** **Department of Mathematics & Statistics** **MATH 189 X03** **MATH FOR CIVIL/MECH 3** **Quarter or Semester/Year**

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:	Josh Manzer		
(b)	Office Hours:	Mon/Thurs 2-3pm, Tues 10-11am, Wed/Fri 11am-12pm, or by appointment		
(c)	Location:	CBA 156		
(d)	Phone:	250-370-4912		
(e)	Email:	ManzerJ@camosun.bc.ca		
(f)	Website:	D2L		

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, 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) Text: Allyn J. Washington, Basic Technical Mathematics with Calculus, SI version, 10th edition, Pearson Education Canada. (Previous editions are also acceptable.)

(b) Calculator: Only regular scientific calculator (non-programmable, non-graphing) will be permitted for quizzes and exams. The use of other electronic devices such as cell phones, MP3 players, iPods, electronic translators, etc., during exams is not allowed.

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)

Test 1 Friday April 15th	10%
Test 2 Friday May 6th	20%
Test 3 Friday May 27th	20%
Final Exam:	50%

As stated in the current college calendar, "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.

6. Grading System

(No changes are to be made to this section unless the Approved Course Description has been forwarded through the Education Council of Camosun College for approval.)

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.

Math Lab: Technologies Centre (TEC) 142 (phone: 370-4492): 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).