![Camosun College logo]	**School of Arts & Science** **MATHEMATICS DEPARTMENT** **MATH 185 X04** **MATH FOR CIVIL/MECH 1** **Quarter 1 2015**

COURSE OUTLINE

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

Ω *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:	Crystal Lomas
(b)	Office Hours:	2:30-3:20 Mon, Wed, Thurs 11:30-12:20 Tues 10:30-11:20 Fri
(c)	Location:	CC 118A
(d)	Phone:	250-370-4463 (email preferred)
(e)	Email:	LomasC@camosun.bc.ca
(f)	Website (D2L):	https://online.camosun.ca/d2l/home

2. Intended Learning Outcomes

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

1. Find the components of a vector. Calculate the dot and cross product of two vectors in two and three dimensions. Use the dot and cross product in applications such as determining the angle between two vectors and finding the projection of one vector on another.
2. Calculate the determinant of a matrix. Add, subtract and multiply matrices. Calculate the inverse of a matrix. Solve linear systems using Gauss-Jordan elimination, augmented matrices and inverse matrices.
3. Evaluate limits of functions. Using the limit definition, find derivatives of simple algebraic functions. Use derivatives to determine the slope of the tangent line to a curve, velocity, acceleration, and rates of change.
4. Use the power, product, quotient and chain rules to differentiate algebraic, trigonometric, logarithmic and exponential functions. Use implicit differentiation.
5. Find tangents and normals to given functions. Solve problems involving related rates, curve sketching, and maxima and minima. Find the velocity and acceleration for a particle moving along a parametrically defined curve.

3. Required Materials

Textbook: Allyn J. Washington, Basic Technical Mathematics with Calculus, SI Version, 10th Ed.

Vector course materials (available on D2L)

Scientific Calculator (Graphing Calculators are not permitted.)

4. Course Content and Schedule
   *An *approximate, tentative* pacing schedule can be found on D2L in the content section.
23.1 Limits
23.2 Slope of the Tangent
23.3 The Derivative
23.5 Derivatives of Polynomials
Vectors: Dot Product, Projections and Cross Product (Materials on Website)
23.4 Instantaneous Rate of Change
23.9 Higher Derivatives
23.6 Derivatives of Products and Quotients
23.7 Derivatives of Powers of Functions & Chain Rule
23.8 Derivatives of Implicit Functions

24.1 Tangents and Normals
24.2 Newton's Method
24.3 Curvilinear Motion
24.4 Related Rates
24.5 Curve Sketching
24.6 More on Curve Sketching
24.7 Applied Max/Min Problems
24.8 Linear Approximations

27.1 Derivatives of Sine and Cosine Functions
27.2 Derivatives of the Other Trig Functions
27.3 Derivatives of the Inverse Trig Functions
27.4 Applications
27.5 Derivatives of Logarithmic Functions
27.6 Derivatives of Exponential Functions

16.1 Intro to Matrices
16.2 Matrix Multiplication
16.3 Matrix Inverses
16.4 Matrices and Linear Equations
16.5 Gauss-Jordan Elimination

5. Basis of Student Assessment (Weighting)

Weekly 5-minute quizzes, total weight 5%
> Quizzes will be at the beginning of class on Tuesdays, starting in Week 2. The two lowest quiz grades will be dropped. There are no make-up quizzes, even if a student is absent.

Three tests, total weight 45%   (15% for each test)
> **Test Dates: Friday Oct. 23,   Friday Nov. 13,   Friday Dec. 4**
> If a student misses a test for any reason, the exam will be worth 65%.
> There is no provision for making up a missed test.

Final Exam, weight 50%

If the final exam grade is higher than the term grade AND the term grade is 50% or higher, then the final exam grade will count as 100% of the final grade.

The final exam will cover the entire course and will be 3 hours long. As stated in the current college calendar on page 34, "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

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.
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.

ACADEMIC INTEGRITY

The Department of Mathematics and Statistics has prepared a "red handout" called Student Guidelines for Academic Integrity to help you interpret college policies involving student conduct, academic dishonesty, plagiarism, etc. It is your responsibility to become familiar with the contents of the document and the college policies it references.
A hardcopy will be provided to you in class. It can also be found on D2L in the content section.

8. **Other Information**
Extra Help
You can get free face-to-face tutoring from our instructional assistant in the Math Lab TEC 142. Hours are posted on the lab doors and on the web http://camosun.ca/services/help-centres/math.html.

D2L
This class has the assistance of Desire2Learn (D2L), an online course management system. All course related materials, grades, and announcements (including any changes to test dates or due dates) will be available on D2L. It is your responsibility to ensure you have access to D2L and to check it regularly.

Class Notes
Skeleton notes will be available on D2L prior to class time. Filled-in notes will be posted on D2L at some point after class time. You may print the skeleton notes or bring them to class on an electronic device if you wish. Please do not copy down definitions, etc., in class – it will make you fall behind the class discussion.