

	School of Arts & Science DEPARTMENT OF MATHEMATICS AND STATISTICS MATH 191 X03 and X04 Applied Math for Civil/Mech 1 Fall 2016
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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:	Susie Wieler		
(b)	Office Hours:	Monday, Thursday, Friday 12:30-1:20 Tuesday, Wednesday 11:30-12:20		
(c)	Location:	CBA 147		
(d)	Phone:	250-370-4448	Alternative Phone:	
(e)	Email:	wieliers@camosun.bc.ca		
(f)	Website:	https://sites.google.com/site/susiewieler		

2. Intended Learning Outcomes

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

1. 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.
2. Use the power, product, quotient and chain rules to differentiate algebraic, trigonometric, logarithmic and exponential functions. Use implicit differentiation.
3. Find tangents and normals to given functions. Use Newton's Method to find an approximate solution to an equation. Solve problems involving related rates, curve sketching, maxima and minima, and parametrically defined curves. Find differentials, estimate errors, and linearize functions.
4. Find antiderivatives of functions and evaluate both indefinite and definite integrals. Use the trapezoidal rule and Simpson's Rule to approximate a definite integral.
5. Use integration to solve applications problems including the area between curves, volumes of solids of revolution, and centroids.
6. Calculate determinants of 2x2 and 3x3 matrices. Add, subtract and multiply matrices. Calculate the inverse of a matrix. Solve 2x2 and 3x3 linear systems using Gauss-Jordan elimination, augmented matrices and inverse matrices.

3. Required Materials

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

Scientific Calculator (graphing calculators are not permitted)

4. Course Content and Schedule

Ch.23 The derivative

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

Ch.24 Applications of the derivative

- Tangents and Normals (24.1)
- Newton's Method (24.2)
- Curvilinear Motion (24.3)
- Related Rates (24.4)
- Using Derivatives in Curve Sketching (24.5)
- Applied Maximum and Minimum Problems (24.7)
- Differentials and Linear Approximations (24.8)

Ch.27 Transcendental functions

- Derivatives of the Sine and Cosine Functions (27.1)
- Derivatives of the Other Trigonometric Functions (27.2)
- Derivatives of the Inverse Trigonometric Functions (27.3)
- Derivatives of the Logarithmic Function (27.5)
- Derivatives of the Exponential Function (27.6)
- Applications (27.8)

Ch.25 Integration

- Antiderivatives (25.1)
- The Indefinite Integral (25.2)
- The Area Under a Curve (25.3)
- The Definite Integral (25.4)
- Numerical Integration: The Trapezoidal Rule (25.5)
- Simpson's Rule (25.6)

Ch.26 Applications of Integration

- Applications of The Definite Integral (26.1)
- Areas by Integration (26.2)
- Volumes by Integration (26.3)
- Centroids (26.4)
- Other Applications (26.6)

Ch.16 Matrices; Systems of linear Equations

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

5. Basis of Student Assessment (Weighting)

- Term Work (Quizzes and Tests): 50%
- Comprehensive Final Exam: 50%

- If a student's final exam grade is higher than his/her term grade AND the term work is complete and 50% or higher, then the final exam grade will count as 100% of the overall course grade.

Tentative Test Dates:

September 30 October 21 November 10 December 2

Quizzes: A short quiz will be given at the beginning of class on Wednesdays. The two lowest quiz grades will be dropped. There are no make-up quizzes, even if a student is absent.

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. <i>(For these courses a final grade will be assigned to either the 3rd 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.

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.

The final exam will cover the entire course and will be 3 hours long. 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.

The Department of Mathematics and Statistics has prepared a 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.