CAMOSUN COLLEGE
School of Arts & Science
Department of Mathematics & Statistics

MATH-193-X01
Applied Math for Civil/Mech 2
Winter 2018

COURSE OUTLINE

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

Ω *Please note: This outline will <u>not</u> be kept indefinitely. It is recommended students keep this outline for their records, especially to assist in transfer credit to post-secondary institutions.*

1. Instructor Information

(a)	**Instructor**	Patricia Wrean (Pat)	
(b)	**Office hours**	posted on office door and on the course website	
(c)	**Location**	CBA 153	
(d)	**Phone**	250-370-4542	**Alternative:**
(e)	**E-mail**	wrean@camosun.bc.ca	
(f)	**Website**	http://wrean.ca/	

2. Intended Learning Outcomes

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

1.   Integrate algebraic, exponential, logarithmic and trigonometric functions.
2.   Use methods of integration, including integration by parts and non-repeated linear partial fractions
3.   Find partial derivatives of functions.
4.   Evaluate double integrals using both Cartesian and polar coordinates and use double integration to calculate volumes under three-dimensional surfaces.
5.   Solve separable and linear first-order differential equations.
6.   Solve second-order linear homogeneous and non-homogeneous differential equations with constant coefficients.
7.   Solve application problems involving first and second-order differential equations, including mass-spring systems.
8.   Calculate probabilities using counting techniques and basic probability.
9.   Graph a data set using a variety of presentations. Calculate the mean, median, and standard deviation of a data set and interpret the results.
10. Solve problems involving discrete probability distributions such as binomial and Poisson, and continuous probability distributions such as the normal distribution.
11. Calculate point estimates and confidence intervals for means of both large and small samples.
12. 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. Calculate and interpret the coefficients of correlation and determination.

3. Required Materials

(Optional) Textbook: Allyn J. Washington and Michelle Boué, *Basic Technical Mathematics with Calculus*, SI Version, 10th Ed. (Earlier editions are also acceptable.)

> The exercises and solutions from this textbook are available for printing at the Satellite Printshop in the CBA main floor Atrium.

> The library has copies of this textbook on reserve.

Coursepack for the Statistics portion of the course – will be available for purchase at the Satellite Printshop around week 8

Scientific Calculator: Only regular scientific calculators (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

CALCULUS

28.1	The General Power Formula
28.2	The Basic Logarithmic Form
28.3	The Exponential Form
28.4	Basic Trig Forms
28.6	Inverse Trig Forms
28.7	Integration by Parts
28.9	Partial Fractions (Non-repeated Linear Factors)
29.3	Intro to Surfaces
29.4	Double Integrals

DIFFERENTIAL EQUATIONS

31.1	Solutions of Differential Equations
31.2	Separation of Variables
31.4	First-Order Linear Differential Equations
31.6	Applications of First-Order DE
31.7	Higher-Order Homogeneous DE with Constant Coefficients
31.8	Auxiliary Equations with Repeated and Complex Roots
31.9	Higher-Order Non-Homogeneous DE with Constant Coefficients
31.10	Applications of Higher-Order DE

STATISTICS

Section 1	Collection and Representation of Data
Section 2	Summarizing Data
Section 3	Probability
Section 4	Discrete Random Variables
Section 5	Binomial and Poisson Distributions
Section 6	Continuous Random Variables
Section 7	The Normal Distribution
Section 8	The Central Limit Theorem
Section 9	Confidence Intervals
Section 10	Linear Regression

5. Basis of Student Assessment (Weighting)

Tests: 50%

Tentative Test Dates: February 2   March 9   April 6

The first time a student misses a test for any reason, the weight of the missed test will be transferred to the final exam. No documentation is required for the first absence. For any further absences, documentation is required or a zero will be given. There are no make-up tests.

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.

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.

Academic Integrity: 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. A copy of it is posted to the course website on the About page. It is your responsibility to become familiar with the contents of the document and the college policies it references.

6. Grading System

X | Standard Grading System (GPA)

| Competency Based Grading System

7. Recommended Materials to Assist Students to Succeed Throughout the Course

Leah Howard's Video Lectures: http://wrean.ca/math193/math193_videos.htm

The Math Lab in TEC 142 has a tutor on staff. Hours are posted on the door.

Students with disability-related academic barriers are encouraged to consult with the Centre for Accessible Learning (CAL) to see whether they are eligible for exam or in-class accommodations. The CAL website is http://camosun.ca/services/accessible-learning/ .

www.wolframalpha.com   and   www.desmos.com have excellent free graphing software

8. College Supports, Services and Policies

Immediate, Urgent, or Emergency Support
If you or someone you know requires immediate, urgent, or emergency support (e.g. illness, injury, thoughts of suicide, sexual assault, etc.), **SEEK HELP**. Resource contacts @ http://camosun.ca/about/mental-health/emergency.html or http://camosun.ca/services/sexual-violence/get-support.html#urgent

College Services
Camosun offers a variety of health and academic support services, including counselling, dental, disability resource centre, help centre, learning skills, sexual violence support & education, library, and writing centre. For more information on each of these services, visit the **STUDENT SERVICES** link on the College website at http://camosun.ca/

College Policies
Camosun strives to provide clear, transparent, and easily accessible policies that exemplify the college's commitment to life-changing learning. It is the student's responsibility to become familiar with the content of College policies. Policies are available on the College website at http://camosun.ca/about/policies/. Education and academic policies include, but are not limited to, Academic Progress, Admission, Course Withdrawals, Standards for Awarding Credentials, Involuntary Health and Safety Leave of Absence, Prior Learning Assessment, Medical/Compassionate Withdrawal, Sexual Violence and Misconduct, Student Ancillary Fees, Student Appeals, Student Conduct, and Student Penalties and Fines.

A. GRADING SYSTEMS *http://camosun.ca/about/policies/index.html*

The following two grading systems are used at Camosun College:

1. 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		1
0-49	F	Minimum level has not been achieved.	0

2. **Competency Based Grading System (Non GPA)**

This grading system is based on satisfactory acquisition of defined skills or successful completion of the course learning outcomes

Grade	Description
COM	The student has met the goals, criteria, or competencies established for this course, practicum or field placement.
DST	The student has met and exceeded, above and beyond expectation, the goals, criteria, or competencies established for this course, practicum or field placement.
NC	The student has not met the goals, criteria or competencies established for this course, practicum or field placement.

B. 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 at http://camosun.ca/about/policies/index.html 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 are designed to have an anticipated enrollment that extends beyond one term. No more than two IP grades will be assigned for the same course.
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.