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:	Dr. Michelle Edwards
(b)	Office Hours:	Monday/Tuesday/Wednesday 2:30pm-3:30pm, Friday 10:30am-12:30pm
(c)	Location:	Ewing 246
(d)	Phone:	250-370-3471
(e)	Email:	medwards@camosun.bc.ca
(f)	Website:	D2L

Additional support is available in the **Math Lab** Ewing 224 Monday–Friday 9am-4:30pm.

2. Intended Learning Outcomes

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

1. Find the limit of elementary functions as the independent variable approaches some finite value or approaches infinity.
2. Find the derivative of simple functions using the definition of the derivative.
3. Find the derivative of functions (polynomial, trigonometric, logarithmic and exponential functions) using the product, quotient and chain rule.
4. Find the derivative using implicit differentiation.
5. Solve problems involving rates of change.
6. Find relative and absolute extrema of functions.
7. Sketch graphs of functions identifying such features as relative extrema, intervals where the function is increasing and decreasing, points of inflection, intervals where the function is concave up and concave down, and asymptotes.
8. Solve problems that involve maximizing or minimizing some variable associated with the problem.
9. Find the approximate area under a curve using the area of a set of approximating rectangles.
10. Evaluate a definite and an indefinite integral of polynomial, trigonometric, logarithmic and exponential functions using the Fundamental theorem of Calculus.
11. Evaluate integrals using the method of substitution.
12. Use integration to find the area between two curves.
13. Evaluate a definite and indefinite integral by the method of integration by parts.
14. Solve elementary differential equations using the method of separation of variables.
15. Solve problems using differential and integral calculus that involve applications from business and/or biological sciences.

3. Required Materials

Textbook: *Calculus for the Life Sciences* by Greenwell, Ritchey and Lial, Second Custom Edition for Camosun College

Calculator: As per department policy, the only calculator permitted for use on tests and the final exam is the **Sharp EL-531** (or EL-510R) scientific calculator.

4. Course Content and Schedule

Chapter R: Algebra Reference – for review
Chapter 1: Functions
        1.1 Lines and Linear Functions
        1.3 Properties of Functions
        1.4 Quadratic Functions; Translation and Reflection
        1.5 Polynomial and Rational Functions
Chapter 2: Exponential, Logarithmic, and Trigonometric Functions
        2.1 Exponential Functions
        2.2 Logarithmic Functions
        2.3 Applications: Growth and Decay
        2.4 Trigonometric Functions
Chapter 3: The Derivative
        3.1 Limits
        3.2 Continuity
        3.3 Rates of Change
        3.4 Definition of the Derivative
Chapter 4: Calculating the Derivative
        4.1 Techniques for Finding Derivatives
        4.2 Derivatives of Products and Quotients
        4.3 The Chain Rule
        4.4 Derivatives of Exponential Functions
        4.5 Derivatives of Logarithmic Functions
        4.6 Derivatives of Trigonometric Functions
Chapter 5: Graphs and the Derivative
        5.1 Increasing and Decreasing Functions
        5.2 Relative Extrema
        5.3 Higher Derivatives, Concavity, and the Second Derivative Test
        5.4 Curve Sketching
Chapter 6: Applications of the Derivative
        6.1 Absolute Extrema
        6.2 Applications of Extrema
        6.3 Implicit Differentiation
        6.4 Related Rates
Chapter 7: Integration
        7.1 Antiderivatives
        7.2 Substitution
        7.4 The Fundamental Theorem of Calculus
        7.5 The Area Between Two Curves
Chapter 8: Further Techniques and Applications of Integration
        8.2 Integration by Parts
Chapter 11: Differential Equations
        11.1 Solutions of Elementary and Separable Differential Equations

5. Basis of Student Assessment (Weighting)

Take Home Assignments: 8%

There will be a weekly take home assignment due at the beginning of class every **Friday**. The two lowest assignment marks will be dropped from your final course grade. There will be no make-up assignments, even if a student is absent. Assignments will not be accepted after the solution key has been posted. (i.e. Late assignments will not be accepted for marks!)

Midterm Tests: 42% (14% each)

Midterm Test Dates: Friday February 10th,   Wednesday March 15th,   Friday April 7th

Final Exam: 50%

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.

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.

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. A copy of this document has been posted on the course D2L page.