CAMOSUN COLLEGE	***School of Arts & Science*** ***MATHEMATICS DEPARTMENT*** **MATH 108-03** **Applied Calculus** **2006F**

COURSE OUTLINE

The Approved Course Description is available on the web @ _____

Ω *Please note: this outline will be electronically stored for five (5) years only. It is strongly recommended students keep this outline for your records.*

1. Instructor Information

(a)	Instructor:	Nick Marsden		
(b)	Office Hours:	Monday-Friday 9:30-10:20am		
(c)	Location:	Ewing 258		
(d)	Phone:		Alternative Phone:	
(e)	Email:			
(f)	Website:			

2. Intended Learning Outcomes

(No changes are to be made to this section, unless the Approved Course Description has been forwarded through EDCO for approval.)

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

(a)	Texts	Calculus with Applications Seventh or Eighth Edition Author - Lial, Greenwell and Ritchey
(b)	Other	

4. Course Content and Schedule

(Can include: class hours, lab hours, out of class requirements and/or dates for quizzes, exams, lectures, labs, seminars, practicums, etc.)

CHAPTER 1: LINEAR FUNCTIONS

#	Text	Time	
1	1.1	1	Slopes and Equations of Lines
2	1.2	2	Linear Functions and Applications

CHAPTER 2: NONLINEAR FUNCTIONS

#	Text	Time	
3	2.1	1	Properties of Functions
4	2.2	3	Quadratic Functions; Translation and Reflection
5	2.3	2	Polynomial and Rational Functions
			TAKE-HOME TEST

CHAPTER 3: THE DERIVATIVE

#	Text	Time	
6	3.1,3.2	1	Limits and Continuity
7	3.3	1	Rates of Change
8	3.4	1	Definition of the Derivative
9	3.5	1	Graphical Differentiation

CHAPTER 4: CALCULATING THE DERIVATIVE

#	Text	Time	
10	4.1	2	Techniques for Finding Derivatives
11	4.2	1	Derivatives of Products and Quotients
12	4.3	1	The Chain Rule
		1	TEST 1, Lessons 1 to 12

CHAPTER 5: GRAPHS AND THE DERIVATIVE

#	Text	Time	
13	5.1	1	Increasing and Decreasing Functions
14	5.2	1	Relative Extrema
15	5.3	2	Higher Derivatives; Concavity; The Second Derivative Test
16	5.4	2	Asymptotes and Curve Sketching

CHAPTER 6: APPLICATIONS OF THE DERIVATIVE

#	Text	Time	
17	6.1	1	Absolute Extrema
			TAKE-HOME TEST

#	Text	Time	
18	6.2	2	Applications of Extrema
19	6.3	1	A Further Applications from Business: Economic Lot Size
20	6.4	1	Implicit Differentiation
21	6.5	2	Related Rates
22	6.6	1	Differentials: Linear Approximation
		1	TEST 2, Lessons 13 to 22

EXPONENTIAL AND LOGARITHMIC FUNCTIONS

#	Text	Time	
23	2.4	1	Exponential Functions
24	2.5	2	Logarithmic Functions
25	2.6	2	Applications: Growth and Decay; Finance
26	4.4	.5	Derivatives of Exponential Functions
27	4.5	.5	Derivatives of Logarithmic Functions
			TAKE-HOME TEST

CHAPTER 7: INTEGRATION

#	Text	Time	
28	7.1	1	Antiderivatives
29	7.2	1	Integration by Substitution
30	Notes	1	Area
31	7.4	1.5	The Fundamental Theorem of Calculus
32	7.5	1.5	The Area Between Two Curves
		1	TEST 3, Lessons 23 to 32

MORE INTEGRATION

#	Text	Time	
33	8.1	2	Integration by Parts; Tables of Integrals
34	10.1	1	Solutions of Elementary and Separable Differential Equations

CHAPTER 13: THE TRIGONOMETRIC FUNCTIONS

#	Text	Time	
35	13.1	2	Definitions of the Trigonometric Functions
36	13.2-13.3	2	Calculus with Trigonometric Functions
		1	TEST 4, Lessons 33 to 36

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5. Basis of Student Assessment (Weighting)

(Should be linked directly to learning outcomes.)

(a)	Assignments	

(b)	Quizzes	
(c)	Exams	
(d)	Other (eg, Attendance, Project, Group Work)	

Final exam, Lessons 1 to 36

6. Grading System

(No changes are to be made to this section, unless the Approved Course Description has been forwarded through EDCO for approval.)

Standard Grading System (GPA)

Percentage	Grade	Description	Grade Point Equivalency
95-100	A+		9
90-94	A		8
85-89	A-		7
80-84	B+		6
75-79	B		5
70-74	B-		4
65-69	C+		3
60-64	C		2
50-59	D		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 at **camosun.ca** or 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.

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.

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 on the College web site in the Policy Section.

ADDITIONAL COMMENTS AS APPROPRIATE OR AS REQUIRED