CAMOSUN COLLEGE	**School of Arts & Science** **MATHEMATICS DEPARTMENT** **MATH 187 (PLA)** **MATH FOR CIVIL/MECH 2** **Quarter 1, 2014**

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:	Gilles Cazelais		
(b)	Office Hours:	http://pages.pacificcoast.net/~cazelais/schedule.html		
(c)	Location:	CBA 158		
(d)	Phone:	370-4495	Alternative Phone:	
(e)	Email:	Cazelais@camosun.bc.ca		
(f)	Website:	http://pages.pacificcoast.net/~cazelais/187.html		

2. Intended Learning Outcomes

(No changes are to be made to these Intended Learning Outcomes as approved by the Education Council of Camosun College.)

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

1. Integrate algebraic, exponential, logarithmic and trigonometric functions. Use integral calculus to determine the area under a curve.
2. Use the trapezoidal rule and Simpson's Rule to approximate a definite integral.
3. Use integration to find the area between curves, volumes of solids of revolution, moments of area and mass, centroids and centres of mass and moments of inertia.
4. Use techniques of integration, including integration by parts, trigonometric substitution, and partial fractions.
5. Find the Maclaurin and Taylor series of functions and use these expansions to evaluate integrals.
6. Find partial derivatives of functions.
7. Evaluate double integrals using both Cartesian and polar coordinates and use double integration to calculate volumes under three-dimensional surfaces.

3. Required Materials

Allyn J. Washington, *Basic Technical Mathematics with Calculus*, 9th Edition

4. Course Content and Schedule

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

2. Applications of Integration
Applications of the Indefinite Integral (section 26.1)
Areas by Integration (section 26.2)
Volumes by Integration (section 26.3)
Centroids (section 26.4)
Moments of Inertia (section 26.5)
Other Applications (section 26.6)

3. Methods of Integration
The General Power Formula (section 28.1)
The Basic Logarithmic Form (section 28.2)
The Exponential Form (section 28.3)
Basic Trigonometric Forms (section 28.4)
Other Trigonometric Forms (section 28.5)
Inverse Trigonometric Forms (section 28.6)
Integration by Parts (section 28.7)
Integration by Trigonometric Substitution (section 28.8)
Integration by Partial Fractions: Nonrepeated Linear Factors (section 28.9)
Integration by Partial Fractions: Other Cases (section 28.10)

4. Partial Derivatives and Double Integrals
Functions of two variables (section 29.1)
Curves and Surfaces in Three Dimensions (section 29.2)
Partial Derivatives (section 29.3)
Double Integrals (section 29.4)

5. Expansion of Functions in Series
Infinite Series (section 30.1)
Maclaurin Series (section 30.2)
Certain Operations with Series (section 30.3)
Computation by Use of Series Expansion (section 30.4)

5. Basis of Student Assessment (Weighting)

The final grade will be based entirely (100%) on a 3-hour comprehensive exam. This exam will be similar in difficulty to the final exam used by the regular lecture-based course.

6. Grading System

(No changes are to be made to this section unless the Approved Course Description has been forwarded through the Education Council of Camosun College for approval.)

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.

ADDITIONAL COMMENTS AS APPROPRIATE OR AS REQUIRED