COURSE OUTLINE

1. Instructor Information

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

2. Intended Learning Outcomes

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

1. Calculate antiderivatives, indefinite integrals, and definite integrals; integrate natural logarithms and trigonometric functions, and use integral calculus to determine the area under a curve.
2. Use numerical integration techniques such as the trapezoidal rule and Simpson's Rule to approximate a definite integral.
3. Use integration in applications involving area between curves, volumes of revolution, moments of area and mass, centroids and centres of mass, and moments of inertia.
4. Evaluate integrals in basic logarithmic, exponential, trigonometric, and inverse trigonometric forms. Use techniques of integration, including integration by parts, trigonometric substitution, and partial fractions.
5. Calculate power-series expansions of functions, including Maclaurin and Taylor series, and use these expansions to evaluate integrals.
6. Compute integrals involving curves and surfaces in three dimensions.
7. Find partial derivatives of functions in more than one variable.
8. Evaluate double integrals using both Cartesian and cylindrical coordinates and use them to calculate volumes under three-dimensional surfaces.

3. Required Materials

Basic Technical Mathematics with Calculus (8th Edition) by Allyn J. Washington.

4. Course Content and Schedule

5. Basis of Student Assessment (Weighting)

· Four tests: 50%

· Comprehensive final exam: 50%

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
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.

Topics covered

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. Expansion of Functions in Series
· Maclaurin Series (section 29.2)
· Certain Operations with Series (section 29.3)
· Computation by Use of Series Expansion (section 29.4)
· Taylor Series (section 29.5)

5. Supplementary Topics
· Functions of Two Variables (section S-4)
· Curves and Surfaces in Three Dimensions (section S-5)
· Partial Derivatives (section S-6)
· Double Integrals (section S-7)
· Polar Coordinates (section 21.9)