



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:			
(b)	Office Hours:			
(c)	Location:			
(d)	Phone:		Alternative Phone:	
(e)	Email:			
(f)	Website:			

SEE BELOW

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. Differentiate and integrate inverse trigonometric, hyperbolic and inverse hyperbolic functions.
2. Use integration to find area, volume, arc length, surface area of revolution, work, moments and centroids.
3. Integrate using parts, trigonometric integrals, trigonometric substitution, partial fractions and tables.
4. Evaluate limits, which have indeterminate forms, and calculate improper integrals.
5. Test a sequence for convergence and explain the difference between convergence of a sequence and convergence of a series.
6. Test series for convergence using the integral test, p-test, comparison tests, alternating series test and ratio test and explain the difference between convergence and absolute convergence.
7. Estimate the error in approximating a series using improper integrals and the alternating series remainder.
8. Calculate Taylor polynomials, power series, Taylor series, and MacLaurin series and estimate the error in an approximation using Taylor's Theorem.
9. Determine the interval of convergence of a power series.
10. Graph and analyze parametric curves and find arc length and surface area in parametric form.
11. Graph and analyze curves given in polar coordinates and determine area and arc length in polar form.

3. Required Materials

- (a) Texts
- (b) Other

SEE BELOW

4. Course Content and Schedule

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

5. Basis of Student Assessment (Weighting)

(This section should be directly linked to the Intended Learning Outcomes.)

- (a) Assignments
- (b) Quizzes
- (c) Exams
- (d) Other (e.g., Attendance, Project, Group Work)

SEE BELOW

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	<i>Incomplete:</i> 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	<i>In progress:</i> 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 3 rd course attempt or at the point of course completion.)
CW	<i>Compulsory Withdrawal:</i> 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.

ADDITIONAL COMMENTS AS APPROPRIATE OR AS REQUIRED



**Mathematics 101
Calculus 2
Winter, 2015**

Instructor: George Ballinger
Office: Ewing 256
E-mail: ballinger@camosun.bc.ca
Website: ballinger.disted.camosun.bc.ca (click the [MATH 101](#) link for course information)
Telephone: (250) 370-3116
Timetable:

Time	Monday	Tuesday	Wednesday	Thursday	Friday
8:30 am - 9:20 am					
9:30 am - 10:20 am					
10:30 am - 11:20 am		MATH 126-001 Room WT226	MATH 126-001 Room Y227	MATH 126-001 Room Y227	MATH 126-001 Room Y227
11:30 am - 12:20 pm	Office Hour E256	Office Hour E256	Office Hour E256	Office Hour E256	Office Hour E256
12:30 pm - 1:20 pm	MATH 101-002 Room Y217	MATH 101-002 Room Y217	MATH 101-002 Room Y217	MATH 101-002 Room Y217	MATH 101-002 Room Y217
1:30 pm - 2:20 pm	MATH 101-003 Room Y217	MATH 101-003 Room Y217	MATH 101-003 Room Y217	MATH 101-003 Room Y217	MATH 101-003 Room Y217
2:30 pm - 3:20 pm		A&S Chairs Meeting			
3:30 pm - 4:20 pm					

Important Dates:

January 5	First day of class
January 19	Fee deadline
February 9	Family Day (no class)
February 12-13	Reading Break (no class)
March 9	Withdrawal deadline
April 3	Good Friday (no class)
April 6	Easter Monday (no class)
April 10	Last day of class
April 13-18, 20-21	Final exam period

Calendar Description: A continuation of MATH 100. Topics include: inverse and hyperbolic trigonometric functions, applications of integration, integration techniques, L'Hôpital's Rule, improper integrals, infinite series, Taylor series, parametric equations and polar coordinates. ~~Students will complete some assignments using Maple.~~ [4 Credits]

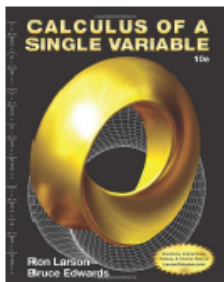
(Source: *Camosun College 2014-2015 Calendar*
camosun.ca/learn/calendar/current/web/math.html)

Prerequisites: C in MATH 100 or A in MATH 108.

Exit Grade: A grade of at least C (60%) is required when this course is used as a prerequisite for entry into MATH 220, MATH 225, or any other Camosun course.

Required Textbook:

Ron Larson and Bruce H. Edwards, *Calculus of a Single Variable*, 10th Edition, Brooks/Cole, 2014.

Course Content:**Chapters and Sections**

5. Logarithmic, Exponential, and Other Transcendental Functions
 - 5.6 Inverse Trigonometric Functions: Differentiation
 - 5.7 Inverse Trigonometric Functions: Integration
 - 5.8 Hyperbolic Functions
7. Applications of Integration
 - 7.1 Area of a Region Between Two Curves
 - 7.2 Volume: The Disk Method
 - 7.3 Volume: The Shell Method
 - 7.4 Arc Length and Surfaces of Revolution
 - 7.5 Work
 - 7.6 Moments, Centers of Mass, and Centroids
 - 7.7 Fluid Pressure and Fluid Force
8. Integration Techniques, L'Hôpital's Rule, and Improper Integrals
 - 8.1 Basic Integration Rules
 - 8.2 Integration by Parts
 - 8.3 Trigonometric Integrals
 - 8.4 Trigonometric Substitution
 - 8.5 Partial Fractions
 - 8.6 Integration by Tables and Other Integration Techniques
 - 8.7 Indeterminate Forms and L'Hôpital's Rule
 - 8.8 Improper Integrals
9. Infinite Series
 - 9.1 Sequences
 - 9.2 Series and Convergence
 - 9.3 The Integral Test and p -Series
 - 9.4 Comparisons of Series
 - 9.5 Alternating Series
 - 9.6 The Ratio and Root Tests
 - 9.7 Taylor Polynomials and Approximations
 - 9.8 Power Series
 - 9.9 Representation of Functions by Power Series
 - 9.10 Taylor and Maclaurin Series
10. Conics, Parametric Equations, and Polar Coordinates
 - 10.1 Conics and Calculus
 - 10.2 Plane Curves and Parametric Equations
 - 10.3 Parametric Equations and Calculus
 - 10.4 Polar Coordinates and Polar Graphs
 - 10.5 Area and Arc Length in Polar Coordinates

Learning Outcomes:	<p>The Intended Learning Outcomes for this course, as approved by the Education Council, are as follows. Upon completion of this course the student will be able to:</p> <ol style="list-style-type: none"> 1. Differentiate and integrate inverse trigonometric, hyperbolic and inverse hyperbolic functions. 2. Use integration to find area, volume, arc length, surface area of revolution, work, moments and centroids. 3. Integrate using parts, trigonometric integrals, trigonometric substitution, partial fractions and tables. 4. Evaluate limits, which have indeterminate forms, and calculate improper integrals. 5. Test a sequence for convergence and explain the difference between convergence of a sequence and convergence of a series. 6. Test series for convergence using the integral test, p-test, comparison tests, alternating series test and ratio test and explain the difference between convergence and absolute convergence. 7. Estimate the error in approximating a series using improper integrals and the alternating series remainder. 8. Calculate Taylor polynomials, power series, Taylor series, and MacLaurin series and estimate the error in an approximation using Taylor's Theorem. 9. Determine the interval of convergence of a power series. 10. Graph and analyze parametric curves and find arc length and surface area in parametric form. 11. Graph and analyze curves given in polar coordinates and determine area and arc length in polar form.
A&S Math Lab:	Ewing 224: This drop-in centre is freely available for your use to work on math homework and to seek help from the tutor on staff (see hours posted on door).
Calculator Policy:	As per Math Department policy, the only calculator permitted for use on tests and the final exam is the Sharp EL-531 (or EL-510R) scientific calculator. No other make/model of calculator is permitted, nor are other electronic devices such as cell phones, iPods, electronic translators, etc.
Homework:	There will be periodic assignments to be handed in for marking, details for which will be posted on the course website. LATE ASSIGNMENTS WILL NOT BE ACCEPTED.
Final Exam:	A comprehensive final exam will take place during the final exam period of April 13-18, 20-21. The specific date, time, and location will be announced on or about February 21. You must write the final exam at the scheduled time as per Camosun College's policy on final examinations. See camosun.ca/learn/calendar/current/pdf/academic-policies.pdf .

Grade Calculation: The final grade will be calculated according to the following breakdown:

Assignments: 15%*
Term Tests: 35%
Comprehensive 3-hour Final Exam: 50%

* *Note:* The lowest assignment mark will be dropped when calculating the assignment average. This allows you to miss one assignment without penalty.

Grade Scale: Final letter grades are assigned as follow:

0-49	50-59	60-64	65-69	70-72	73-76	77-79	80-84	85-89	90-100
F	D	C	C+	B-	B	B+	A-	A	A+

For information on Camosun College's grading policy, see Sec E-1.5 on the policy webpage camosun.ca/about/policies/policies.html.