



**School of Arts & Science
MATHEMATICS DEPARTMENT**

**MATH 226-001
Elementary Differential Equations
2017W**

COURSE OUTLINE

The course description is online @ <http://camosun.ca/learn/calendar/current/web/anth.html>

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:	Dan Bergerud		
(b)	Office Hours:	11:30 – 12:30		
(c)	Location:	E264		
(d)	Phone:	370-3495	Alternative Phone:	
(e)	Email:	Bergerud@camosun.bc.ca		
(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. Solve separable, linear, exact, or homogeneous first order differential equations.
2. Solve applied problems using first order equations. (Population growth, mixtures, chemical reactions, etc.)
3. Solve second order equations with constant coefficients.
4. Find the general solution of a second order equation using reduction of order and variation of parameters.
5. Solve some special forms of second order by substitution.
6. Solve applied problems using second order equations (mass-spring-damped-forced).
7. Find power series solutions of second order equations near ordinary points and regular singular points.
8. Solve applied problems using Laplace transforms (mass-spring, electric circuits).
9. Solve linear first order systems of differential equations.
10. Find Fourier series for simple periodic functions.

3. Required Materials

- (a)Text : Zill, A First Course in Differential Equations with Applications, 10th Edition, Brooks/Cole, 2013.

4. Course Content and Schedule

Chapter 1: Introduction to Differential Equations.	1.1 - 1.3
Chapter 2: First Order Differential Equations.	2.1 - 2.5
Chapter 3: Modeling with First Order Equations.	3.1 - 3.2
Chapter 4: Differential Equations of Higher Order.	4.1 - 4.9
Chapter 5: Modeling with Second Order Differential Equations.	5.1 - 5.3
Chapter 6: Series Solutions of Linear Equations.	6.1 - 6.3
Chapter 7: Laplace Transforms.	7.1 - 7.6
Chapter 8: Systems of First-Order Differential Equations	8.1 – 8.3

Additional Topics: (handouts)

1. Plane Autonomous Systems
The non-linear pendulum
2. Introduction to Fourier series.

5. Basis of Student Assessment (Weighting)

- (a) Assignments 20%
- (b) Midterm 20%
- (c) Final 50%
- (d) Maple Labs 10%

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
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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. <i>(For these courses a final grade will be assigned to either the 3rd course attempt or at the point of course completion.)</i>
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. 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