



**CAMOSUN COLLEGE**  
**School of Arts & Science**  
**Department of Mathematics & Statistics**

**MATH-168-X01**  
**Applied Math for Electronics 2**  
**Winter 2019**

## COURSE OUTLINE

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

Ω Please note: This outline will not be kept indefinitely. It is recommended students keep this outline for their records, especially to assist in transfer credit to post-secondary institutions.

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### 1. Instructor Information

|                  |  |                    |
|------------------|--|--------------------|
| (a) Instructor   | Susie Wieler   |                    |
| (b) Office hours | TBA  |                    |
| (c) Location     | CBA 147  |                    |
| (d) Phone        | 250 370 4448   | Alternative: _____ |
| (e) E-mail       | <a href="mailto:wielers@camosun.bc.ca">wielers@camosun.bc.ca</a> |                    |
| (f) Website      | D2L  |                    |

### 2. Intended Learning Outcomes

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

1. Find antiderivatives of functions and use antiderivatives to solve applied problems including applications to electronics.
2. Use the Fundamental Theorem of Calculus to evaluate definite integrals. Calculate areas between curves.
3. Evaluate integrals in power, logarithmic, exponential, and trigonometric forms.
4. Evaluate integrals using substitution, integration by parts, and non-repeated linear partial fractions.
5. Solve first order separable and linear differential equations and applied problems.
6. Solve homogeneous second order linear differential equations and applied problems, including LRC circuits.
7. Solve problems involving counting techniques and basic probability.
8. Calculate the mean, median, and standard deviation of a discrete data set and interpret the results.
9. Perform calculations involving the normal distribution. Calculate confidence intervals for large samples.

### 3. Required Materials

**(Optional) Textbook:** Allyn J. Washington and Michelle Boué, *Basic Technical Mathematics with Calculus*, SI Version, 10th Ed.

Note: the exercises and solutions from this textbook are posted on D2L, and are available for printing at the Satellite Printshop in the CBA main floor Atrium

**Coursepack** for the Statistics portion of the course – will be available for printing at the Satellite Printshop around week 11.

**Scientific Calculator** (graphing calculators are not permitted).

## 4. Course Content and Schedule

### 1. Integration

- Antiderivatives (25.1)
- The Indefinite Integral (25.2)
- The Area Under a Curve (25.3)
- The Definite Integral (25.4)

### 2. Applications of Integration

- Applications of The Definite Integral (26.1)
- Areas by Integration (26.2)

### 3. Methods of Integration

- The General Power Formula (28.1)
- The Basic Logarithmic Form (28.2)
- The Exponential Form (28.3)
- Basic Trigonometric Forms (28.4)
- Integration by Parts (28.7)
- Integration by Partial Fractions: Nonrepeated Linear Factors (28.9)

### 4. Differential Equations

- Solutions of Differential Equations (31.1)
- Separations of Variables (31.2)
- The Linear Differential Equations of First Order (31.4)
- Elementary Applications (31.6)
- Higher-Order Homogeneous Equations (31.7)
- Auxiliary Equations with Repeated or Complex Roots (31.8)
- Solutions of Nonhomogeneous Equations (31.9)
- Applications of Higher-Order Equations (31.10)

### 5. Introduction to Statistics - coursepack

- Counting Techniques and Probability
- Summarizing Data (22.2)
- The Normal Distribution (22.3)
- Confidence Intervals (22.4)
- Linear Regression (22.6)

## 5. Basis of Student Assessment (Weighting)

- Term Work (Quizzes and Tests): 50%
- Comprehensive Final Exam: 50%

*If a student's final exam grade is higher than his/her term grade AND the term work is complete and 50% or higher, then the final exam grade will count as 100% of the overall course grade.*

### Tentative Test Dates:

January 25      February 15      March 15      April 5

**Quizzes:** A short quiz will be given at the beginning of class on Wednesdays. The two lowest quiz grades will be dropped. There are no make-up quizzes, even if a student is absent.

The final exam will cover the entire course and will be 3 hours long. As stated in the current college calendar, "students are expected to write tests and final examinations at the scheduled time and place." Exceptions will only be considered due to **emergency** circumstances as outlined in the calendar. Holidays or scheduled flights are not considered to be emergencies.

The Department of Mathematics and Statistics has prepared a handout called *Student Guidelines for Academic Integrity* to help you interpret college policies involving student conduct, academic dishonesty, plagiarism, etc. It is your responsibility to become familiar with the contents of the document and the college policies it references.

## 6. Grading System

- Standard Grading System (GPA)
- Competency Based Grading System

## 7. Recommended Materials to Assist Students to Succeed Throughout the Course

The Math Lab in TEC 142 has a tutor on staff. Hours are posted on the door.

Leah Howard's video lectures:

<http://leahhoward.com/m191/math191videos.html> has videos on Chapters 25 and 26

<http://leahhoward.com/m193/math193videos.html> has videos on Chapters 28 and 31

[www.wolframalpha.com](http://www.wolframalpha.com) and [www.desmos.com](http://www.desmos.com) have excellent free graphing software.

[www.khanacademy.org](http://www.khanacademy.org) has many good video lectures.

## 8. College Supports, Services and Policies



### Immediate, Urgent, or Emergency Support

If you or someone you know requires immediate, urgent, or emergency support (e.g. illness, injury, thoughts of suicide, sexual assault, etc.), **SEEK HELP**. Resource contacts @ <http://camosun.ca/about/mental-health/emergency.html> or <http://camosun.ca/services/sexual-violence/get-support.html#urgent>

### College Services

Camosun offers a variety of health and academic support services, including counselling, dental, disability resource centre, help centre, learning skills, sexual violence support & education, library, and writing centre. For more information on each of these services, visit the **STUDENT SERVICES** link on the College website at <http://camosun.ca/>

### College Policies

Camosun strives to provide clear, transparent, and easily accessible policies that exemplify the college's commitment to life-changing learning. It is the student's responsibility to become familiar with the content of College policies. Policies are available on the College website at <http://camosun.ca/about/policies/>. Education and academic policies include, but are not limited to, Academic Progress, Admission, Course Withdrawals, Standards for Awarding Credentials, Involuntary Health and Safety Leave of Absence, Prior Learning Assessment, Medical/Compassionate Withdrawal, Sexual Violence and Misconduct, Student Ancillary Fees, Student Appeals, Student Conduct, and Student Penalties and Fines.

## A. GRADING SYSTEMS <http://camosun.ca/about/policies/index.html>

The following two grading systems are used at Camosun College:

### 1. 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     |                                      | 1                       |
| 0-49       | F     | Minimum level has not been achieved. | 0                       |

### 2. Competency Based Grading System (Non GPA)

This grading system is based on satisfactory acquisition of defined skills or successful completion of the course learning outcomes

| Grade | Description   |
|-------|---|
| COM   | The student has met the goals, criteria, or competencies established for this course, practicum or field placement.   |
| DST   | The student has met and exceeded, above and beyond expectation, the goals, criteria, or competencies established for this course, practicum or field placement. |
| NC    | The student has not met the goals, criteria or competencies established for this course, practicum or field placement.  |

## B. 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 <http://camosun.ca/about/policies/index.html> 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 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              | <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. |