



**School of Arts & Science
MATHEMATICS DEPARTMENT**

**MATH 189-X01
Technical Mathematics 3
2011Q3**

COURSE OUTLINE

The Approved Course Description is available on the web @

<http://camosun.ca/learn/calendar/current/web/math.html#MATH189>

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: | Patricia Wrean (Pat) | | |
| (b) | Office Hours: | Posted on office door and website | | |
| (c) | Location: | CBA 153 | | |
| (d) | Phone: | (250) 370-4542 | Alternative Phone: | |
| (e) | Email: | wrean@camosun.bc.ca | | |
| (f) | Website: | http://wrean.disted.camosun.bc.ca/math189/ | | |

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, using a calculator as necessary, the student will be able to:

1. Use techniques from combinatorics to solve counting problems.
2. Solve probability and conditional probability problems using appropriate methods.
3. Depict raw data graphically using a variety of presentations.
4. Calculate the mean, median, mode, variance and standard deviation of a raw data set and data given in a frequency table.
5. Make predictions regarding the distribution of a data set using the Empirical Rule and Tchebyshev's Theorem.
6. Find the expected value and standard deviation given the probability distribution of a discrete random variable and solve application problems using these results.
7. Identify when a random variable has a binomial or Poisson distribution, calculate its mean and standard deviation and solve application problems.
8. Use the Poisson distribution as an approximation to the binomial distribution when appropriate.
9. Use the Standard Normal Table to solve problems involving random variables that have a normal distribution.
10. For given sample or population data, determine a confidence interval for the mean and make appropriate inferences using the Central Limit Theorem.
11. For given sample or population data, determine a confidence interval for the variance, and approximate a confidence interval for the standard deviation.
12. Calculate the mean, variance, and standard deviation of a given continuous probability distribution.
13. Solve problems that involve calculating probabilities using continuous, uniform, and exponential distributions.
14. Determine the regression line (least squares line) from a raw data set, and find and interpret the coefficients of correlation and determination.
15. Use least squares to fit quadratic, cubic and exponential curves to a given raw data set and use these curves to predict future results.
16. Use a variety of techniques to solve problems and applications involving linear first and second order differential equations.
17. Use eigenvalues to solve Systems of Linear First-Order Differential Equations.
18. Recognize and solve the second-order Euler equation.
19. Use Euler's Method and the Runge-Kutta Method to approximate the solution to a differential equation.

3. Required Materials

- (a) Texts: Allyn J. Washington, Basic Technical Mathematics with Calculus, SI version, 8th edition, Pearson Education Canada, 2005.
- (b) Calculator: Only regular scientific calculator (non-programmable, non-graphing) will be permitted for quizzes and exams. Also, calculators which simplify radicals into exact forms will not be permitted (particularly some Casio models).

4. Course Content and Schedule

See the Recommended Problems sheet for a complete list of sections covered.

5. Basis of Student Assessment (Weighting)

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

| | |
|--------------|-----|
| Quizzes: | 40% |
| Assignments: | 10% |
| Final Exam: | 50% |

If your final exam grade is higher than your term grade, then your final exam grade will count as 100% of your final grade.

Final Exam: The final exam will cover the entire course and will be 3 hours long. As stated in the current college calendar on page 39, “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.

Quizzes: The lowest quiz grade will be dropped when calculating the average of your quizzes. This allows a student to be absent on any one quiz day for any reason, including illness, without penalty. If more than one quiz is missed, the weight of the second missed quiz will be transferred to the final exam.

Assignments: The lowest assignment grade will be dropped when calculating the average of your assignments. This allows a student to miss any one assignment for any reason, including illness, without penalty.

Late Policy: Assignments that are late will be given a 25% penalty if the solutions have not yet been posted to the course website. Once the solutions have been posted, late assignments will not be accepted.

Collaboration Policy: Student are encouraged to collaborate (work together) on assignments. However, you must be prepared to answer similar questions on your own for the quizzes, so it is vital that you yourself understand all of the assigned questions and work that you turn in.

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 | <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. The policy is available in each School Administration Office, at Student Services and on the College web site in the Policy Section.

Math Room:

Technologies Centre (TEC) 142 (phone: 370-4492): 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).