

# School of Arts & Science MATHEMATICS DEPARTMENT

MATH 163 - all sections

Mathematics For Computing

2010 - Q1

## **COURSE OUTLINE**

## The Approved Course Description is available on the web @ http://camosun.ca/learn/calendar/current/web/math.html#MATH163

 $\Omega$  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	a)	Instructor:	Patricia Wrean (Pat	
(b	0)	Office Hours:	Posted on office door and website	
(0	<del>)</del>	Location:	CBA 153	
(0	<u>(k</u>	Phone:	(250) 370-4542	Alternative Phone:
(€	<del>)</del>	Email:	wrean@camosun.bc.ca	
<b>(</b> f	)	Website:	http://wrean.disted.camosun.bc.ca/math163/	

### 2. Intended Learning Outcomes

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

- 1. Use truth tables to define the logical connectives "and", "or", and "not." Determine whether two logical expressions are equivalent using truth tables.
- State the laws of logic and use them to simplify logical expressions and prove logical
  equivalence. State the laws of Boolean algebra and use them to simplify Boolean
  expressions. Use the relationships between the laws of logic, the algebra of sets, and
  Boolean algebra to define membership tables for sets and draw the associated Venn
  diagrams.
- 3. Use the conditional and related logical forms to translate English expressions into logical symbols.
- 4. Determine the appropriate commands for querying a database using the fundamental operations of relational algebra.
- 5. Solve trigonometry equations and problems involving right triangles. Solve problems and equations involving trigonometric functions of any angle.
- 6. Simplify exponential and logarithmic expressions. Sketch graphs of desired exponential and logarithmic functions. Solve equations and word problems involving exponents and logarithms, specifically problems involving exponential growth and decay.
- 7. Analyse and calculate general formulas for sequences and series, with emphasis on recursive definitions. Evaluate sums for arithmetic and geometric series.
- 8. Represent a data set using a stem-and-leaf plot, a histogram, and a pie chart.
- Calculate probabilities for events using counting techniques and/or rules for conditional probability.
- 10. Evaluate the mean, standard deviation (sample and population), median, and mode for a discrete data set. Perform calculations involving the mean and standard deviation for both the binomial and normal distributions.

## 3. Required Materials

- (a) Texts All course materials are online and available at the course website.
- (b) Calculator Only ordinary scientific calculators (non-graphing, non-programmable) are permitted. Also, calculators that manipulate radicals in exact form, such as the Casio FX-300ES, are specifically not allowed.

## 4. Course Content

(the hours given are approximations only)

Section 1.1: Section 1.2: Section 1.3: Section 1.4: Section 1.5: Section 1.6: Section 1.7: Section 1.7: Section 1.8: Section 1.9: Section 1.10: Section 1.11:	Sets Operations on Sets Venn Diagrams Intro to Logic Logical Equivalence Algebra of Sets Boolean Algebra Laws of Logic More Laws of Logic The Conditional The Biconditional	(12.5 hours) 1 hour 1.5 hour 1 hour 1 hour 1 hour 1 hour 1 hour 1 hour 2 hours 1 hour 1 hour
Relational Algebra		
Section 2.1: Section 2.2:	Relations Relational Algebra	1 hour 2 hours
Trigonometry Supplement: Section 3.1: Section 3.2: Section 3.3:	Review of Radicals Trigonometric Functions of Acute Angles Applications of Right Triangles Trigonometric Functions of Any Angle	(7 hours) 1 hour 2 hours 1 hour 3 hours
Sequences & Serie	S	(7 hours)
Sequences & Serie Supplement: Supplement: Section 4.1: Section 4.2: Section 4.3:	Review of Solving Linear Equations Review of Solving Linear Systems Sequences and Series Arithmetic Series Geometric Series	(7 hours) 1 hour 1 hour 2 hours 1 hour 2 hours
Supplement: Supplement: Section 4.1: Section 4.2:	Review of Solving Linear Equations Review of Solving Linear Systems Sequences and Series Arithmetic Series Geometric Series	1 hour 1 hour 2 hours 1 hour
Supplement: Supplement: Section 4.1: Section 4.2: Section 4.3:	Review of Solving Linear Equations Review of Solving Linear Systems Sequences and Series Arithmetic Series Geometric Series	1 hour 1 hour 2 hours 1 hour 2 hours
Supplement: Supplement: Section 4.1: Section 4.2: Section 4.3:  Exponents and Log Supplement: Section 5.1: Section 5.2: Section 5.3: Section 5.4:	Review of Solving Linear Equations Review of Solving Linear Systems Sequences and Series Arithmetic Series Geometric Series  gs Review of Exponents Exponential Functions Logarithmic Functions Properties of Logs Solving Equations Applications	1 hour 1 hour 2 hours 1 hour 2 hours (8 hours) 1 hour 1 hour 2 hours 1 hours 1 hour

## 5. Basis of Student Assessment (Weighting)

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

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

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. There is no provision for "making up" a missed quiz.

If your final exam grade is higher than your term work grade and your term work is **50% or higher**, 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 34, "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. The calendar specifically states that "holidays or scheduled flights are not considered to be emergencies."

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

#### Standard Grading System (GPA)

Percentage	Grade	Description	Grade Point Equivalency
90-100	A+		9
85-89	Α		8
80-84	A-		7
77-79	B+		6
73-76	В		5
70-72	B-		4
65-69	C+		3
60-64	С		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
ı	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 3 <sup>rd</sup> 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.

### 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 <a href="mailto:camosun.ca">camosun.ca</a>.

#### 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).