![CAMOSUN COLLEGE]	**School of Arts & Science** **MATHEMATICS DEPARTMENT** **MATH 109 – 002** **FINITE MATHEMATICS** **Fall 2016**

COURSE OUTLINE

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

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:	Garret Flowers		
(b)	Office Hours:	Monday, Wednesday – 11:30 – 12:20. Tuesday, Thursday – 3:30 – 4:20		
(c)	Location:	Ewing 250		
(d)	Phone:	250-813-3009	Alternative Phone:	
(e)	Email:	flowersg@camosun.bc.ca		
(f)	Website:	D2L (https://online.camosun.ca)		

Math help is also available in the Math Lab in Ewing 224.   Hours are posted on the door.

2.   Intended Learning Outcomes

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

1.   Solve counting problems using sets and/or the multiplication principle, and recognize and solve problems involving permutations and combinations.
2.   Apply the basic properties and concepts of probability to solve problems from fields such as medicine and quality control. Determine the probability distributions for random variables and calculate expected values. Where appropriate, evaluate probabilities using the binomial distribution. Explore systems evolving from one state to another using Markov chains.
3.   Solve linear systems of equations using techniques, including Gauss-Jordan elimination and inverse matrices.
4.   Solve linear programming problems using a graphical approach.
5.   Derive simple annuity formulas and use them to solve amortization problems.
6.   Translate statements into symbolic form and vice versa. Construct truth tables for propositions, including implications. Use truth tables to verify equivalencies.

3.   Required Materials

Textbook: Finite Mathematics and its Applications, custom edition for Camosun College (4th edition)

Calculator: As per Math Department policy, the only calculator permitted for use on the tests and the final exam is the Sharp EL-531X (or the discontinued EL-531W) scientific calculator. No other make/model of calculator is permitted, nor are other electronic devices such as phones, iPods, electronic translators, etc.

4.   Course Content and Schedule

1.   **Linear Equations and Straight Lines**
    - 1.1 Coordinate Systems and Graphs
    - 1.2 Linear Equalities and Inequalities
    - 1.3 The Intersection Point of a Pair of Lines
    - 1.4 The Slope of a Straight Line
2.   **Sets and Counting**
    - 2.1 Sets
    - 2.2 A Fundamental Principle of Counting
    - 2.3 Venn Digrams and Counting
    - 2.4 The Multiplication Principle
    - 2.5 Permutations and Combinations
    - 2.6 Further Counting Problems
3.   **Probability**
    - 3.1 Introduction
    - 3.2 Experiments, Outcomes, Sample Spaces and Events
    - 3.3 Assignment of Probabilities

- 3.4 Calculating Probabilities of Events
- 3.5 Conditional Probability and Independence
- 3.6 Tree Diagrams
- 3.7 Bayes' Theorem
4. **Random Variables**
   - 4.1 Random Variables, Probability Distributions and Expected Value
   - 4.2 Binomial Random Variables
5. **Matrices**
   - 5.1 Solving Systems of Linear Equations I
   - 5.2 Solving Systems of Linear Equations II
   - 5.3 Arithmetic Operations on Matrices
   - 5.4 The Inverse of a Matrix
   - 5.5 The Gauss-Jordan Method for Calculating Inverses
6. **Linear Programming**
   - 6.1 Linear Inequalities in Two Variables
   - 6.2 Systems of Linear Inequalities in Two Variables
   - 6.3 Linear Programming in Two Dimensions: A Geometric Approach
7. **Markov Chains**
   - 7.1 Properties of Markov Chains
   - 7.2 Regular Markov Chains
8. **The Mathematics of Finance**
   - 8.1 Interest
   - 8.2 Annuities
   - 8.3 Amortization of Loans
9. **Logic**
   - 9.1 Introduction to Logic
   - 9.2 Truth Tables
   - 9.3 Implication
   - 9.4 Logical Implication and Equivalence

5. Basis of Student Assessment (Weighting)

The final grade will be calculated based upon the following breakdown:

Assignments:	**11%**
3 Term Tests:	**39% (13% each)**
Comprehensive Final:	**50%**

Assignments: The lowest assignment mark will be dropped from calculating the assignment average. This allows you to miss one assignment without penalty. Assignments may be submitted in-class, or through D2L online. However, assignments submitted online will not be returned, so feedback will not be provided unless you come to office hours to discuss it.

Late Policy: You will be given ample time to complete the assignments. While assignments are technically due in class, you will be given a 24-hour "grace period" to submit the assignment without penalty. After this point, assignments will not be accepted.

Final Exam: 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. The calendar specifically states that "holidays or scheduled flights are not considered to be emergencies."

Collaboration: Students are very much encouraged to collaborate on assignments. However, you must be prepared to answer similar questions on your own for the tests. I recommend discussing the questions with your peers, but writing your final solutions on your own, to ensure you are familiar with the material.

Academic Integrity: The Department of Mathematics and Statistics has prepared a "red 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)

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	*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 3rd 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
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 the College web site in the Policy Section.