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

MATH-109-D01
Finite Mathematics
Fall 2020

COURSE OUTLINE

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

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.

1. Instructor Information

(a) Instructor	Dr. Garret Flowers	
(b) Office hours	Monday – Thursday (2:30 – 3:30)	
(c) Location	Online	
(d) Phone		**Alternative:**
(e) E-mail	flowersg@camosun.ca	
(f) Website	D2L (online.camosun.ca)	

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

(a) Texts

-   Math 109 Course Notes *(strongly recommended)* – available on D2L

(b) Other

- Calculator *(recommended)*. The Sharp EL-531TG or TH models. An "online" version is available for download at http://www.sharp-calculators.com/en/content/id/121-learning-materials

4. Course Content and Schedule

1 – Sets and Counting
- 1.1 Sets
- 1.2 Principle of Inclusion-Exclusion
- 1.3 Venn Diagrams
- 1.4 The Multiplication Principle
- 1.5 Permutations and Combinations
- 1.6 More Counting Techniques

2 – Probability
- 2.1 Experiments and Outcomes
- 2.2 Basic Probability
- 2.3 Calculating Probabilities
- 2.4 Conditional Probability and Independence
- 2.5 Tree Diagrams and Bayes' Theorem

3 – Random Variables
- 3.1 Introduction to Random Variables
- 3.2 Binomial Random Variables

4 – Logic
- 4.1 Introduction to Logic
- 4.2 Building Truth Tables
- 4.3 Logical Equivalence

5 – Lines and Linear Programming
- 5.1 Lines and the Coordinate Plane
- 5.2 Intersecting Lines
- 5.3 Linear Inequalities and Feasible Sets
- 5.4 Linear Programming

6 – Matrices
- 6.1 Systems of Linear Equations
- 6.2 Matrix Arithmetic
- 6.3 Inverse Matrices
- 6.4 Solving Systems Using Matrix Inverses

7 – Markov Chains
- 7.1 Introduction to Markov Chains
- 7.2 Regular Markov Chains

8 – Financial Mathematics
- 8.1 Simple Interest
- 8.2 Compound Interest
- 8.3 Future Value of an Annuity
- 8.4 Present Value of an Annuity

5. Basis of Student Assessment (Weighting)

7% Assignments
63% Quizzes (7 quizzes at 9% each)
30% Final Exam

Assignments:　　　Weekly assignments, completed online. Due every Tuesday at 5:00pm.

Quizzes: Quizzes during class time, on the following dates (once every 2 weeks):

> Thursday, September 17
> Thursday, October 1
> Thursday, October 15
> Thursday, October 29
> Thursday, November 12
> Thursday, November 26
> Thursday, December 10* (may be omitted depending on the speed at which we cover material)

Final Exam: An exam that will be completed after the last day of class, during final exam period. More details to come.

6. Grading System

| X | Standard Grading System (GPA)

| | Competency Based Grading System

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

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	*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 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	*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.