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

MATH-109-004
Finite Mathematics
Winter 2018

COURSE OUTLINE

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.*

1. Instructor Information

(a) Instructor	Bogdan Verjinschi	
(b) Office hours	Monday, Wednesday, Thursday, Friday 9: 30-10:20,& tu 12:30-1:20	
(c) Location	E-244	
(d) Phone	370-3494	**Alternative:**
(e) E-mail	verjinschi@camosun.bc.ca	
(f) Website	https://sites.camosun.ca/bogdanverjinschi/	

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   Finite Mathematics, Custom Edition for Camosun College

Student Solution Manual

4. Course Content and Schedule

TEST 1 Jan.25	**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. Linear Programming** • 2.1 Linear Inequalities in Two Variables • 2.2 Systems of Linear Inequalities in Two Variables • 2.3 Linear Programming in Two Dimensions: A Geometric Approach
TEST 2 Feb.19,	**3. Sets and Counting** • 3.1 Sets • 3.2 A Fundamental Principle of Counting • 3.3 Venn Diagrams and Counting • 3.4 The Multiplication Principle • 3.5 Permutations and Combinations • 3.6 Further Counting Problems
TEST 3 Mar.12	**4. Probability** • 4.1 Experiments, Outcomes, Sample Spaces and Events • 4.2 Assignment of Probabilities • 4.3 Calculating Probabilities of Events • 4.4 Conditional Probability and Independence • 4.5 Tree Diagrams • 4.6 Bayes' Theorem **5. Random Variables** • 5.1 Random Variables, Probability Distributions and Expected Value • 5.2 Binomial Random Variables
TEST 4 Apr.5.	**6. Matrices** • 6.1 Solving Systems of Linear Equations I • 6.2 Solving Systems of Linear Equations II • 6.3 Arithmetic Operations on Matrices • 6.4 The Inverse of a Matrix • 6.5 The Gauss-Jordan Method for Calculating Inverses **7. Markov Chains** • 7.1 Properties of Markov Chains • 7.2 Regular Markov Chains
The final exam will also cover the following sections:	**8. The Mathematics of Finance** • 8.1 Simple Interest • 8.2 Compound Interest • 8.3 Future Value of an Annuity • 8.4 Present Value of an Annuity **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)

10 Assignments	10%	
4 tests	*40%*	Tests are on Jan.25, Feb.19, Mar.12 and Apr.5.
Final Exam	*50%*	***Your final could be as late as Apr. 24, 2018.***

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."

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

| X | Standard Grading System (GPA)

| | Competency Based Grading System

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

Student Solution Manual

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://www.camosun.bc.ca/policies/policies.php*

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://www.camosun.bc.ca/policies/E-1.5.pdf 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.