

COURSE SYLLABUS



COURSE TITLE: MATH-109: Finite Mathematics

CLASS SECTION: 006

TERM: Fall 2023

COURSE CREDITS: 3

DELIVERY METHOD(S): Lecture

Camosun College campuses are located on the traditional territories of the Lək̓ʷəŋən and W̱SÁNEĆ peoples. We acknowledge their welcome and graciousness to the students who seek knowledge here.

Learn more about Camosun's [Territorial Acknowledgement](#).

INSTRUCTOR DETAILS

NAME: Susie Wieler

EMAIL: wielers@camosun.ca

OFFICE: CBA 147

HOURS: Mondays, Tuesdays, and Thursdays 12:00 - 1:00 PM, or by appointment

As your course instructor, I endeavour to provide an inclusive learning environment. However, if you experience barriers to learning in this course, do not hesitate to discuss them with me. Camosun College is committed to identifying and removing institutional and social barriers that prevent access and impede success.

CALENDAR DESCRIPTION

This course provides an introductory survey to material that is of particular interest to business, biology and social science students. Topics include a review of linear equations; sets and counting, including permutations and combinations; probability, including Bayes' Theorem, random variables, expected value and the binomial distribution; matrix operations; solving systems of linear equations using a variety of methods, including Gauss-Jordan elimination and inverse matrices; linear programming using a geometric approach; Markov chains; annuities and amortization of loans; and basic logic, including implication and equivalence.

PREREQUISITE(S):

One of:

C in Math 11 ; C- in Pre-calculus 12; C+ in MATH 072; C in MATH 073; C+ in MATH 075; C in MATH 077; C+ in MATH 135; C in MATH 137

CO-REQUISITE(S):

Not Applicable

EXCLUSION(S):

Not Applicable

COURSE LEARNING OUTCOMES / OBJECTIVES

Upon completion of this course a 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.

REQUIRED MATERIALS & RECOMMENDED PREPARATION / INFORMATION

Coursepack available for printing or tablet use.

SHARP EL-531 or **510** scientific calculator. Graphing calculators are not permitted.

myopenmath.com account

Course ID : 197543

Enrollment key: homework

COURSE SCHEDULE, TOPICS, AND ASSOCIATED PREPARATION / ACTIVITY / EVALUATION

The following schedule and course components are subject to change with reasonable advance notice, as deemed appropriate by the instructor.

WEEK or DATE RANGE	ACTIVITY or TOPIC	OTHER NOTES
Weeks 1-13	MyOpenMath assignments due Sundays at 11:59 pm	
Wednesday, Sept 27	Test 1 (Chapter 1)	
Wednesday, Oct 18	Test 2 (Chapters 2, 3)	
Wednesday, Nov 15	Test 3 (Chapters 4, 5)	
Wednesday, Dec 6	Test 4 (Chapters 6, 7, 8)	
Dec 11-19	Exam Period (schedule to be posted Oct 13)	

Students registered with the Centre for Accessible Learning (CAL) who complete quizzes, tests, and exams with academic accommodations have booking procedures and deadlines with CAL where advance notice is required. Deadlines can be reviewed on the [CAL exams page](http://camosun.ca/services/accessible-learning/exams.html). <http://camosun.ca/services/accessible-learning/exams.html>

TOPICS:

Chapter 1 Counting

- 1.1 Sets
- 1.2 A Fundamental Principle of Counting
- 1.3 Venn Diagrams and Counting
- 1.4 The Multiplication Principle
- 1.5 Permutations and Combinations
- 1.6 Further Counting Techniques
- Extra Counting Practice

Chapter 2 Probability

- 2.1 Experiments, Outcomes, Sample Space, and Events
- 2.2 Assignment of Probabilities
- 2.3 Calculating Probabilities of Events
- 2.4 Conditional Probability and Independence
- 2.5 Tree Diagrams and Bayes' Theorem

Chapter 3 Random Variables

- 3.1 Random Variables, Probability Distribution, and Expected Value
- 3.2 Binomial Random Variables

Chapter 4 Lines and Linear Programming

- 4.1 Lines and the Coordinate Plane
- 4.2 Intersecting Lines
- 4.3 Linear Inequalities and Feasible Sets
- 4.4 Linear Programming

Chapter 5 Matrices

- 5.1 Systems of Linear Equations
- 5.2 Matrix Arithmetic
- 5.3 Inverse Matrices
- 5.4 Solving Systems Using Matrix Inverses

Chapter 6 Markov Chains

- 6.1 Properties of Markov Chains
- 6.2 Regular Markov Chains

Chapter 7 Mathematics of Finance

- 7.1 Simple Interest
- 7.2 Compound Interest
- 7.3 Future Value of an Annuity; Sinking Funds
- 7.4 Present Value of an Annuity; Amortization

Chapter 8 Logic

- 8.1 Introduction to Logic
- 8.2 Truth Tables
- 8.3 Logical Equivalence

EVALUATION OF LEARNING

DESCRIPTION	WEIGHTING
Assignments (13)	10%
Tests (weighted 20%, 15%, 10%, 5% from highest to lowest marks)	50%
Final Exam	40%
	TOTAL
	100%

If you have a concern about a grade you have received for an evaluation, please come and see me as soon as possible. Refer to the [Grade Review and Appeals](http://camosun.ca/about/policies/education-academic/e-1-programming-and-instruction/e-1.14.pdf) policy for more information.
<http://camosun.ca/about/policies/education-academic/e-1-programming-and-instruction/e-1.14.pdf>

Policy regarding missed tests:

- If a student misses one (1) test for any reason, their final exam mark will also be used as their mark on the missed test.
- If a student has already missed one test and needs to miss another test, the student is required to contact me before the test. Documentation to verify the reason for the absence may be requested, and alternate arrangements will be made on a case-by-case basis. Students who fail to contact me will receive a mark of zero (0) on the missed test(s).

COURSE GUIDELINES & EXPECTATIONS

The following content is available on D2L:

- Lecture notes will be posted shortly after each class.
- Practice Problem Sets are available for extra practice, along the answers.
- Practice Questions for each test, along with their step-by-step solutions.
- Test solutions will be posted shortly after each test.

SCHOOL OR DEPARTMENTAL INFORMATION

Interurban Math Lab

Services: Individual tutoring and study space

Location: TEC 142

Schedule: posted on the door

Format: Drop in - first-come, first-served

Chair of the Math & Stats Department: Patrick Montgomery

Phone: 250-370-3502

Office: Ewing 268, Lansdowne Campus

Email: montgomeryp@camosun.ca

The Department of Mathematics and Statistics has prepared a 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.

STUDENT RESPONSIBILITY

Enrolment at Camosun assumes that the student will become a responsible member of the College community. As such, each student will display a positive work ethic, assist in the preservation of College property, and assume responsibility for their education by researching academic requirements and policies; demonstrating courtesy and respect toward others; and respecting expectations concerning attendance, assignments, deadlines, and appointments.

SUPPORTS AND SERVICES FOR STUDENTS

Camosun College offers a number of services to help you succeed in and out of the classroom. For a detailed overview of the supports and services visit <http://camosun.ca/students/>.

Academic Advising	http://camosun.ca/advising
Accessible Learning	http://camosun.ca/accessible-learning
Counselling	http://camosun.ca/counselling
Career Services	http://camosun.ca/coop
Financial Aid and Awards	http://camosun.ca/financialaid
Help Centres (Math/English/Science)	http://camosun.ca/help-centres
Indigenous Student Support	http://camosun.ca/indigenous
International Student Support	http://camosun.ca/international/
Learning Skills	http://camosun.ca/learningskills
Library	http://camosun.ca/services/library/
Office of Student Support	http://camosun.ca/oss
Ombudsperson	http://camosun.ca/ombuds
Registration	http://camosun.ca/registration
Technology Support	http://camosun.ca/its
Writing Centre	http://camosun.ca/writing-centre

If you have a mental health concern, please contact Counselling to arrange an appointment as soon as possible. Counselling sessions are available at both campuses during business hours. If you need urgent support after-hours, please contact the Vancouver Island Crisis Line at 1-888-494-3888 or call 911.

Academic Accommodations for Students with Disabilities

The College is committed to providing appropriate and reasonable academic accommodations to students with disabilities (i.e. physical, depression, learning, etc). If you have a disability, the [Centre for Accessible Learning](#) (CAL) can help you document your needs, and where disability-related barriers to access in your courses exist, create an accommodation plan. By making a plan through CAL, you can ensure you have the appropriate academic accommodations you need without disclosing your diagnosis or condition to course instructors. Please visit the CAL website for contacts and to learn how to get started:

<http://camosun.ca/services/accessible-learning/>

Academic Integrity

Please visit <http://camosun.ca/about/policies/education-academic/e-1-programming-and-instruction/e-1.13.pdf> for policy regarding academic expectations and details for addressing and resolving matters of academic misconduct.

Academic Progress

Please visit <http://camosun.ca/about/policies/education-academic/e-1-programming-and-instruction/e-1.1.pdf> for further details on how Camosun College monitors students' academic progress and what steps can be taken if a student is at risk of not meeting the College's academic progress standards.

Course Withdrawals Policy

Please visit <http://camosun.ca/about/policies/education-academic/e-2-student-services-and-support/e-2.2.pdf> for further details about course withdrawals. For deadline for fees, course drop dates, and tuition refund, please visit <http://camosun.ca/learn/fees/#deadlines>.

Grading Policy

Please visit <http://camosun.ca/about/policies/education-academic/e-1-programming-and-instruction/e-1.5.pdf> for further details about grading.

Grade Review and Appeals

Please visit <http://camosun.ca/about/policies/education-academic/e-1-programming-and-instruction/e-1.14.pdf> for policy relating to requests for review and appeal of grades.

Mandatory Attendance for First Class Meeting of Each Course

Camosun College requires mandatory attendance for the first class meeting of each course. If you do not attend, and do not provide your instructor with a reasonable reason in advance, you will be removed from the course and the space offered to the next waitlisted student. For more information, please see the "Attendance" section under "Registration Policies and Procedures" (<http://camosun.ca/learn/calendar/current/procedures.html>) and the Grading Policy at <http://camosun.ca/about/policies/education-academic/e-1-programming-and-instruction/e-1.5.pdf>.

Medical / Compassionate Withdrawals

Students who are incapacitated and unable to complete or succeed in their studies by virtue of serious and demonstrated exceptional circumstances may be eligible for a medical/compassionate withdrawal. Please visit

<http://camosun.ca/about/policies/education-academic/e-2-student-services-and-support/e-2.8.pdf> to learn more about the process involved in a medical/compassionate withdrawal.

Sexual Violence and Misconduct

Camosun is committed to creating a campus culture of safety, respect, and consent. Camosun's Office of Student Support is responsible for offering support to students impacted by sexual violence. Regardless of when or where the sexual violence or misconduct occurred, students can access support at Camosun. The Office of Student Support will make sure students have a safe and private place to talk and will help them understand what supports are available and their options for next steps. The Office of Student Support respects a student's right to choose what is right for them. For more information see Camosun's Sexualized Violence and Misconduct Policy: <http://camosun.ca/about/policies/education-academic/e-2-student-services-and-support/e-2.9.pdf> and camosun.ca/sexual-violence. To contact the Office of Student Support: oss@camosun.ca or by phone: 250-370-3046 or 250-3703841

Student Misconduct (Non-Academic)

Camosun College is committed to building the academic competency of all students, seeks to empower students to become agents of their own learning, and promotes academic belonging for everyone. Camosun also expects that all students to conduct themselves in a manner that contributes to a positive, supportive, and safe learning environment. Please review Camosun College's Student Misconduct Policy at <http://camosun.ca/about/policies/education-academic/e-2-student-services-and-support/e-2.5.pdf> to understand the College's expectations of academic integrity and student behavioural conduct.

Changes to this syllabus: Every effort has been made to ensure that information in this syllabus is accurate at the time of publication. The College reserves the right to change courses if it becomes necessary so that course content remains relevant. In such cases, the instructor will give the students clear and timely notice of the changes.