

COURSE SYLLABUS



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|---------------------|---|
| COURSE TITLE: | Math 072 Advanced Mathematics 1 |
| CLASS SECTION: | S16 |
| TERM: | 2023W |
| COURSE CREDITS: | 3 |
| DELIVERY METHOD(S): | Self-paced Blended (Online and In-person) |

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](#).

For COVID-19 updates please visit <https://camosun.ca/about/covid-19-update>.

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 explanation in advance, you will be removed from the course and the space offered to the next waitlisted student.

INSTRUCTOR DETAILS

NAME: Puja Gupta
EMAIL: guptap@camosun.ca (best way to reach me)
OFFICE: CBA 129 PHONE: 250-370-4931 (Voicemail only)
HOURS: Tuesday Thursday 9:30 AM to 12:20 PM P111

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 the algebra skills required for statistics, criminal justice and some business programs. Topics include linear equations and inequalities, rearranging formulas, linear equations in two variables, systems of linear equations, integer and rational exponents, polynomials and factoring.

PREREQUISITE(S): One of: C in Foundations of Math & Pre-calculus 10 C in MATH 053 C in MATH 057 C- in Pre-calculus 11 - Must be completed prior to taking this course.

CO-REQUISITE(S):

EXCLUSION(S):

COURSE LEARNING OUTCOMES / OBJECTIVES

Upon successful completion of the course, students will be able to:

1. Demonstrate basic algebraic skills, and use a scientific calculator to evaluate complex expressions with emphasis on using special keys to perform a variety of functions. In particular:
 - a. perform operations with real numbers including absolute value and exponential notation,
 - b. simplify expressions using rules for order of operations and properties of exponents,

- c. translate common language into algebraic expressions,
 - d. evaluate algebraic expressions by substitution, and
 - e. simplify algebraic expressions with nested parentheses.
2. Solve linear equations and inequalities. In particular:
 - a. solve first degree/linear equations in one variable,
 - b. solve simple formulas for a given variable,
 - c. solve and graph linear inequalities in one variable,
 - d. write set-builder and/or interval notation for the solution set or graph of an inequality,
 - e. use linear equations, formulas and linear inequalities to solve applied problems,
 - f. find the union or intersection of two sets,
 - g. solve and graph compound inequalities (conjunctions and disjunctions), and
 - h. solve absolute value equations.
3. Employ graphing techniques for relations and functions. In particular:
 - a. write linear relations in slope-intercept form,
 - b. graph linear equations and non-linear equations using a table of values,
 - c. graph linear equations using the y-intercept and slope and using x- and y- intercepts,
 - d. graph horizontal and vertical lines,
 - e. find the slope of a line given two points on the line,
 - f. find the equation of a line given graphic data: the slope and y-intercept, the slope and one point, or two points on the line,
 - g. determine whether a pair of lines is parallel, perpendicular or neither,
 - h. find the equation of a line parallel or perpendicular to a given line and through a given point,
 - i. use the definition of function and the vertical line test to distinguish between functions and non-functions,
 - j. use and interpret function notation to evaluate functions for given x-values and find x-values for given function values,
 - k. determine the domain and range of a function,
 - l. use a table of values to graph linear functions and non-linear functions such as quadratic, cubic, square root, reciprocal, and absolute value functions, and
 - m. graph linear inequalities in two variables.
4. Solve systems of linear equations in two variables. In particular:
 - a. solve systems of linear equations in two variables by graphing, substitution and elimination methods,
 - b. determine if a system of equations will have no, one, or an infinite number of solutions, and
 - c. use systems of equations to solve applied problems.
5. Develop facility with polynomial expressions and equations. In particular:
 - a. determine the degree of a polynomial,
 - b. distinguish between monomials, binomials, trinomials, and other polynomials,
 - c. add, subtract, multiply polynomials,
 - d. divide polynomials by monomials,
 - e. factor polynomials using an appropriate strategy or a combination of techniques: common factors, difference of squares, difference and sum of cubes, perfect square trinomials, trial/error, or grouping,
 - f. solve polynomial equations using the principle of zero products, and
 - g. solve applied problems using polynomial equations/functions.

REQUIRED MATERIALS & RECOMMENDED PREPARATION / INFORMATION

- (a) Scientific calculator: The Sharp EL 531W model (or similar) will be the only calculator allowed for this course
- (b) Reliable access to the internet
- (c) MyMathLab access code: available from Camosun bookstore.
- (d) Registration with MyMathLab:
<http://www.pearsonmylabandmastering.com/northamerica/mathxl/students/get-registered/index.html>
- (e) Course ID: Please note that you will need a course ID to access the content on mymathlab. This ID will be available at start of term on D2L.
So please login to your D2L account to retrieve this information.

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 |
|--------------------|--|--------------|
| Week 1-2 | Just-in-time Review | Unit R |
| | Pre-test | |
| | Just-in-time Review 1-20 | |
| | Post-test | |
| | Unit R final test | 3 hrs |
| Week 3-5 | Unit 1 – Solving Linear Equations and Inequalities | Chapter 1 |
| | Pre-test | |
| | Solving Equations | 1.1 |
| | Formulas and Applications | 1.2 |
| | Applications and Problem Solving | 1.3 |
| | Sets, Inequalities, and Interval Notation | 1.4 |
| | Intersections, Unions, and Compound Inequalities | 1.5 |
| | Absolute-Value Equations | 1.6 a-d |
| | Post-test | |
| | Unit 1 final test | 3 hrs |
| Week 5-7 | Unit 2 – Graphs, Functions and Applications | Chapter 2 |
| | Pre-test | |
| | Graphs of Equations | 2.1 |
| | Functions and Graphs | 2.2 |
| | Finding Domain and Range | 2.3 |
| | Linear Functions: Graphs and Slope | 2.4 |
| | More on Graphing Linear Equations | 2.5 |
| | Finding Equations of Lines; Applications | 2.6 |
| | Post-test | |
| | Unit 2 final test | 3 hrs |
| Week 8-10 | Unit 3 – Systems of Equations | Chapter 3 |
| | Pre-test | |
| | Systems of Equations in Two Variables | 3.1 |

| WEEK or DATE RANGE | ACTIVITY or TOPIC | OTHER NOTES |
|--------------------|--|--------------|
| | Solving by Substitution | 3.2 |
| | Solving by Elimination | 3.3 |
| | Solving Applied Problems | 3.4a |
| | Systems of Inequalities in Two Variables | 3.7 ab |
| | Post-test | |
| | Unit 3 final test | 3 hrs |
| Week 10-14 | Unit 4 – Polynomials and Polynomial Functions | Chapter 4 |
| | Pre-test | |
| | Introduction to Polynomials and Polynomial Functions | 4.1 |
| | Multiplication of Polynomials | 4.2 |
| | Introduction to Factoring | 4.3 |
| | Factoring Trinomials: $x^2 + bx + c$ | 4.4 |
| | Factoring Trinomials: $ax^2 + bx + c, a \neq 0$ | 4.5 |
| | Special Factoring | 4.6 |
| | Factoring: A General Strategy | 4.7 |
| | Applications of Polynomial Equations and Functions | 4.8 |
| | Post-test | |
| | Unit 4 final test | 3 hrs |
| | Course Final pre-test | |
| | Course Final post-test | |
| Week 15 | Final Exam (cumulative) | 3 hrs |

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 advanced 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>

EVALUATION OF LEARNING

Contact your instructor to get permission to write the Final exam after you have completed all the Unit tests. The Final Exam must be written with an invigilator. **You must pass the Final exam to pass the course.**

| DESCRIPTION | WEIGHTING |
|--------------|-------------|
| Unit R test | 10% |
| Unit 1 test | 10% |
| Unit 2 test | 10% |
| Unit 3 test | 10% |
| Unit 4 test | 10% |
| Final exam | 50% |
| 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>

COURSE GUIDELINES & EXPECTATIONS

The course is designed to be completed in one term (15 weeks). However, it can be completed sooner, depending on factors including your beginning level of math skills, motivation, learning rate, and how much time you can actually study. On average a student should plan to devote 15 to 20 hours per week (including 6 in-person and 4 lab hours) to complete the course in one term.

If you do not understand something, seek help right away. In addition to your instructor and the online materials, resources include the Math Help Centres (website at <http://camosun.ca/services/help-centres/>) and your family and friends. Students have a responsibility to work hard, attend class and/or meetings, and ask for support when needed.

SCHOOL OR DEPARTMENTAL INFORMATION

Students with a record of poor attendance OR poor progress may be restricted from re-registering in Community Learning Partnerships Department courses.

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/>.

| Support Service | Website |
|-------------------------------------|---|
| 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/ |

| Support Service | Website |
|---------------------------|---|
| 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.

COLLEGE-WIDE POLICIES, PROCEDURES, REQUIREMENTS, AND STANDARDS

Academic Integrity

Students are expected to comply with all College policy regarding academic integrity; which is about honest and ethical behaviour in your education journey. The following guide is designed to help you understand your responsibilities: <https://camosun.libguides.com/academicintegrity/welcome>

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

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 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.

Looking for other policies?

The full suite of College policies and directives can be found here: <https://camosun.ca/about/camosun-college-policies-and-directives>

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.