COURSE SYLLABUS

COURSE TITLE:	Math 073 Advanced Mathematics 2
CLASS SECTION:	S14
TERM:	2025W
COURSE CREDITS:	3
DELIVERY METHOD(S):	Online

Camosun College respectfully acknowledges that our campuses are situated on the territories of the Lək̓ʷəŋən (Songhees and Kosapsum) and WSÁNEĆ peoples. We honour their knowledge and welcome to all students who seek education here.

For COVID-19 information please visit https://legacy.camosun.ca/covid19/index.html.

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:	Ramona Scott
EMAIL:	scottr@camosun.ca
OFFICE:	n/a – phone number: 250-370-3353
HOURS:	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 refresher course provides a foundation for the further study of mathematics. Topics include rational and radical expressions and equations, quadratic equations and functions, right triangle trigonometry, trigonometric functions of any angle and the Sine and Cosine Laws.

PREREQUISITE(S): One of: C+ in MATH 072 C+ in MATH 075 C+ in MATH 135 C in MATH 077 C in Pre-calculus 11 C in Foundations of Math 12 - Must be completed prior to taking this course.

CO-REQUISITE(S):

EXCLUSION(S):

COURSE LEARNING OUTCOMES / OBJECTIVES

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

1. Use a scientific calculator to evaluate complex expressions with emphasis on using special keys to perform a variety of functions.

2. Develop facility with polynomial expressions and equations. In particular:

a. divide polynomials and binomials using long division, and
b. divide polynomials and binomials using synthetic division.

3. Perform mathematical operations involving rational expressions. In particular:
    a. identify situations and find values for which a rational expression will be undefined,
    b. simplify rational expressions,
    c. add, subtract, multiply and divide rational expressions,
    d. solve rational equations and check the solutions,
    e. solve formulas involving rational expressions for a given variable,
    f. solve applied problems that can be modelled with rational equations,
    g. simplify complex fractions,
    h. express variations in the form of equations (direct, inverse, joint, combined), and
    i. solve problems involving direct, inverse, joint and combined variation.

4. Perform mathematical operations involving radicals and rational exponents. In particular:
    a. identify situations and find values for which a radical expression will be undefined,
    b. write radicals as powers with rational exponents and vice-versa,
    c. use rational exponents to simplify radical expressions,
    d. simplify, add, subtract, multiply and divide radical expressions (numeric or algebraic,)
    e. rationalize denominators in fractional expressions containing radicals (including the use of conjugates,)
    f. solve equations involving radical expressions or powers with rational exponents and check for extraneous roots,
    g. solve formulas involving powers and square roots for a given variable,
    h. solve applied problems which can be modelled by radical equations, and determine if solutions are reasonable given the context of the problem,
    i. identify imaginary and complex numbers and express them in standard form, and
    j. add, subtract, multiply, and divide complex numbers.

5. Develop facility with solving problems involving quadratic functions. In particular:
    a. solve quadratic equations by factoring, using the principle of square roots, completing the square, and employing the quadratic formula,
    b. use the discriminant to identify the number and type of solutions of a quadratic equation,
    c. write a quadratic equation given its solutions,
    d. solve rational and radical equations reducible to a quadratic pattern and check that answers are reasonable,
    e. solve selected polynomial equations that can be factored simplifying to linear and/or quadratic factors,
    f. graph quadratic functions of the form f(x)=a(x-h)2+k and demonstrate translations, reflections, and stretching/shrinking resulting from changes in the function equation,
    g. find the vertex, line of symmetry, minimum or maximum values, x- and y-intercepts, domain and range, given the function f(x)=a(x-h)2+k,
    h. rewrite f(x)=ax2+bx+c as f(x)=a(x-h)2+k by completing the square,
    i. solve problems that can be modelled using quadratic equations such as maximum and minimum problems,
    j. solve quadratic equations having complex number solutions.

6. Understand the basics of triangle trigonometry. In particular:
    a. label the sides of a right triangle with respect to a given angle,
    b. determine sine, cosine, and tangent ratios of an angle in a right triangle using the side lengths,
    c. use a scientific calculator to find the trigonometric value for a given angle and find an angle given its trigonometric value,

d. solve right triangles and applied problems using the basic trigonometric ratios, the Pythagorean Theorem, and the sum of the angles of a triangle (1800),
e. use the Law of Sines and the Law of Cosines to solve non-right (oblique) triangles and applied problems,
f. determine the quadrant for positive and negative angles in standard position,
g. identify coterminal angles,
h. identify reference angles,
i. determine all trigonometric function values for angles in standard position,
j. solve trigonometric equations involving the primary functions over a specific domain,
k. find exact values of the trigonometric ratios for special angles, and
l. find exact values of the trigonometric functions for angles with special reference angles.

REQUIRED MATERIALS & RECOMMENDED PREPARATION / INFORMATION

(a) Scientific calculator: The Sharp EL 531W (or similar) model 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: You will need a course ID to access the content on MyMathLab. This ID will be available at start of term on D2L. **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
	Unit 1 – Polynomials and Polynomial Functions	Chapter 4
Week 1-3	**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: $ax^2 + bx + c$	4.5
	Special Factoring	4.6
	Factoring: A General Strategy	4.7
	Applications of Polynomial Equations	4.8
	Post-test	3 hrs
	Unit 1 final test	3 hrs
Week 3-6	Unit 2 – Rational Expressions, Equations and Functions	Chapter 5
	Pre-test	
	Rational Expressions, Functions: Mult./Div.	5.1
	LCMs, LCDs, Addition and Subtraction	5.2
	Division of Polynomials	5.3
	Complex Rational Expressions	5.4

WEEK or DATE RANGE	ACTIVITY or TOPIC	OTHER NOTES
	Solving Rational Equations	5.5
	Uniform Motion Applications	5.6c
	Formulas and Applications	5.7
	Variation and Applications	5.8
	Post-test	3 hrs
	Unit 2 final test	3 hrs
Week 7-9	Unit 3 – Radical Expressions, Equations and Functions	Chapter 6
	Pre-test	
	Radical Expressions and Functions	6.1
	Rational Numbers as Exponents	6.2
	Simplifying Radical Expressions	6.3
	Addition, Subtraction, and More Multiplication	6.4
	More on Division of Radical Expressions	6.5
	Solving Radical Equations	6.6
	Applications Involving Powers and Roots	6.7
	The Complex Numbers	6.8
	Post-test	3 hrs
	Unit 3 final test	3 hrs
Week 10-12	Unit 4 – Quadratic Equations and Functions	Chapter 7
	Pre-test	
	Basics of Solving Quadratic Equations	7.1
	The Quadratic Formula	7.2
	Applications Involving Quadratic Equations	7.3
	More on Quadratic Equations	7.4
	Graphing $f(x) = a(x-h)^2 + k$	7.5
	Graphing $f(x) = ax^2 + bx + c$	7.6
	Mathematical Modeling with Quadratic Functions	7.7a
	Post-test	3 hrs
	Unit 4 final test	3 hrs
Week 12-14	Unit 5 – Trigonometry	**Material posted on D2L**
	Pre-test ON D2L	
	Trig Functions of Acute Angles	*6.1**
	Applications of Right Triangles	*6.2**
	Trig Functions of Any Angle	*6.3**
	The Law of Sines	*8.1**
	The Law of Cosines	*8.2**
	Post-test ON D2L	3 hrs
	Unit 5 final test	3 hrs
	Final Exam Pre-test	
	Final Exam Post-test	
Week 15	**Final Exam**	3 hrs

* - Trigonometry material is posted on D2L

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 noticed is

required. Deadlines can be reviewed on the CAL exams page. 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 1 test	12%
Unit 2 test	12%
Unit 3 test	12%
Unit 4 test	12%
Unit 5 test	12%
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 policy for more information. http://camosun.ca/about/policies/education-academic/e-1-programming-and-instruction/e-1.14.pdf

COURSE GUIDELINES & EXPECATIONS

This course consists of 6 hours of class time and 4 hours of lab time per week. Lab time includes but is not limited to tutorials with an instructor and/or instructional assistants and using the instructional resources in the Help Centre and library, virtually and in person. The course is designed to be completed in one term. 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 (average 15 to 20 hours per week to complete in 4 months).
If you do not understand something, seek help right away. In addition to your instructor and the online material, resources include the Math Help Centres(website at http://camosun.ca/services/help-centres/) and your family and friends.

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 camosun.ca/services.

Support Service	Website
Academic Advising	camosun.ca/services/academic-supports/academic-advising
Accessible Learning	camosun.ca/services/academic-supports/accessible-learning
Counselling	camosun.ca/services/health-and-wellness/counselling-centre
Career Services	camosun.ca/services/co-operative-education-and-career-services
Financial Aid and Awards	camosun.ca/registration-records/financial-aid-awards
Help Centres (Math/English/Science)	camosun.ca/services/academic-supports/help-centres
Indigenous Student Support	camosun.ca/programs-courses/iecc/indigenous-student-services
International Student Support	camosun.ca/international
Learning Skills	camosun.ca/services/academic-supports/help-centres/writing-centre-learning-skills
Library	camosun.ca/services/library
Office of Student Support	camosun.ca/services/office-student-support
Ombudsperson	camosun.ca/services/ombudsperson
Registration	camosun.ca/registration-records/registration
Technology Support	camosun.ca/services/its
Writing Centre	camosun.ca/services/academic-supports/help-centres/writing-centre-learning-skills

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 https://camosun.ca/sites/default/files/2021-05/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: https://camosun.ca/services/academic-supports/accessible-learning

Academic Progress

Please visit https://camosun.ca/sites/default/files/2023-02/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 https://camosun.ca/sites/default/files/2021-05/e-2.2.pdf for further details about course withdrawals. For deadline for fees, course drop dates, and tuition refund, please visit https://camosun.ca/registration-records/tuition-fees#deadlines.

Grading Policy

Please visit https://camosun.ca/sites/default/files/2021-05/e-1.5.pdf for further details about grading.

Grade Review and Appeals

Please visit https://camosun.ca/sites/default/files/2021-05/e-1.14.pdf for policy relating to requests for review and appeal of grades.

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 (see Medical/Compassionate Withdrawals policy). Please visit https://camosun.ca/services/forms#medical to learn more about the process involved in a medical/compassionate withdrawal.

Sexual Violence

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 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 Policy: https://camosun.ca/sites/default/files/2021-05/e-2.9.pdf and camosun.ca/services/sexual-violence-support-and-education.

To contact the Office of Student Support: oss@camosun.ca or by phone: 250-370-3046 or 250-370-3841

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 https://camosun.ca/sites/default/files/2021-05/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.