COURSE SYLLABUS

COURSE TITLE:	Math 073 – Advanced Math 2
CLASS SECTION:	S02
TERM:	Winter-2025
COURSE CREDITS:	4
DELIVERY METHOD(S):	Self-paced

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 information please visit https://camosun.ca/about/covid-19-updates

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: Elizabeth ploughman

EMAIL: ploughe@camosun.ca please contact me via email about absences etc but for math help pls come to class or 'office times' or the math help center

WEBSITE: Desire2Learn (D2L) http://online.camosun.ca

OFFICE: F 314 B but help sessions will be the F316 and 322 NOT in mu office (since Covid lurked into the world)

HOURS: to be announced during the 1st week

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 Pre-Calculus 11, C in Foundations of Math 12, C in MATH 077, C+ in MATH 072, C+ in MATH 075, C+ in MATH 135, Assessment
CO-REQUISITE(S):	None.
EXCLUSION(S):	None.

COURSE LEARNING OUTCOMES / OBJECTIVES

Upon successful completion of the course, a 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 $f(x) = ax^2 + bx + c$ 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 (180°),

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.

After completion of Math 072 **and** 073, students will meet the outcomes as identified in the Adult Basic Education Articulation Handbook found at https://www2.gov.bc.ca/assets/gov/education/post-secondary-education/adult-education/abe_guide.pdf

REQUIRED MATERIALS & RECOMMENDED PREPARATION / INFORMATION

Textbook: **Dynamics math work book 10 and 11 is the only text needed**

(Or if you have already purchased *Intermediate Algebra* 13th edition by M.L. Bittinger because you are continuing in the course from a previous semester) you may continue to use it.

Note that 'my math lab' assignments etc for those who have the Bittinger book are NOT part of the course but an extra available if you are already using them from a prior attempt at 072If you wish to complete MyLabMath (MLM) Assignments and Practice Tests, you will need to purchase an Access Code either alone or bundled with your text. Registration instructions are on D2L.

The Access Code allows access to the digital textbook, practice problems, videos, assignments and practice tests.

Calculator: The only calculator permitted for tests and the final exam is the Sharp EL-531 scientific calculator or a copy of this type of **non programable scientific calculator**. There are some parts of the course that must be done without a calculator.

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

The following schedule is suggested to complete Math 073 in one term. You may complete it faster, or if you need more time you can re-register for another term. Marks may be carried forward for up to one year. You can take up to 3 terms to complete a course. If you wish to complete both Math 072 and Math 073 in one semester, a suggested schedule is on D2L.

It will take at least 8-12 hours of studying per week to finish the course in one term.

The last day to write a test or the final exam is in April and will be announced via D2L

Unit 1: Chapter 4 Polynomials and Polynomial Functions (4.1-4.8)
Unit 2: Chapter 5 Rational Expressions, Equations, Functions (5.1-5.8)
Unit 3: Chapter 6 Radical Expressions, Equations, Functions (6.1-6.8)
Unit 4: Chapter 7 Quadratic Equations and Functions (7.1-7.7a)
Unit 5: Trigonometry (AlgTrig 6.1-6.3, 8.1-8.2)

Wk	Starting week of	Monday	Tuesday	Wednesday	Thursday	Friday
1	Week 1		Introduction to Polynomials 4.2 Multiplication of Polynomials	Introduction to Factoring	Factoring Trinomials: $x^2 + bx + c$	Factoring Trinomials: $ax^2 + bx + c$
2	Week 2	Special Factoring	Special Factoring	Factoring: A General Strategy	Applications of Polynomial Equations	Practice Test
3	Week 3	Chapter Review	Unit 1 Test	Rational Expressions: Mult./Div	LCMs, LCDs, Addition and Subtraction	Division of Polynomials
4	Week 4		54 Complex Rational Expressions	Solving Rational Equations	Uniform Motion Applications only	Formulas and Applications
5	Week 5	. Variation and Applications	Chapter 5 Practice Test	Chapter 5 Review	Unit 2 Test	Radical Expressions and Functions
6	Week 6	Rational Numbers as Exponents	Rational Numbers as Exponents	Simplifying Radical Expressions	Addition, Subtraction, and More Multiplication	Addition, Subtraction, and More Multiplication
7	Week 7	More on Division of Radical Expressions	Solving Radical Equations	Solving Radical Equations	Applications Involving Powers and Roots	The Complex Numbers
8	Week 8	Chapter Review	Chapter Practice Test	Chapter Review	Unit 3 Test	Basics of Solving Quadratic Equations
9	Week 9	Basics of Solving Quadratic Equations	The Quadratic Formula	Applications Involving Quadratic Equations	More on Quadratic Equations	
10	Week 10	Graphing $f(x) = a(x-h)^2 + k$	Graphing $f(x) = ax^2 + bx + c$	Graphing $f(x) = ax^2 + bx + c$	Modeling with Quadratic Functions and Max/Min Problems	Modeling with Quadratic Functions and Max/Min Problems
11	week11	Chapter Review	Chapter Practice Test	Chapter Review	Unit 4 Test	AlgTrig Trig Functions of Acute Angles
12	Week 12	AlgTrig Trig Functions of Acute Angles	AlgTrig Applications of Right Triangles	AlgTrig Trig Functions of Any Angles	AlgTrig Trig Functions of Any Angles	AlgTrig The Law of Sines
13	Week 13	AlgTrig The Law of Cosines	AlgTrig The Law of Cosines	Trig Review	Trig Practice Test	Trig Review
14	Week 14		Unit 5 Test	Exam Review	Exam Review	Exam Review
15	Exam week					

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 scan be reviewed on the CAL exams page. http://camosun.ca/services/accessible-learning/exams.html

EVALUATION OF LEARNING

DESCRIPTION	WEIGHTING 1
Unit Tests (5)	35%
Satisfactory **completion** of homework assigned in class and posted to D2L	30%
Final Exam	35%
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

Term Tests

- There are five (5) term tests, equally-weighted.
- When you feel you are prepared to take a test, please ask your instructor for test authorization. This will give you permission to write your test in the Math Help Centre (E342). You can write your tests any time the Math Help Centre is open (usually Mon-Thurs 4-8 pm).
- On each unit test, if you score at least 65%, you can move on to the next unit or reattempt once for a better score. If you do not score at least 65%, you must re-study and re-take the test until you get at least 65%.
- You will need approximately 1.5 hours to complete each term test, so the latest you should begin is 6:30 pm.
- Papers, references, books, etc., may not be used on tests. The Sharp EL-531 scientific calculator (or copy) is the only electronic device permitted.

Final Exam

- The final exam is cumulative and 3 hours long.
- There are no rewrites for the final exam.
- The last day to write the final exam is August 11.
- Papers, references, books, etc., may not be used on the exam. The Sharp EL-531 scientific calculator is the only electronic device permitted.

Homework as you proceed through the workbook you should do all the questions that are posted to D2L and check your answers. During part of the class your workbook will be checked and the page that you have reached will be signed for on the signing form that will be given out in the first class. There is no particular deadline for having the sheet signed but bringing it to class when you are able is suggested

COURSE GUIDELINES & EXPECTATIONS

D2L

This class uses Desire2Learn (D2L), an online course management system. Course-related materials and announcements will be available on D2L. A link to D2L is at the top of the camosun.ca webpage. Your final grade will be posted to 'my camosun' and tests you have written will be available for you to check over your mistakes in class time then you will return your test to me .

Class Time

Our class meets twice a week (Tuesdays and Thursdays, 5:30 pm - 7:50 pm),. During class times, there will be shorter than normal lectures and time to work on recommended exercises and study at your own pace while getting support from the instructor when you need it. You can work in the classroom or at home but it is

suggested that you do come to class as humans tend to do better when there is a cheer leader pushing them on and encouraging them!.

In the classroom:

1. Check in with me so I can record your attendance and keep informed of your progress.
2. Bring your textbook, calculator, and work materials to every class.
3. If you have a question, please write your name on the whiteboard, continue working, and I will help as soon as I can.

If you choose to work at home, please remember to keep me updated on your progress.

Working through the course

- The lectures will guide you as to where you should be in the course in order to finish. If you are unable to attend the lecture then please see the Recommended Exercises handout for details about working through the course.
- When doing practice exercises, label each question clearly and show your work. This makes it easy to review for the test and to get help.
- If you have trouble with an exercise, highlight the question and make a note in your margin about what you don't understand.

Transferring Grades

- If you are continuing this course from a previous semester, please let me know of that fact and of who your instructor was so that I can use marks that you have obtained when I eventually make up your final grade. You won't need to redo any of the Units you've successfully completed within the last year.
- If you score at least 80% on Math 072 Unit 5 and continue into Math 073 within the next year, you may be able to skip Math 073 Unit 1. Speak to your instructor for more information.

SCHOOL OR DEPARTMENTAL INFORMATION

Math Help

You can get free face-to-face or online tutoring from our instructional assistants in the Math Help Centre/Lab in E342/E224. Hours are posted on the doors and on the website http://camosun.ca/services/help-centres/.

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

Support Service	Website
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.

COLLEGE-WIDE POLICIES, PROCEDURES, REQUIREMENTS, AND STANDARDS

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.