Mathematics 073 DS01
Advanced Mathematics 1
Winter 2021

Instructor: Gemma Cuizon   **E-mail:** cuizon@camosun.bc.ca

Website: https://online.camosun.ca/d2l/home (D2L Collaborate & extra course materials)
https://pearsonmylabandmastering.com (MML: e-text, assignments and tests)

Timetable:

Time \ Day	Monday	Tuesday	Wednesday	Thursday	Friday
5:30 – 6:30 pm	*D2L Collaborate (primarily for* **Math 072 DS01***)*	*D2L Collaborate (primarily for* **Math 072 DS02***)*	*D2L Collaborate (primarily for* **Math 072 DS01***)*	*D2L Collaborate (primarily for* **Math 072 DS02***)*	
6:30 – 7:30 pm	*D2L Collaborate (primarily for* **Math 073 DS01***)*	*D2L Collaborate (primarily for* **Math 073 DS02***)*	*D2L Collaborate (primarily for* **Math 073 DS01***)*	*D2L Collaborate (primarily for* **Math 073 DS02***)*	

1.   **Important Dates**:

Jan 11	First day of classes
Jan 22	Drop with Tuition Fee Deadline (Winter '21)
Feb 15	Family Day – College is closed
Feb 16-19	Reading Break
Feb 16	College Conversations Day – College Closed as of 12 noon
Mar 16	Last day to drop or change to audit without penalty
Apr 2	Good Friday – College is closed
Apr 5	Easter Monday – College is closed
Apr 14	Last day of instruction
Apr 19-27	Final Exam Period (No exam on a Sunday, Apr. 25)

2. 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.

3. Intended Learning Outcomes

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.

4. Required Materials

i. **Computer/Tablet/Phone and Internet Access.** Please contact me if you don't have any of these devices.

ii. **Required Textbook**

Choose the print textbook or the e-text (both come with the MLM access code). Go to https://www.camosuncollegebookstore.ca/ and select either:
Intermediate Algebra W/Mymathlab Access Ll 13Th Ed (print)
or Intermediate Algebra Etext W/Integrated Review Mymathlab Access (e-text).

Register for Mymathlab/MyLabMath (MLM) for the e-text, video, assignments and practice tests. Go to https://www.pearsonmylabandmastering.com/northamerica/mymathlab/students/get-registered/index.html to register using your access code and the **Course ID cuizon76295**. *You can get 14 days of free temporary access.*

iii. **Calculator**: Sharp EL-531 scientific calculator or https://www.calculator.net/scientific-calculator.html (free online calculator)

5. Course Content

Math 073 covers Chapter 4 through Chapter 7 in the textbook plus a trigonometry section:

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 Lessons #1 – 5 (text: 6.1* - 6.3*, 8.1* - 8.2*)

This pacing schedule is provided if you want to complete Math 073 in one term. You may to complete it faster, or if you need more time you can re-register for another term. Test marks

may be carried forward for up to one year. You can take up to 3 terms to complete a course. If you wrote the Math 072 Chap 4 test within the last year, you can transfer that score for your first test in Math 073.

Wk	Date	Monday	Tuesday	Wednesday	Thursday	Friday
1	Jan 11-15	4.1 Introduction to Polynomials 6:30 Collaborate	4.2 Multiplication of Polynomials	4.3 Introduction to Factoring 6:30 Collaborate	4.4 Factoring Trinomials: $x^2 + bx + c$	4.5 Factoring Trinomials: $ax^2 + bx + c$
2	Jan 18-22	4.6 Special Factoring 6:30 Collaborate	4.7 Factoring: A General Strategy	4.8 Applications of Polynomial Equations 6:30 Collaborate	Chapter 4 Practice Test Book Test	Chapter 4 Review
3	Jan 25-29	Chapter 4 Test 6:30 Collaborate	5.1 Rational Expressions: Mult./Div	5.2 LCMs, LCDs, Addition and Subtraction 6:30 Collaborate	5.3 Division of Polynomials	5.4 Complex Rational Expressions
4	Feb 1-5	5.5 Solving Rational Equations 6:30 Collaborate	5.5 Solving Rational Equations	5.6c Uniform Motion Applications only 6:30 Collaborate	5.7 Formulas and Applications	5.8 Variation and Applications
5	Feb 8-12	Chapter 5 Practice Test Book Test 6:30 Collaborate	Chapter 5 Review	Chapter 5 Test 6:30 Collaborate	6.1 Radical Expressions and Functions	6.2 Rational Numbers as Exponents
6	Feb 15-19	**Family Day** **No classes**	*Conversations Day* **No Classes** *Reading Break starts*	*Reading Break* 6.3 Simplifying Radical Expressions	*Reading break* 6.4 Addition, Subtraction, and More Multiplication	*Reading Break* 6.5 More on Division of Radical Expressions
7	Feb 22-26	6.5 More on Division of Radical Expressions 6:30 Collaborate	6.6 Solving Radical Equations	6.6 Solving Radical Equations 6:30 Collaborate	6.7 Applications Involving Powers and Roots	6.8 The Complex Numbers
8	Mar 1-5	Chapter 6 Practice Test Book Test 6:30 Collaborate	Chapter 6 Review	Chapter 6 Test 6:30 Collaborate	7.1 Basics of Solving Quadratic Equations	7.1 Basics of Solving Quadratic Equations
9	Mar 8-12	7.2 The Quadratic Formula 6:30 Collaborate	7.3 Applications Involving Quadratic Equations	7.4 More on Quadratic Equations 6:30 Collaborate	7.4 More on Quadratic Equations	7.5 Graphing $f(x) = a(x - h)^2 + k$
10	Mar 15-19	7.5 Graphing $f(x) = a(x - h)^2 + k$ 6:30 Collaborate	7.6 Graphing $f(x) = ax^2 + bx + c$	*Remembrance Day* No classes	7.6 Graphing $f(x) = ax^2 + bx + c$	7.7a Modeling with Quadratic Functions and Max/Min Problems
11	Mar 22-26	Chapter 7 Practice Test Book Test 6:30 Collaborate	Chapter 7 Review	Chapter 7 Test 6:30 Collaborate	Trig 6.1* Trig Functions of Acute Angles	Trig 6.1* Trig Functions of Acute Angles
12	Mar 29-Apr 2	Trig 6.2* Applications of Right Triangles 6:30 Collaborate	Trig 6.2* Applications of Right Triangles	Trig 6.3* Trig Functions of Any Angles 6:30 Collaborate	Trig 6.3* Trig Functions of Any Angles	*Good Friday* Trig 8.1* The Law of Sines
13	Apr 5 - 9	*Easter Monday* **No Classes**	Trig 8.1* The Law of Sines	Trig 8.2* The Law of Cosines 6:30 Collaborate	Trig Practice Test Book Test	Trig Review
14	Apr 12- 16	Trig Test 6:30 Collaborate	Exam Review	Exam Review 6:30 Collaborate	*Exam Practice Test* Book Exam	Exam Review
15	Apr 19-23	Final Exam Period	Final Exam Period	Final Exam Period	Final Exam Period *Last Day to Write Tests/Exam*	

Tests can be written on Mon or Wed. evenings from 4:00-8:00pm and must be booked at least _two_ business days ahead.

6. Basis of Student Assessment (Weighting)

(a) **Homework Assignments (20%)** on MLM
There is an assignment for each chapter. You get three attempts on each question.
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(b) **Practice Tests (10%)** on MLM
Before each test, you will need to complete the practice test. You get 2 attempts.

(c) **Chapter Tests – (40%)** on MLM
After completing all the homework and the practice test, you can book your test by sending me an email noting the day (Mon. or Wed) and time (between 4:00-8:00pm) when you can write it. If I feel that your work is satisfactory, the test will be loaded onto MLM within two business days. Show all your work on paper, clearly numbering each question, then enter the answers in MML. Submit your work within half an hour of writing the test by scanning it as a single pdf file, then submit it using the Assignment Tool in _D2L_. You will not receive credit for the test unless satisfactory work is shown.

There are five (equally-weighted) chapter tests. Re-tests are only provided if you score less than 65%. Only one re-test is allowed. You will need approximately 2 hours to complete each chapter test.

(d) **Final Exam – 30%** on MLM
There is a cumulative final exam. It covers all of the material from Chapter 4 to the end of Chapter 7 and the Trigonometry. When you have completed all the tests and the exam review, and feel that you're ready, please let me know what day (Mon. or Wed) and time (between 4:00-8:00pm) you want to write it. There are no rewrites for the final exam. You will need approximately 3 hours to write the final exam.

7. Grading System
(*If any changes are made to this part, then the Approved Course description must also be changed and sent through the approval process.*)
(*Maark with "X" in box below to show appropriate approved grading system – see last page of this template.*)

X	Standard Grading System (GPA)

	Competency Based Grading System

8. College Supports, Services and Policies

Immediate, Urgent or Emergency Support
If you or someone you know requires immediate, urgent or emergency support (i.e. 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 and education, library and writing centre. For more information on each of these services, visit the **S T U D E N T S E R V I C E S** 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 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)

Percent Range	0-49	50-59	60-64	65-69	70-72	73-76	77-79	80-84	85-89	90-100
Letter Grade	F	D	C	C+	B-	B	B+	A-	A	A+
Grade Point Equivalency	0	1	2	3	4	5	6	7	8	9

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.

8. How do I work through the course?

1. Go to MLM -> Chapter Contents-> choose the section **Math 073 DS01**-> read the etext and watch the section video.

2. Attend the online class by going to *http://online.camosun.ca* ,*select Math 073,* open *Collaborate* on the top menu bar, and choose the day's session.

3. Do the HW Assignments in MLM for that section.

4. Do the practice test in MLM.

5. Email Gemma to book your test. Please allow at least two business days for a response.

6. Do the test in *MLM*. Enter your answers in MLM and show your work on your own paper, clearly numbered. Scan your work as a pdf file, open up the Assignment Tool on *D2L,* and submit it within half an hour of finishing your test. You may have a scanning app on your phone, or you can take a picture, but you must save it as a pdf. Free Scanning App: https://acrobat.adobe.com/ca/en/mobile/scanner-app.html

7. When you have written all 5 tests and have reviewed the entire course, do the exam review, then contact your instructor to make arrangements to write the final exam.

9. **How to get help?**

   a) During class: In [D2L Collaborate](), you can use the '*Raise Hand'* or '*Chat'* features, or simply ask your question.
   b) During a Test or Quiz: Email me and I'll get back to you as quickly as possible.
   c) Outside of class hours: Email me. I will usually get back to you within 1 business day.
   d) ***Free tutoring***: You can email mailto:campbellc@camosun.bc.ca or book a video chat at
      https://outlook.office365.com/owa/calendar/MathLab@camosun.ca/bookings/
   e) Technical Support for ***MyMathLab***: http://www.mymathlab.com/student-support