

COURSE SYLLABUS



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|---------------------|--------------------------------|
| COURSE TITLE: | MATH 107 – Applied PreCalculus |
| CLASS SECTION: | D01 |
| TERM: | Summer 2021 |
| COURSE CREDITS: | 4 |
| DELIVERY METHOD(S): | Online |

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](#).

The COVID-19 pandemic has presented many challenges, and Camosun College is committed to helping you safely complete your education. Following guidelines from the Provincial Health Officer, WorkSafe BC, and the B.C. Government to ensure the health and wellbeing of students and employees, Camosun College is providing you with every possible protection to keep you safe. Our measures include COVID Training for students and employees, health checks, infection control protocols including sanitization of spaces, PPE and ensuring physical distancing. For details on these precautions please follow this link: <http://camosun.ca/covid19/faq/covid-fags-students.html>. However, if you're at all uncomfortable being on campus, please share your concerns with your Instructor. If needed, alternatives will be discussed.

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: Amanda Malloch
EMAIL: MallochA@camosun.bc.ca
OFFICE: Ewing 252 (working from my Home Office though).
HOURS: Monday to Friday 8:30 – 9:30am and 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

Students in life science, environmental studies, business, and social science will be prepared for applied calculus in their program of study. Students will: review algebra and study polynomial, rational, exponential, logarithmic, trigonometric, and inverse trigonometric functions, sequences and series. Note: Students who have been away from algebra for more than two years should first refresh with MATH 073, MATH 077, MATH 137, or MATH 139. Only one of MATH 107 or MATH 115 may be used toward a Camosun credential.

PREREQUISITE(S): One of: C+ in Pre-calculus 11, C+ in MATH 073, C+ in MATH 077, C in MATH 097, C- in Pre-calculus 12 – Must be completed prior to taking this course.

COURSE LEARNING OUTCOMES / OBJECTIVES

Upon completion of this course a student will be able to:

1. Demonstrate proficiency in the fundamental concepts of Intermediate Algebra necessary to analyze and interpret single variable functions. This includes but is not limited to: factorization of polynomials and expressions with rational exponents, simplifications of rational expressions, complex fractions and radicals, solving subsequent polynomial, radical, and rational equations, and single variable linear and quadratic inequalities.
2. Demonstrate the ability to understand and interpret visual 2-D representation of single variable relationships. This includes working with the basic concepts of graphing in the coordinate plane with an emphasis on linear equations, circles, and ellipses.
3. Work with analytic representations of single variable relationships and connect basic models to their visual representations. This includes building a foundation of understanding of terminology and notation for functions, including basic definitions and examples.
4. Work with more advanced functions to enable more complex modelling and analysis in follow-on courses. Examples include: quadratic, polynomial, rational, exponential, trigonometric and inverse trigonometric functions.
5. Solve word problems involving arithmetic and geometric sequences and series.

REQUIRED MATERIALS & RECOMMENDED PREPARATION / INFORMATION

- Coursepack – available on D2L
- Calculator – As per department policy, the recommended calculator for use on tests and the final exam is the Sharp EL-531 (or 510) models.
- Zoom – class meetings will be occurring using Zoom, so it is a good idea to familiarize yourself with it and download the app to your device.
- MyOpenMath – Assignments and Tests will be completed using www.myopenmath.com so you will need to create a (free) account here and register in our course. Instructions will be posted on our D2L page.
- Textbook: *Algebra and Trigonometry*, Sullivan, 10th Edition will be optional.

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.

| DATE | ACTIVITY | CHAPTERS |
|---------------------------------|-----------------------------|-------------|
| Sunday, May 9 th | Assignment 1 due | R |
| Wednesday, May 12 th | PDF Practice Assignment due | |
| Thursday, May 13 th | Assignment 2 due | 1 and 2 |
| Friday, May 14 th | Test 1 | R, 1, and 2 |

| DATE | ACTIVITY | CHAPTERS |
|--|-----------------------------------|-------------|
| Thursday, May 20 th | Assignment 3 due | 3 |
| Tuesday, May 25 th | Assignment 4 due | 4 |
| Wednesday, May 26 th | Test 2 | 3 and 4 |
| Thursday, June 3 rd | Assignment 5 due | 5 |
| Thursday, June 10 th | Assignment 6 due | 6 and 7 |
| Friday, June 11 th | Test 3 | 5, 6, and 7 |
| Thursday, June 17 th | Assignment 7 due | 8 |
| Sunday, June 20 th | Assignment 8 due (optional) | 13 |
| June 21 st – 23 rd | Final Exam – Scheduled by Camosun | Cumulative |

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

| DESCRIPTION | WEIGHTING |
|---|-------------|
| Assignments (most using MyOpenMath) | 15% |
| Test 1 – Friday, May 14 th | 15% |
| Test 2 – Wednesday, May 26 th | 20% |
| Test 3 – Friday, June 11 th | 20% |
| Final Exam - Scheduled by Camosun June 21 st to 23 rd | 30% |
| 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>

Note: Tests 2 and 3 will consist of one portion using MyOpenMath (with supporting work submitted on D2L) worth 15% and a written component found in Assignments on D2L (submitted on D2L) worth 5%.

In this course we will split our scheduled time between synchronous and asynchronous learning. The second hour each day will be used to watch the videos that we will discuss during the first hour of the following class. This discussion will be first fueled by any questions that may have arisen during the videos and second by suggestions from me.

While the synchronous sessions will not be mandatory, I feel attendance and participation is ***extremely important*** in order for success in this accelerated course.

Here is the topics in the order we will cover them:

Chapter R – Review

- R5: Factoring Polynomials
- R6: Synthetic Division
- R7: Rational Expressions
- R8: n^{th} Roots; Rational Exponents

Chapter 1 – Equations and Inequalities

- 1.1: Linear Equations
- 1.2: Quadratic Equations
- 1.4: Radical Equations; Equations Quadratic in Form; Factorable Equations
- 1.5: Solving Inequalities

Chapter 2 – Graphs

- 2.1: The Distance and Midpoint Formulas
- 2.2: Graphs of Equations in Two Variables; Intercepts; Symmetry
- 2.3: Lines
- 2.4: Circles

Chapter 11 – Analytic Geometry

- 11.3: The Ellipse

Chapter 3 – Functions and Their Graphs

- 3.1: Functions
- 3.2: The Graphs of Functions
- 3.3: Properties of Functions
- 3.4: Library of Functions; Piecewise-defined Functions
- 3.5: Graphing Techniques; Transformations
- 3.6: Mathematical Models; Building Functions

Chapter 4 – Linear and Quadratic Functions

- 4.1: Properties of Linear Functions and Linear Models
- 4.3: Quadratic Functions and Their Properties
- 4.4: Building Quadratic Models from Verbal Descriptions and from Data
- 4.5: Inequalities Involving Quadratic Functions

Chapter 5 – Polynomial and Rational Functions

- 5.1: Polynomial Functions and Models
- 5.2: Properties of Rational Functions
- 5.3: The Graph of a Rational Function
- 5.4: Polynomial and Rational Inequalities
- 5.5: The Real Zeros of a Polynomial Function

Chapter 6 – Exponential and Logarithmic Functions

- 6.1: Composite Functions
- 6.2: One-to-One Functions; Inverse Functions
- 6.3: Exponential Functions
- 6.4: Logarithmic Functions
- 6.5: Properties of Logarithms
- 6.6: Logarithmic and Exponential Equations
- 6.7: Financial Models
- 6.8: Exponential Growth/Decay Models; Newton's Law; Logistic Growth/Decay Models

Chapter 7 – Trigonometric Functions

- 7.1: Angles and Their Measure
- 7.2: Right Triangle Trigonometry
- 7.3: Computing the Values of Trigonometric Functions of Acute Angles
- 7.4: Trigonometric Functions of Any Angle
- 7.5: Unit Circle Approach; Properties of the Trigonometric Functions
- 7.6: Graphs of the Sine and Cosine Functions
- 7.7: Graphs of the Tangent, Cotangent, Cosecant, and Secant Functions
- 7.8: Phase Shift; Sinusoidal Curve Fitting

Chapter 8 – Analytic Trigonometry

- 8.1: The Inverse Sine, Cosine, and Tangent Functions
- 8.2: The Inverse Trigonometric Functions (Continued)
- 8.3: Trigonometric Equations
- 8.4: Trigonometric Identities
- 8.5: Sum and Difference Formulas
- 8.6: Double-angle Formulas

Chapter 13 – Sequences

- 13.1: Sequences
- 13.2: Arithmetic Sequences
- 13.3: Geometric Sequences; Geometric Series

SCHOOL OR DEPARTMENTAL INFORMATION

You are welcome and encouraged to make use of Camosun's Math Lab where there is an instructional assistant who can answer questions about the content of the course. Instructions on how to 'drop in' and/or make an appointment for assistance will be posted on our D2L course page. You may also use the link in the list below to find more information about the Math Lab.

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/ |
| 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](http://camosun.ca/services/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.