

COURSE SYLLABUS



COURSE TITLE: MATH-126-Basic Discrete Mathematics

CLASS SECTION:

TERM: 2025W

COURSE CREDITS: 3

DELIVERY METHOD(S): In-person lecture

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

INSTRUCTOR DETAILS

NAME: Avery Flowers

EMAIL: flowersa@camosun.ca

OFFICE: Ewing 236

HOURS: Tuesday @ 1:30 – 2:20pm ; Friday @ 4:30 – 5:20pm

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, which primarily targets mathematics and computer science students, provides an introduction to discrete mathematics. Topics include logic, proof techniques including mathematical induction, basic set theory, functions, cardinality of sets, asymptotic notation, properties of integers, permutations and combinations, pigeonhole principle, recursive definitions, divide and conquer recurrence relations and a brief introduction to graphs.

PREREQUISITE(S):

One of:

C in MATH 100

C in MATH 125

CO-REQUISITE(S):

EQUIVALENCIES:

COURSE LEARNING OUTCOMES / OBJECTIVES

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

Establish the equivalence of compound propositions using truth tables and basic laws of logic.

Use rules of inference to determine the validity of arguments.

Translate English statements into quantified logic statements and vice versa.

Prove statements using direct and indirect proofs and ordinary and strong mathematical induction.

Prove set equivalences using membership, basic set identities and logical equivalences.

Determine whether functions are surjective, injective or bijective.

Compare the cardinality of finite and infinite sets through the use of bijections and distinguish between countable and uncountable sets.

Describe the growth of functions using big-O, big-Omega and big-Theta notation.

Solve problems using the fundamental concepts of number theory and perform simple proofs involving divisibility, prime factorization and congruences.

Use the Euclidean algorithm to find greatest common divisors and use other algorithms to convert numbers between different bases.

Define functions and sequences recursively.

Use permutations and combinations to solve counting and probability problems, including those in which repetition is allowed.

Apply the pigeonhole principle to solve counting problems.

Prove identities involving the binomial theorem using both algebraic and combinatorial arguments.

Model counting problems using recurrence relations.

Solve divide and conquer recurrence relations for $n=bk$ and give big-O estimates for increasing functions.

Identify and describe different types of graphs and their connectivity.

REQUIRED MATERIALS & RECOMMENDED PREPARATION / INFORMATION

Math 126 Coursepack (Required) – Available in the bookstore or for free on D2L

Calculator (Required) – Sharp EL-531XT

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
Jan 6 – Jan 10	1.1 – 1.3	
Jan 13 – Jan 17	1.4 – 1.6	
Jan 20 – Jan 24	1.7, Test #1 (Friday)	
Jan 27 – Jan 31	1.8 – 1.9	
Feb 3 – Feb 7	2.1 – 2.3	
Feb 10 – Feb 14	2.4, Test #2 (Friday)	
Feb 17 – Feb 21	READING BREAK	
Feb 24 – Feb 28	2.5 – 3.3	
Mar 3 – Mar 7	3.4 – 4.2	
Mar 10 – Mar 14	4.3 – 5.1, Test #3 (Friday)	
Mar 17 – Mar 21	5.2 – 5.6	
Mar 24 – Mar 28	5.7 – 6.2	
Mar 31 – Apr 4	6.3 – 6.4, Test #4 (Friday)	
Apr 7 – Apr 11	6.5 – 7.4	
Apr 14 – Apr 18	FINAL EXAMS	

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](#).

<https://camosun.ca/services/academic-supports/accessible-learning/academic-accommodations-exams>

EVALUATION OF LEARNING

DESCRIPTION	WEIGHTING
Final	40%
Tests (x4)	48%
Quizzes	5%
Assignments	7%
<p>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.</p> <p>https://camosun.ca/sites/default/files/2021-05/e-1.14.pdf</p>	TOTAL 100%

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

Support Service	Website
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

Camosun College is committed to achieving full accessibility for persons with disabilities. Part of this commitment includes arranging appropriate academic accommodations for students with disabilities to ensure they have an equitable opportunity to participate in all of their academic activities. If you are a student with a documented disability and think you may need accommodations, you are strongly encouraged to contact the Centre for Accessible Learning (CAL) and register as early as possible. Please

visit the CAL website for more information about the process of registering with CAL, including important deadlines: <https://camosun.ca/cal>

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 change