COMP 1805 ABC – WINTER 2026
DISCRETE STRUCTURES I

MAIN COURSE DETAILS

Instructor	**Alina Shaikhet** (she/her)	
Contact	alinashaikhet@cunet.carleton.ca	
Office	HP 5137 (Herzberg Building)	
Best Ways to be in Touch	in class, via email or Discord, or during student hours	
Lab/TA Co-ordinator	**Leila Chinai** Leila.Chinaei@carleton.ca	
Teaching Assistants	A list of teaching assistants and their contact/student hours information will be posted once the course starts.	
Lectures	Section **A** (in-person): Wednesdays & Fridays, 11:35 – 12:55 Section **B** (in-person): Tuesdays & Thursdays, 16:05 – 17:25 Section **C** (online asynchronous): lecture recordings	Check on Carleton Central for the room location.
Tutorials	(in-person); Check your schedule on Carleton Central. Tutorials start January 12th	
Course Website	https://brightspace.carleton.ca/	
Course Forum	Discord server (link is available on the course website)	

Important dates and deadlines can be found here: Dates, Deadlines, and Regulations—Registrar's Office, including class suspension for fall, winter breaks, and statutory holidays.

COURSE CALENDAR DESCRIPTION

Introduction to discrete mathematics and discrete structures. Topics include: propositional logic, predicate calculus, set theory, complexity of algorithms, mathematical reasoning and proof techniques, recurrences, induction, finite automata and graph theory. Material is illustrated through examples from computing.

Includes: Experiential Learning Activity

Precludes additional credit for MATH 1800.
Prerequisite(s): one Grade 12 university preparation mathematics course.
Lectures three hours a week, tutorial one hour a week.

You MUST earn a **C–** or better in this course to take COMP 2804, COMP 3005, COMP 3007, or COMP 4001!

LEARNING MATERIAL(S) AND OTHER COURSE/LAB-RELATED RESOURCES

Students are not required to purchase textbooks or other learning materials for this course.

A comprehensive set of course notes, slides, and practice problems with solutions is available on the course website. Additionally, recordings of the live in-person lectures will be posted throughout the course for your convenience.

While there is no mandatory textbook, I recommend exploring the interactive textbook from zyBooks. Subscription details can be found on the course website. An approximate cost of the subscription is 95CAD.

TOPICS COVERED AND LEARNING OUTCOMES

I am committed to fostering an inclusive and respectful learning environment for everyone. In our class, all students, the instructor, and any guests deserve to be treated with respect in every interaction. My goal is to create a space that values and supports the diversity of experiences, thoughts, and perspectives. I will continue to work toward building an inclusive atmosphere and would greatly appreciate your support and feedback in achieving this goal.

SUMMARY OF TOPICS COVERED

- Propositional & Predicate Logic
- Validity of Logical Arguments (including Quantifiers)
- Proof Techniques (including Induction)
- Set Theory
- Functions; Countability
- Sequences & Sums
- Intro to Algorithms (performance issues); Big O/Ω/Θ Notation
- Recursive Definitions & Recursion
- Graphs
- Relations

LEARNING OUTCOMES

By the end of this course, successful students will have demonstrated their ability to:

- Use mathematically correct terminology and notation to define and reason about fundamental mathematical concepts such as sets, relations, functions, and integers.
- Evaluate mathematical arguments and identify fallacious reasoning.
- Construct mathematical proofs using different techniques.
- Use and analyze recursive definitions.
- Perform asymptotic analysis to describe the running time of different algorithms.
- Demonstrate various traversal methods for graphs.
- Apply critical thinking and logical and analytical reasoning to formulate and evaluate possible solutions to a variety of problems.

A detailed breakdown of topics together with a tentative calendar by section:

COMP 1805 AC – Winter 2026 – Tentative Calendar

	SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
week 1 No Tutorials	4	5	6	Introduction to Discrete Math 7	8	Propositional Logic 9	10
week 2 Tutorial 1	11	12	13	Propositional Logic 14	15	Predicate Logic 16	Tut. 1 quiz due by 23:59 17
week 3 Tutorial 2	18	19	20	Predicate Logic 21	22	Validity of Logical Arg. Assignment 1 due by 23:59 23	Tut. 2 quiz due by 23:59 24
week 4 Test 1 during your Tutorial	25	26	27	Validity & Quantifiers 28	29	Proof Techniques 30	31
week 5 Tutorial 3	1	2	3	Proof Techniques 4	5	Set Theory Assignment 2 due by 23:59 6	Tut. 3 quiz due by 23:59 7
week 6 Test 2 during your Tutorial	8	9	10	Set Theory 11	12	Functions 13	14
week 7 No Tutorials	15	Winter break – no classes 16	17	18	19	20	21
week 8 Tutorial 4	22	23	24	Functions & Countability 25	26	Sequences & Sums Assignment 3 due by 23:59 27	Tut. 4 quiz due by 23:59 28
week 9 Test 3 during your Tutorial	1	2	3	Intro to Algorithms, Sorting & Searching 4	5	Grows of functions Big $O/\Omega/\Theta$ Notation 6	7
week 10 Tutorial 5	8	9	10	More Asymptotic Analysis Intro Graphs 11	12	Graph Coloring & Exploration (BFS, DFS) 13	Tut. 5 quiz due by 23:59 14
week 11 Tutorial 6	15	16	17	Graph Storage & Planarity 18	19	Induction Assignment 4 due by 23:59 20	Tut. 6 quiz due by 23:59 21
week 12 Test 4 during your Tutorial	22	23	24	Recursion 25	26	Intro to Binary Relations 27	28
week 13 Tutorial 7	29	30	31	Relations, Topological Sort 1	2	Assignment 5 due by 23:59 3	4
week 14 A1 and C1 Tutorial 7 - Wednesday	5	6	7	Review & Exam Prep. Tut. 7 quiz due by 23:59 Fri 8	9	10	11

COMP 1805 B – Winter 2026 – Tentative Calendar

	SUNDAY	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
week 1 No Tutorials	4	5	Introduction to Discrete Math 6	7	Propositional Logic 8	9	10
week 2 **Tutorial 1**	11	12	Propositional Logic 13	14	Predicate Logic 15	16	**Tut. 1 quiz due by 23:59** 17
week 3 **Tutorial 2**	18	19	Predicate Logic 20	21	Validity of Logical Argument 22	**Assignment 1 due by 23:59** 23	**Tut. 2 quiz due by 23:59** 24
week 4 **Test 1** during your Tutorial	25	26	Validity & Quantifiers 27	28	Proof Techniques 29	30	31
week 5 **Tutorial 3**	1	2	Proof Techniques 3	4	Set Theory 5	**Assignment 2 due by 23:59** 6	**Tut. 3 quiz due by 23:59** 7
week 6 **Test 2** during your Tutorial	8	9	Set Theory 10	11	Functions 12	13	14
week 7 No Tutorials	15	**Winter break – no classes** 16	17	18	19	20	21
week 8 **Tutorial 4**	22	23	Functions & Countability 24	25	Sequences & Sums 26	**Assignment 3 due by 23:59** 27	**Tut. 4 quiz due by 23:59** 28
week 9 **Test 3** during your Tutorial	1	2	Intro to Algorithms, Sorting & Searching 3	4	Grows of functions Big $O/\Omega/\Theta$ Notation 5	6	7
week 10 **Tutorial 5**	8	9	More Asymptotic Analysis Intro Graphs 10	11	Graph Coloring & Exploration (BFS, DFS) 12	13	**Tut. 5 quiz due by 23:59** 14
week 11 **Tutorial 6**	15	16	Graph Storage & Planarity 17	18	Induction 19	**Assignment 4 due by 23:59** 20	**Tut. 6 quiz due by 23:59** 21
week 12 **Test 4** during your Tutorial	22	23	Recursion 24	25	Intro to Binary Relations 26	27	28
week 13 **Tutorial 7**	29	30	Relations, Topological Sort 31	1	**Review & Exam Preparation** 2	**Assignment 5 due by 23:59** 3	4
week 14 No tutorials	5	6	TBD 7	Friday schedule **Tut. 7 quiz due by 23:59** 8	9	10	11

ASSESSMENT SCHEME

Your performance in this course will be assessed using several components, such as assignments, quizzes, tests, and exam. The grades you achieve on these components will be weighted using the following scheme:

COMPONENT	DETAILS	WEIGHT	DUE DATEs
Assignments	best 4 of 5 at 5% each	20%	Jan 23, Feb 6, Feb 27, Mar 20, Apr 3
Tutorial Quizzes	7 quizzes at 2% each. Two attempts per quiz with the best score recorded	14%	Jan 17, Jan 24, Feb 7, Feb 28, Mar 14, Mar 21, Apr 8
Tests	in-person 4 (1-hour) tests at 8% each	32%	At your tutorial session during weeks 4, 6, 9, and 12 (see the prev. page).
Final Exam	in-person	34%	scheduled by the University during exam period

You can earn up to **5% bonus points** toward your final grade. Details are posted on the course website. Bonus points are completely optional — not doing them will not lower your grade.

ASSIGNMENTS

There are **5 assignments**. The best 4 are worth 20% of your final grade. The lowest assignment grade (out of 5) will be dropped. Consider "saving" your dropped assignment for unforeseen emergencies (e.g., illness, technical issues). **You cannot drop more than one assignment.**

Late Policy: Assignments may be submitted **up to 12 hours** after the deadline without penalty. After this period, solutions will be posted, and no further submissions will be accepted.

Submission Requirements: Submit exactly one PDF file per assignment. Files must be typed using Microsoft Office, Google Docs, or LaTeX. Handwritten, scanned, or photographed work will not be graded. Only PDF files are accepted. Other formats (e.g., Word, text, compressed files) will not be graded.

Submission Method: All assignments must be submitted through Brightspace. Email submissions to the instructor or TAs will not be accepted.

TUTORIALS

Tutorials are short, guided lessons designed to help you practice solving new problems. Attendance at live tutorials is optional but strongly encouraged, as they provide practice with questions similar to those on assignments, tests, and the final exam. Tutorials also offer an opportunity to connect with TAs and classmates.

Each tutorial is followed by an online **Tutorial Quiz**. There will be **7 tutorials**, each paired with a quiz. **Tutorial quizzes are mandatory** and must be submitted by the specified deadline. Each quiz is worth 2% of your final grade (for a total of 14%). Unlike assignments, no tutorial quiz grades will be dropped. However, the quizzes are **not timed,** and you will be given **two attempts** per quiz, with your **best score recorded**.

Tutorials begin Monday, January 12th.

TESTS

There will be **4 tests**, which together account for 32% of your final grade. Tests will be conducted **in-person during your registered tutorial session**. All tests are **mandatory** and **closed-book** (no notes or materials

permitted). You may bring **one single sheet of paper** containing notes, rules, or formulas. This sheet may be prepared by you, or you may use the double-sided version provided on the course website.

FINAL EXAM

The **final exam** will be conducted **in-person** and scheduled by the University during the official exam period. The exam is **mandatory**, **cumulative**, and **closed-book**.

LATE AND MISSED WORK POLICIES

LATE WORK

Late tutorial quizzes, late tests, and assignments submitted more than 12 hours past the deadline will not be accepted under any circumstances.

Please note that **no individual extensions will be granted**. Solutions to most of the assessments will be published shortly after the submission deadlines, and therefore, late submissions cannot be accommodated.

All submissions are handled electronically, and there is no grace period. Technical issues (e.g., internet connection problems) do not exempt you from this requirement. If you wait until the last minute and encounter difficulties, you will still receive a mark of zero.

To avoid problems, students are strongly advised to:

- Start assignments and tutorial quizzes early.
- Submit progress periodically (partial marks may be awarded if some parts are incomplete).
- Aim to submit the final version at least one hour before the deadline.

MISSED WORK

Tests and Tutorial Quizzes:

- Students who experience illness during the period a test or tutorial quiz is offered may request an exemption.
- You **must contact your instructor as soon as possible** — and no later than 48 hours after the activity's deadline — and submit the academic considerations form.
- If approved, the weight of the missed test or tutorial quiz will be transferred to the final exam.
- A maximum of one test and one tutorial quiz may be exempted.
- Students cannot be exempted from an activity they have already attempted.

Assignments:

- Assignments are posted well in advance of their deadlines, and illness does not excuse a missed assignment.
- **You may miss one assignment** for medical, compassionate, or other reasons without penalty; no notification is required.
- Missing more than one assignment will result in a mark of zero for each additional missed assignment when calculating the final grade. No extra-credit work will be offered.

- Being ill close to the deadline is not considered a valid reason for failing to submit work. Effective time management is expected. To avoid receiving a zero, start assignments early, submit partial work if necessary, and avoid leaving submissions to the last minute.

Long-term absence: Missing more than one test, one tutorial quiz, or one assignment cannot be accommodated, as you will be unable to achieve learning outcomes of this course.

ASSESSMENT & APPEAL POLICIES

Submission: Students are responsible for the integrity of their submissions. Any file that cannot be opened will receive a mark of zero. After uploading your work to Brightspace, you must immediately confirm that the submission is the correct file, has the proper filename and extension, and can be opened for marking purposes.

Showing Your Work: You are expected to show all steps in your solutions. A technically correct answer that does not include the required work may receive a mark of zero.

Appeals: If you wish to appeal a mark on an assignment, quiz, or test, you must submit the appeal **within seven days of the mark being posted** on Brightspace. Appeals submitted after this period will not be considered. Concerns about marking should first be addressed with the TA who graded the work. If the TA's response does not resolve the issue, you may then bring the matter to the instructor.

LAB/TA COORDINATOR

We have a lab/TA coordinator assigned to this course. The coordinator is responsible for organizing and overseeing tutorial sections and enforcing submission rules to ensure that marking proceeds smoothly. If you notice any errors in a tutorial, encounter issues with a tutorial teaching assistant, or have other tutorial-related questions, the coordinator should be your first point of contact. The coordinator also manages the distribution of assignments to teaching assistants for marking. If you are missing an assignment grade or are uncertain about the status of your assignment, you should contact the coordinator.

COURSE COPYRIGHT

All materials created for this course (i.e., video recordings, course notes, coding examples, PowerPoint slides, assignments, tutorials, quizzes, tests, and exams) remain the intellectual property of the instructor and are **protected by copyright**. They are intended for the personal and non-transferable use of students registered in the course. Reproducing, reposting, and/or redistributing any course materials, in part or in whole, without the written consent of the instructor is a copyright violation and is strictly prohibited. Many students are eager to post their work on GitHub, but you must be careful **not** to include copyrighted material.

ACADEMIC INTEGRITY

All coursework submitted for marks in this course (assignments, quizzes, exams, etc.) must be completed **individually** and without the use of any artificial intelligence-based tools (AI). You can discuss your thoughts and ideas with classmates. However, you cannot share your work with others or submit anything except what is your own work. Copying or modifying solutions from others or online sources is not allowed. Similarly, providing access to your work, rough drafts, or source code to others or enabling plagiarism in any way constitutes a serious offence. If you suspect that someone has gained access to your work without

permission, you are required to inform the instructor immediately. Be aware that **electronic tools may be used to analyze and compare submissions** to detect potential academic misconduct.

If you are unsure of the expectations regarding academic Integrity (how to use and cite references, if unauthorized collaboration with lab- or classmates is permitted (and, if so, to what degree), then you must **ASK** your instructor. Sharing assignment or quiz specifications or posting them online (to sites like Chegg, CourseHero, OneClass, etc. or even GitHub) is **ALWAYS** considered academic misconduct. You are **NEVER** permitted to post, share, or upload course materials and your coursework without explicit permission from your instructor. Academic integrity offences are reported to the office of the Dean of Science. Information, process and penalties for such offences can be found on the ODS webpage: https://science.carleton.ca/students/academic-integrity/.

Examples of academic integrity offences include giving/emailing your solutions (even if incomplete) to other students; posting course materials or solutions to a website (including GitHub) at any time (even after the conclusion of the course); copying solutions from any sources, even cited ones; submitting solutions (even if incomplete), written by AI or anyone other than the student submitting the work.

CHAT GPT/GENERATIVE AI USAGE

Many of the assessed activities in this course were designed to be completed by an individual working alone. Unless it is explicitly stated otherwise, the **use of any AI system will be considered academic misconduct**. This includes, but is not limited to, chatbots or code generators (e.g., ChatGPT, Google Gemini, Microsoft Copilot), research assistants (e.g., Elicit), and image generators (e.g., Stable Diffusion, Dall-E), etc.

An exception to the above rule is made for automated grammar and punctuation checking tools (such as Grammarly).

SCHOOL OF COMPUTER SCIENCE LAPTOP REQUIREMENT

Every student that has been enrolled in a 1000-level (i.e., first year) course offered is required to have a laptop. This includes COMP1001, COMP1005, and COMP1006. For more information, please visit https://carleton.ca/scs/scs-laptop-requirement/ and then review the requirements at https://carleton.ca/scs/scs-laptop-requirement/laptop-specs/.

UNDERGRADUATE ACADEMIC ADVISORS

The Undergraduate Advisors for the School of Computer Science are available in Room 5302HP; or by email at scs.ug.advisor@cunet.carleton.ca. The undergraduate advisors can assist with information about prerequisites and preclusions, course substitutions/equivalencies, understanding your academic audit and the remaining requirements for graduation. The undergraduate advisors will also refer students to appropriate resources such as the Science Student Success Centre, Learning Support Services and Writing Tutorial Services.

SCS COMPUTER LABORATORY

Students taking a COMP course can access the SCS computer labs. The lab schedule and location can be found at: https://carleton.ca/scs/tech-support/computer-laboratories/. All SCS computer lab and technical

support information can be found at: https://carleton.ca/scs/tech-support/. Technical support staff may be contacted in-person or virtually, see this page for details: https://carleton.ca/scs/tech-support/contact-it-support/.

MENTAL HEALTH AND WELLNESS

Discover the tools and resources Carleton offers to help understand, manage and improve your mental health and wellness while at university: the Carleton Wellness Website.

ACADEMIC ACCOMMODATIONS AND REGULATIONS

Academic Accommodation

Carleton is committed to providing academic accessibility for all individuals. You may need special arrangements to meet your academic obligations during the term. The accommodation request processes are outlined on the Academic Accommodations website (https://students.carleton.ca/course-outline/).

Chat GPT/Generative AI Usage

As our understanding of the uses of AI and its relationship to student work and academic Integrity continue to evolve, students are required to discuss their use of AI in any circumstance not described here with the course instructor to ensure it supports the learning goals for the course.

Academic Integrity

Students are expected to uphold the values of academic Integrity, which include fairness, honesty, trust, and responsibility. Examples of actions that compromise these values include but are not limited to plagiarism, accessing unauthorized sites for assignments or tests, unauthorized collaboration on assignments or exams, and using artificial intelligence tools such as ChatGPT when your assessment instructions say it is not permitted.

Misconduct in scholarly activity will not be tolerated and will result in consequences as outlined in Carleton University's Academic Integrity Policy. A list of standard sanctions in the Faculty of Science can be found here.

Additional details about this process can be found on the Faculty of Science Academic Integrity website.

Students are expected to familiarize themselves with and abide by Carleton University's Academic Integrity Policy.

Student Rights & Responsibilities

Students are expected to act responsibly and engage respectfully with other students and members of the Carleton and the broader community. See the 7 Rights and Responsibilities Policy for details regarding the expectations of non-academic behaviour of students. Those who participate with another student in the commission of an infraction of this Policy will also be held liable for their actions.

Student Concerns

If you have any concerns regarding this course, your first point of contact is me. Please email me or visit during my student hours, and I will do my best to address your concerns. If I cannot resolve the issue, the next point of contact is the School of Computer Science at studentconcerns@scs.carleton.ca. If the concern remains unresolved, the final point of contact is the Office of the Dean of Science at ODScience@carleton.ca. Please follow this order of contact. **Note:** You can also bring your concerns to Ombuds services.