Land Acknowledgement

We, the people of the Faculty of Science at Carleton University, acknowledge that our campus is located on the traditional, unceded territories of the Algonquin Anishinabeg people. Miigwetch for your hospitality and stewardship of this territory and the teachings that come from it. We are grateful for this land, the air that we breathe, and the water that sustains us all as well as for the animals, plants and other living beings: these enable us to research, teach, mentor, support, study, and learn. We recognize our responsibility to our natural environment and to reconciliation with Indigenous peoples.

Course Information

Instructor Details

Robert Collier
robert.collier@scs.carleton.ca

Course Website

"Merge COMP1005:1405 B:C:D"
https://brightspace.carleton.ca/d2l/home

Please use the email address above for questions of a personal or confidential nature.
All other questions must instead be posted to the official discussion forums (on Brightspace).

Lecture Hours

COMP 1405 B	COMP 1405 C	COMP 1405 D
Tuesday‡ / Thursday†	Tuesday‡ / Thursday†	Wednesday‡ / Friday†
13:05 – 14:35	11:30 – 13:00	11:30 – 13:00

‡ The lectures on September 3rd and 4th will be conducted Online via Zoom
† Starting the week of September 8th, Thursday and Friday lectures will be conducted Online via Zoom.

Check Carleton Central for the locations for the in-person lectures and tutorial sessions.
Once available, the Teaching Assistant Office Hours schedule will be posted to Brightspace.
Office Hours with the instructor are held online via Zoom and are available by appointment.

Calendar Description

"Introduction to computer science and programming, for computer science students. Topics include: algorithm design; control structures; variables and types; linear collections; functions; debugging and testing. Special attention is given to procedural programming in a modern language, computational thinking skills, and problem decomposition."

Precludes: BIT1400, CGSC1005, ECOR1031, ECOR1041, ECOR1042, ECOR1051, ECOR1606, ITEC1400, ITEC1401, SYSC1005.

Prerequisite(s): COMP1405 is restricted to students registered in the B.C.S. program, B.Cyber. program, B.D.S. program, combined Honours in Computer Science and Mathematics, Honours Computer Mathematics, and Honours Computer Statistics.

Topics Covered

If a student attends every lecture and completes every assignment and tutorial, then by the end of this course that student should be able to:

- design and express simple algorithm using flowcharts and pseudocode
- implement simple algorithms using the Python 3 programming language
- create expressions with arithmetic, logical, and comparative operations
- create branching and repeating control structures, with and without nesting
- explain variable assignment, primitive data types, and the basics of computer memory
- design and implement functions and explain function scope and recursion
- create, access, and manipulate linear, multidimensional, and associative collections
- implement and discuss the efficiency of some basic sorting and searching algorithms
- describe and make effective/appropriate use of artificial intelligence-based coding tools

Assessment Scheme

Performance in this course is assessed using several components, including a collection of weekly tutorials (beginning the week of September 8th), six (6) assignments, two (2) midterm quizzes (released October 9th and November 20th), and a final examination (scheduled by the Registrar).

Final grades will be determined using the scheme detailed in the table below.
No extra credit assignments will be provided under any circumstances.

Component	Each	Weight	Details
Assignments (6)	8 %	40 %	Biweekly; Computed from Best 5 of 6 (IFF all 6 completed – see below) Refer to the Tentative Calendar for Deadlines
Tutorials (10)	1%	10 %	Weekly (with a mandatory but unmarked "Introductory Tutorial") Refer to the Tentative Calendar for Deadlines
Midterm 1 of 2	15 %	30%	Available October 9th and October 10th on Brightspace
Midterm 2 of 2	15 %		Available November 20th and November 21st on Brightspace
Final Exam	20%	20%	To Be Determined

n.b., Missed assignments always receive a grade of zero, but this component of the grade will be computed using a "best 5 of 6" rule (i.e., dropping the lowest) if and only if a complete and satisfactory (i.e., would receive a passing grade) submission for each assignment was received by the date specified.

Laptop Requirement (School of Computer Science)

Every student that has been enrolled in a 1000-level (i.e., first year) course offered by the School of Computer Science after the 2020/2021 school year is required to have a laptop. 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/.

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

Assessment Policies

Assignments and tutorials are not optional components and you will upload your submissions to Brightspace. The assignment component of your final grade may be computed using only the best five of the scores you receive and, as a result, the instructor does not grant exemptions under any circumstances. You are expected to work on your assignments consistently once they are released. Under extenuating circumstances, if you are seeking additional accommodations (perhaps due to an ongoing medical issue, for instance), you may petition the Associate Dean's office.

Assignment and tutorial submissions are handled electronically (i.e., through Brightspace) and although they are technically due on Fridays by 11:59pm EST, submissions will also be accepted up to a "cut-off" deadline 48 hours later (i.e., on Sundays at 11:59pm EST). There is no further "grace period" beyond that, and any assignment submitted even one minute after the "cut-off" deadline is considered "late" and will receive a mark of zero. Any missed assignment will receive a zero, but the final grade assignment component will be computed using the best 5 of the 6 grades received if and only if all assignments are received and satisfactory by Friday, December 5th, at 11:59pm EST.

Source code submissions that cannot be compiled and/or executed will receive a mark of zero. Any files being submitted (i.e., assignments) must have the correct filenames and the specified format. Assignments that are incorrectly named or in the incorrect format will be penalized and may receive a mark of zero. Consequently, after you have uploaded your submission, you are required to re-download it immediately and ensure that your submission was correct.

Technical problems do not exempt you from any of the requirements above, so if you wait until the last minute and then have issues with your internet connection (for instance), you will still receive a mark of zero. Consequently, it is a formal requirement of this course that you periodically upload your progress (at least once every 48 hours) and attempt your final submission at least one hour in advance of the due date and time.

Midterm examinations are also mandatory (i.e., not optional) and will be conducted online using Brightspace. Each of the two midterm exams will be available during a 48-hour period. Refer to the tentative calendar posted to Brightspace for more details. Please note that students must ensure that they only attempt midterm examinations from a location with a strong internet connection and maintain (i.e., keep fully updated) both a primary and a backup web browser.

Students with an illness on the day of a midterm or tutorial may be granted an exemption only if they fully complete the Academic Consideration for Coursework Form that is available online from https://carleton.ca/registrar/academic-consideration-coursework-form/. Please note that students cannot be medically exempted from an activity they have attempted, and please also note that a student cannot, under any circumstances, be exempted from both midterm examinations or more than one of the tutorial activities.

Plagiarism Policies

Most of the activities in this course were designed to be completed individually and without the use of any artificial intelligence-based tools. Unless it is explicitly stated otherwise, the use of any artificial-intelligence based tools will be considered academic misconduct. This includes, but is not limited to, chatbots (e.g., ChatGPT, Google Bard, Bing Chart), research assistants (e.g., Elicit), and image generators (e.g., Stable Diffusion, Dall-E), etc.

If you are unsure of the expectations regarding academic integrity (how to use and cite references, if collaboration with lab- or classmates is permitted (and, if so, to what degree), then you must ask your instructor. Sharing assignment, quiz, or tutorial specifications with anyone or posting them online (to sites like Chegg, CourseHero, OneClass, etc.) is always considered academic misconduct (at any time, even after the course has concluded).

All materials created for this course (including, but not limited to, lecture notes, in-class examples, tutorial exercises, assignments, examinations, and posted solutions) remain the intellectual property of the instructor. These materials are intended for the personal and non-transferable use of students registered in the current offering of the course.

Reposting, reproducing, or redistributing any course materials, in part or in whole, without the written consent of the instructor, is strictly prohibited.

There is a separate plagiarism policy document for this course that can be found on the course website. Students must read this document thoroughly and must agree to abide by this policy (and all policies stated in this course outline) before any resources will be made available.

You are never permitted to record, post, share, or upload course materials (even for portfolio purposes) without explicit permission from your instructor. Academic integrity offences are reported to the office of the Dean of Science and details about the process and penalties for such offences can be found at: https://science.carleton.ca/students/academic-integrity/.

In the event that a student has been found to have committed an instructional offence, a penalty will be applied to that student's final grade. If the penalty applied by the Office of the Associate Dean is less than the total value of the activity, the remaining weight is shifted onto the weight of the final exam. Consider the following example: if the course has an assignment worth 10% and a final worth 40% and a student plagiarizes and receives a 50% deduction to his or her assignment, their final exam would be worth 45% of the final mark and the plagiarized assignment would be worth nothing. To clarify, 50% of the 10% allocated to the assignment was lost and the remaining 50% of the 10% allocated to the assignment was shifted to the final.

Students are invited to discuss any concerns with the instructor at the earliest opportunity.

Important Considerations

This is a synchronous course and attendance to the lectures is mandatory. Lecture slides will be available, but these resources should be considered supplementary and often feature only a cursory, higher-level overview of the corresponding lecture. In addition to the time spent attending lectures and tutorials, every student should expect to spend at least eight (8) hours per week (on average) on this course. Students are responsible for all materials, including lecture notes, tutorial exercises, and all materials discussed in class and on any of the official discussion boards.

Students should pose all questions related to the course using the official discussion boards and must avoid emailing the instructor directly unless the question contains confidential information or is of a personal nature. The instructor will attempt to answer every student email received within three business days of the time the message was received, unless the email requests information already posted on the official discussion boards or in the course outline. To ensure that all announcements are received, students are required to check the forums and their Carleton email addresses on a daily basis.

It is the responsibility of the student to ensure that quiz, tutorial, and assignment marks posted to Brightspace are correct. Students are required to thoroughly review their marks and feedback within one week of the date the marks are released. Concerns or complaints must be communicated (first to the teaching assistant, then, if the result is unsatisfactory, to the instructor) within that one-week period after the release. After that one week, no further consideration will be offered and any student requests to correct or revise marks will not be accepted for any reason.

Additional Notes

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

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/.

You are also required to read the information at:
http://calendar.carleton.ca/undergrad/regulations/academicregulationsoftheuniversity/

COMP 1405/1005 A (Fall 2025) – "Introduction to Computer Science I"

Carleton University

Course Outline

This calendar is tentative and subject to change.

	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
Week 1	1	2	3 Fundamental Topics	4 Fundamental Topics	5	6
Week 2 Introductory Tutorial	8	9 Variables, Types, and Simple Pipelines	10 Variables, Types, and Simple Pipelines	11 Logical Operations and Branching	12 Logical Operations and Branching	13 Assignment 01 ← Due Friday
Week 3 Tutorial 1	15	16 Nested Branching Structures	17 Nested Branching Structures	18 Looping Structures and External Files	19 Looping Structures and External Files	20
Week 4 Tutorial 2	22	23 Counter-Controlled and Nested Loops	24 Counter-Controlled and Nested Loops	25 Linear Collections: Lists and Strings	26 Linear Collections: Lists and Strings	27
Week 5 Tutorial 3	29	30 Imperative and Procedural Paradigms	1 Imperative and Procedural Paradigms	2 Global and Local Scope	3 Global and Local Scope	4 Assignment 02 ← Due Friday
Week 6 Tutorial 4	6	7 Project Management and Pair Programming	8 Project Management and Pair Programming	9 Quiz 1 of 2	10 Quiz 1 of 2	11
Week 7 Tutorial 5	13	14 No Classes	15 No Classes	16 Dictionaries and Synthetic Text	17 Dictionaries and Synthetic Text	18 Assignment 03 ← Due Friday
Week 8 No Tutorials	20 No Classes (Reading Break)	21 No Classes (Reading Break)	22 No Classes (Reading Break)	23 No Classes (Reading Break)	24 No Classes (Reading Break)	25
Week 9 Tutorial 6	27	28 Object-Oriented Design and Simulation	29 Object-Oriented Design and Simulation	30 Multidimensional Lists, Graph Representation	31 Multidimensional Lists, Graph Representation	1 Assignment 04 ← Due Friday
Week 10 Tutorial 7	3	4 Working with Large Language Models	5 Working with Large Language Models	6 Debugging Approaches and Test Case Design	7 Debugging Approaches and Test Case Design	8
Week 11 Tutorial 8	10	11 Introduction to Recursive Design	12 Introduction to Recursive Design	13 *"Buffer Class" (to be determined)*	14 *"Buffer Class" (to be determined)*	15 Assignment 05 ← Due Friday
Week 12 Tutorial 9	17	18 Introduction to Search and Time Efficiency	19 Introduction to Search and Time Efficiency	20 Quiz 2 of 2	21 Quiz 2 of 2	22
Week 13 Tutorial 10	24	25 Introduction to Sorting and Recursive Sorting	26 Introduction to Sorting and Recursive Sorting	27 Exception Handling	28 Exception Handling	29 Assignment 06 ← Due Friday
Week 14 No Tutorials	1	2 *"Buffer Class" (to be determined)*	3 *"Buffer Class" (to be determined)*	4	5 All Missed Assignments Must Be Received	6