

Course Outline

COMP 1405 - Introduction to Computer Science I

Description

A first course in programming emphasizing problem solving and computational thinking. Topics include variables, conditionals, iteration, arrays, objects, functions, sorting, searching, and simulation.

Topics Covered

Here is a list of the main topics covered:

- An Introduction to Computer Science and Problem Solving
- Variables and Functions
- Program Flow
- Data Structures
- File I/O
- Exception Handling
- Object Oriented Programming
- Searching and Sorting
- Recursion

Course Objectives

This course will teach you how to solve problems using computers. You will learn the fundamental concepts and control structures that are used to write computer programs. By the end of this course, you should be able to write computer programs to solve problems. Although you will learn the Python language, the programming concepts carry over to nearly all other programming languages.

Textbook

The textbooks for this course are strongly recommended as supplemental material to that which the student can draw from the course lectures, tutorials, and assignments. That is, these texts are recommended but not required.

- [Starting Out with Python 4th Edition](#) by T. Gaddis (3rd or 2nd editions are ok too)
- [How to think like a Computer Scientist](#): Interactive Edition (free, interactive text)

Evaluation

Students will be evaluated in this course according to the following measures:

Component	Weight	Tentative Dates*
Tutorials (x10)	10% (1% each)	Weekly
Assignments (x5)	40% (8% each)	Sept 26 Oct 15 Nov 1 Nov 15 Dec 5
Mid-term tests (x2)	20% (10% each)	Oct 10(C) 11(D) Nov 19(C) 20(D)
Final Exam	30%	TBA

*Due dates subject to change. Announcements will be made in lecture and on the course website.

Tutorials

Tutorials will be scheduled weekly. You must attend the tutorial in which you are registered. Tutorial exercises will be released in advance of the week in which you are to complete them. You may complete the tutorial exercises on your own time as well as during scheduled tutorial hours. You must submit your completed tutorials, in person, during your own scheduled tutorial. In order to receive full marks you must complete the work and demonstrate your understanding of the topic to an attending TA before leaving. No late tutorials will be accepted.

Assignments

- There will be 5 assignments in this course.
- All assignments will be made available on the course website as they are released.
- All assignments submissions must be your own individual and original work (see [plagiarism](#)).
- Recommendations:
 - Do not wait until the last minute to submit your assignments. Start early and keep submitting partially completed versions. That way, if you get sick, your partially completed version will be marked, and you will not get 0.
 - Aim to submit your final submission *at least* one hour in advance of the due date and time.
 - Being sick on the day an assignment is due is not an excuse for not doing it. Last minute issues (e.g., home internet/device failure, sudden illness) are not considered acceptable excuses for having completed no work over the duration that the assignment was available.
 - Always keep a backup of your work, perhaps on a USB flash drive, via Dropbox/OneDrive, or by sending yourself an email with your assignment attached. That way you can access your code from anywhere.

- If any instructions are unclear, please ask for clarification. Incorrect assumptions or misunderstood directions will not be accepted as valid excuses. It is your responsibility to ensure you understand the question completely.
- Submission Guidelines:
 - You will be using Carleton's cuLearn system to submit your assignments and view your grades throughout the term.
 - You should take the time to ensure that assignments are neat, legible and easy to understand. A portion of your grade for assignments will be given for the readability of them and for your demonstration that you have completed the assigned tasks. Often this is in the form of documentation and testing.
 - The assignment page will have a section on submission guidelines. Please observe all special requirements placed there as well.
 - DO NOT email your assignments to any TAs nor the Instructor unless requested to do so.
 - It is your responsibility to ENSURE that your submission was successful. Submitting the wrong file or failure to correctly submit your work will result in a mark of zero for that assignment. Consequently, after you upload your submission to cuLearn you must re-download it immediately and ensure that it is the correct type of file, it has the correct filename, and that it can be opened/run (as appropriate).
- Grading:
 - All assignments submitted through cuLearn will be graded by the TAs or the Instructor.
 - All assignments are counted towards the final grade, and no extra credit assignments will be provided.
 - Grading turn-around is expected to be within one week of the submission deadline, though this may vary depending on the volume and complexity of assignments.
 - You will be provided with a mark and feedback on your assignment through cuLearn as well.
 - You should ensure that the posted marks are correct.
 - Any concerns regarding assignment marks should be brought to the attention of the person who marked it, not the instructor. TA and Instructor emails are available via the [Contact](#) page.
 - If the TA is unable to reasonably assess your concerns either they or you may contact the instructor to arbitrate the discussion.
 - Voicing your concerns must be done **no later than two weeks** after the assignment has been returned to you. After this time, no remarking will be done.
- Late Policy & Accommodations:
 - Assignments must be handed in before the due date and time.
 - You will be given a sufficient amount of time to complete each assignment.
 - Any assignments submitted after the deadline will be marked with a late penalty. There is no grace period.
 - The standard late penalty is -25% per day. (E.g., if your assignment is 1 second late, your maximum grade is 75%, 24 hours and 1 second late, your maximum possible grade is 50%).

- If an assignment indicates that no lates will be accepted then the late penalty will be -100% immediately following the deadline.
- *Any* changes made to an assignment submission after the deadline (even minor or insubstantial ones) will result in the *entire* submission being considered late.
- Any submissions subject to a 100% late penalty will not be marked.
- Being sick on the due date of an assignment (or any other last-minute interruption) is not sufficient cause for accommodation.
- If you are sick for an extended period of time, please inform the instructor (not the TAs). You will need to have [official documentation](#) of illness, which should be submitted as early as possible. Such situations will be handled on a case-by-case basis at the discretion of the instructor.
- Accommodations will not be provided after the due date for any reason.

Mid-term Tests

Two mandatory closed-book tests will be held during regular lecture time. You must attend, write, and submit your test immediately upon completion in order to be graded. By sitting to write any test you are confirming that you are of sound mind and body to do so. No accommodations will be made after that point.

If you are unable to attend the test due to extenuating circumstances, you must inform the instructor via email before the test is scheduled to begin. You will need to submit a doctor's note (or other equivalent documentation) to verify your condition. Doctor's notes must be submitted within one week of the listed accommodation date. Accommodations are granted at the discretion of the instructor. Failure to follow the above instructions will result in a grade of 0 for your missed test.

Graded tests will be returned during tutorial. Please speak with your TA regarding any such concerns or question. Any remark requests must be done at the time of test return. After this time absolutely no remarking will be done. It is your responsibility to ensure that your test marks posted to cuLearn are correct, and to do so within two weeks of those marks being made available.

Final Exam

The time and place, as well as the format of the final exam will be announced later in the term. Attendance of this exam is mandatory. Do not make travel plans until the dates are known as no advance exams will be given. The exam period can be found at <http://carleton.ca/registrar/registration/dates-and-deadlines/>. The deferral process for formally scheduled exams is handled through the registrar's office, see [the registrars website](#) for more details.

Learning Outcomes

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:

- Use a programming language to write computer programs (in the imperative paradigm)
- Explain the difference between designing an algorithm and implementing an algorithm in source code
- Apply different problem-solving heuristics (e.g., divide-and-conquer, abstraction, etc.)
- Explain the following topics:
 - data types, variable assignment, conditional logic, Boolean values
 - branching, repeating, and nested control structures, "if" statements, "for" and "while" loops
 - one-dimensional and multi-dimensional lists, other collections (dictionaries, etc.)
 - functions and recursion, objects for data storage, simulation
- Implement some basic searching and sorting algorithms

Plagiarism & Collaboration Policy

While sharing of ideas among peers is encouraged, sharing of solutions, source code, or other gradable material is prohibited. Collaborating on assignments, quizzes, tests, or final exams is strictly disallowed. You must complete the work by and *for* yourself. If you need help please use the course cuLearn forum, see a TA, or contact your instructor.

Any coursework that you submit for grades must be your own original solutions developed specifically for the currently registered course offering. Any work submitted that does not meet this description will be considered an act of plagiarism. To ensure that no instances of academic misconduct have been committed, electronic tools may be used to analyze and compare submissions.

Please note, that it is also a serious offense to aid another student in committing plagiarism. This includes (but is not limited to): sharing source code or other assignment, test, or tutorial solutions in part or in full, in person or in posting whether on the course forum, github or other online source repository, hallway noticeboard, or elsewhere.

Copyright & Fair use of materials

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, or person with interest in using the material for the purpose of their own learning. Reposting, reproducing, or redistributing any course materials, in part or in whole, without the written consent of the instructor, is strictly prohibited.

Electronic Communication

To ensure that all course announcements are received, **students are expected to check their Carleton email on a daily basis.**

Students are asked to pose all questions related to **course content** using the official **discussion board(s) on cuLearn**. Questions regarding the marking of your test/assignment should be directed to the individual who marked it. If your question is private or individual in nature please do not hesitate to contact the TAs or instructor via email. In order to ensure accuracy and accountability, *all* requests for course accommodations must be done via email to the instructor.

Emails to the TAs or instructor must include the course name in the subject line. If your email is in regards to a tutorial, you should also include your tutorial section in the subject line. E.g.: Subject: [Comp1405D] Please Help." Failure to do so may result in delays in response times or your message being missed completely. The instructor will attempt to answer every course-related email within 2 business days of the time it is received.

All emails and office hours are listed on the course [Contact](#) page.

SCS Computer Accounts

Any student taking an SCS course qualifies to have an SCS account. SCS accounts can be created at the following URL: <http://www.scs.carleton.ca/newacct>. SCS students can access one of the designated labs for your course. The labs are operational 7 days a week 24 hours per day, please be advised that the building will be closed overnight, Mon. - Fri. 23:00 - 8:00 and on weekends from 17:00 - 8:00. Technical support is available in room HP5161 Monday to Friday from 9:00 until 17:00. The lab schedule can be found at: <https://scs.carleton.ca/technical-support/computer-laboratories>. All SCS computer lab and technical support information can be found at: <http://www.scs.carleton.ca/nethelp>.

Undergraduate Academic Advisor

The Undergraduate Advisor for the School of Computer Science is available in Room 5302C HP, by telephone at 520-2600, ext. 4364 or by email at undergraduate_advisor@scs.carleton.ca. The undergraduate advisor can assist with information about prerequisites and preclusions, course substitutions/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.

Centre for Student Academic Support

The Centre for Student Academic Support (CSAS) is a centralized collection of learning support services designed to help students achieve their goals and improve their learning both inside and outside the classroom. CSAS offers academic assistance with course content, academic writing and skills development. Visit CSAS on the 4th floor of MacOdrum Library or online at: carleton.ca/csas.

University Policies

Student Academic Integrity Policy

Every student should be familiar with the [Carleton University student academic integrity policy](#). A student found in violation of academic integrity standards may face penalties ranging from a reprimand to receiving a grade of F in the course or even being expelled from the program or University. Some examples of offences are: plagiarism and unauthorized co-operation or collaboration.

Plagiarism

As defined by Senate, "plagiarism is presenting, whether intentional or not, the ideas, expression of ideas or work of others as one's own". Such reported offences will be reviewed by the office of the Dean of Science.

Unauthorized Co-operation or Collaboration

Senate policy states that "to ensure fairness and equity in assessment of term work, students shall not cooperate or collaborate in the completion of an academic assignment, in whole or in part, when the instructor has indicated that the assignment is to be completed on an individual basis". Please refer to the course outline statement or the instructor concerning this issue.

Requests for Academic Accommodation

You may need special arrangements to meet your academic obligations during the term. For an accommodation request, the processes are as follows:

Pregnancy obligation

Please contact your instructor with any requests for academic accommodation during the first two weeks of class, or as soon as possible after the need for accommodation is known to exist. For more details, visit the [Equity Services website](#)

Religious obligation

Please contact your instructor with any requests for academic accommodation during the first two weeks of class, or as soon as possible after the need for accommodation is known to exist. For more details, visit the [Equity Services website](#)

Academic Accommodations for Students with Disabilities

If you have a documented disability requiring academic accommodations in this course, please contact the Paul Menton Centre for Students with Disabilities (PMC) at 613-520-6608 or pmc@carleton.ca for a formal evaluation or contact your PMC coordinator to send your instructor your Letter of Accommodation at the beginning of the term. You must also contact the PMC no later than two weeks before the first in-class scheduled test or exam requiring accommodation (if applicable). After requesting accommodation from PMC, meet with your instructor as soon as possible to ensure accommodation arrangements are made. For more information visit the [PMC website](#)

Survivors of Sexual Violence

As a community, Carleton University is committed to maintaining a positive learning, working and living environment where sexual violence will not be tolerated, and is treated with the seriousness it deserves. Survivors are supported through academic accommodations as per Carleton's Sexual Violence Policy. For more information about the services available at the university and to obtain information about sexual violence and/or support, [visit here](#).

Accommodation for Student Activities

Carleton University recognizes the substantial benefits, both to the individual student and for the university, that result from a student participating in activities beyond the classroom experience. Reasonable accommodation must be provided to students who compete or perform at the national or international level. Please contact your instructor with any requests for academic accommodation during the first two weeks of class, or as soon as possible after the need for accommodation is known to exist. [More information](#)

For more information on academic accommodation, please contact the departmental administrator or visit: students.carleton.ca/course-outline

See all of [Carleton University's Academic Regulations](#)
