Carleton
University

Course Outline

COMP1001 – Intro. to Computational Thinking for Arts and Social Science Students

Description

An introduction to computational thinking and its applications to the arts and social sciences. Students will gain computational thinking skills by exploring data representation, basic programming concepts, a selection of algorithms, and advanced usage of software packages for the arts and social sciences.

Course Information

Instructor	**Andrew Runka**
Contact	arunka@scs.carleton.ca
Office	HP 5368
Lectures:	Tue/Thu – 10:05a-11:35a
	Room location is posted on Carleton Central
Course Website	Link is available on Brightspace
Course Forum	Link is available on Brightspace

Topics Covered

Below is a summary of topics the course will cover:
- An Introduction to Computer Science and Problem Solving
- Variables, Expressions, and Data Types
- Program Flow, Conditionals, and Repetition
- Functions
- Linear Data Structures
- File I/O
- Searching, and Sorting algorithms
- MS Excel fundamentals
- Excel functions, conditional formatting, and pivot tables

Learning Outcomes

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. Although you will learn the Python language, the programming concepts carry over to nearly all other programming languages. If a student attends every lecture and completes all assigned materials, then by the end of this course that student should be able to:

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- **Apply structured problem-solving techniques** to design and implement simple programs. **Demonstrate foundational programming skills** in Python by writing, tracing, and executing code using variables, operators, and expressions.
- **Control program flow** through the correct application of conditionals, loops, and functions to implement structured solutions.
- **Apply debugging and testing strategies** to identify, explain, and correct syntax and logic errors in simple programs.
- **Work with core data structures** (strings, lists, and dictionaries) to process and transform information.
- **Read from and write to files** for persistent storage and retrieval of data.
- **Implement and analyze basic algorithms** for searching and sorting data.
- **Apply computational methods** to practical tasks using Python libraries and spreadsheet tools (e.g., formulas and cell references in Excel).

Course Delivery

Lectures will be provided in advance of each week as asynchronous online videos, available on the course website. These videos will be accompanied by a set of slides, practice problems, and other resources.

Scheduled in-person lecture times will be used for weekly quizzes, instructional support, and collaborative working space. Students are expected to watch the videos and review the associated materials before attending the in-person sessions.

Our course website is hosted on Brightspace. Students are required to be familiar with everything posted there. It is recommended to check our course website at least three times a week.

We will use Discord as our course forum. The forum is not anonymous. Students will be required to use an alias that includes their first and last name, as listed on Brightspace.

Textbook

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

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

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

Evaluation Scheme

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

Component	Quantity	Weight	Total Weight	Tentative Dates*
Assignments	Best 5 of 6	4% each	20%	Due Bi-weekly
Quizzes	Best 8 of 9	5% each	40%	Weekly, during scheduled lectures
Midterm tests	2	10% each	20%	2025-10-10 2025-11-14
Final Exam	1		20%	TBA

Except as described above, assessment items will not be reweighted.

*Due dates here are subject to change. Announcements will be made via the course Brightspace and on the course website. A calendar of course due dates will be posted to BrightSpace.

Other important dates and deadlines can be found here, including class suspension for fall, winter breaks, and statutory holidays.

Assignments

- There will be 6 assignments in this course.
- All assignments will be made available on the course website as they are released.

- **Grading:**
  - All assignments submitted through BrightSpace before the due date will be graded for feedback by the course staff.
  - The best 5 of 6 assignments are counted towards the final grade, and no extra credit assignments will be provided.
  - All assignments submissions must be your own individual and original work unless stated otherwise (see plagiarism).
  - 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 feedback on your assignment through BrightSpace.
  - 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.
  - Regrading requests must be done **no later than one week** after the assignment has been returned to you. After this time, no remarking will be done.

- **Submission Guidelines:**
  - You will be using Carleton's BrightSpace 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 may be given for the readability of them and for your demonstration that you have completed the assigned tasks, in the forms of documentation and testing.

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- o Please observe any/all special requirements placed in the Submission section of the Assignment specification as well.
  - o DO NOT email your assignments to any TAs nor the Instructor unless requested to do so.
  - o 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 BrightSpace 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).

- **Late Policy & Accommodations:**
  - o Assignments are due at 11:59pm on the due date. **No late assignments will be accepted.**
  - o You should plan your time accordingly to ensure that you can complete the assignment on time.
  - o It is recommended that you submit your assignment at least 30 minutes before the deadline to avoid any last-minute issues.
  - o 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.
  - o 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(s) completely.

Weekly Quizzes

Weekly quizzes will be held during the scheduled lecture time. Completion of these quizzes is a mandatory component of the course. The best **8 of 9** quizzes will be counted towards your final grade. **No deferred quizzes will be given.**

These quizzes are expected to be completed individually, and without electronic aid; any communication or access of electronic devices (e.g. cellphones) during the quiz will be considered cheating. You must attend, write, and submit your quiz immediately upon completion in order to be graded.

Mid-term Exams

Two mandatory closed-book tests will be held during scheduled in-person lecture times (in place of the regular weekly quiz) Completion of these tests is a mandatory component of the course. Both midterm exams will be counted towards your final grade.

These tests are expected to be completed individually, and without electronic aid; any communication or access of electronic devices (e.g. cellphones) during the quiz will be considered cheating. 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**. 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. Deferred tests may be scheduled on evenings or weekends

depending on availability. Failure to attend a deferred test will result in a grade of zero for the original missed grade item, there will be no deferred deferrals.

Please speak with the course staff regarding any concerns or question. Any re-grading 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 BrightSpace 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.

Academic Integrity & Collaboration Policy

Although sharing of ideas among peers is encouraged, sharing of solutions, source code, plans, or any portion of gradable material is prohibited. **Collaborating on quizzes, tests, assignments or final exams is strictly disallowed.** You must complete the work *by* and *for* yourself. You are never permitted to copy (or copy and modify) solutions (even if incomplete) from anyone or from the Internet. If you need help please use the course 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.

The use of artificial intelligence tools (e.g. ChatGPT, Copilot, etc.) to generate code or other solutions to graded assessments is strictly prohibited in this course. Any work submitted for grades that has been generated by such tools will be considered an act of plagiarism.

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. You are NEVER permitted to post, share, or upload course materials or your course work without explicit permission from your instructor

For more information regarding Academic Integrity at Carleton including the policies, best practices, and the standard sanctions for misconduct, please visit the Faculty of Science website

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 **course Discord server**. 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: [COMP 1001] 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.

Demonstration of understanding

Thank you for reading the course outline. Please email me your favourite joke with the subject line "Course Outline jokes!" to demonstrate that you got this far. Also feel free to ask for any clarifications.

SCS Laptop Requirement

Everyone enrolled in a 1st year COMP course is required to have a laptop. For more information please visit the SCS Laptop Requirement page. A laptop may be required in this course to complete in-class exercises, midterms and/or exams.

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

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, including information about the *Academic Consideration Policy for Students in Medical and Other*

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Extenuating Circumstances, are outlined on the Academic Accommodations website (**students.carleton.ca/course-outline**).

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, but in no case later than the second last week of classes for that term. 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, but in no case later than the second last week of classes for that term. 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