

Course Description:

A first course in programming emphasizing problem-solving and computational thinking. Topics include algorithm, data types, conditionals, iteration, data structures, functions, objects, testing, sorting, searching, and run-time analysis.

Instructor: Farah Chanchary (she/her)

Email: farahchanchary@cunet.carleton.ca

Lectures: Monday and Wednesday: 16:35 – 17:55

Location: See Carleton's schedule for the most up-to-date location

Tutorials: A1 - Monday: 19:35 - 20:55

A2 - Wednesday: 19:35 - 20:55

Course Website: all course materials and resources will be available on Brightspace.

Online platform for Q/As: all questions pertaining to lectures, tutorials, exams, and course material will be answered on Discord. Sign-up information to our official Discord server can be found on the course website. Students are encouraged to post all course-related questions on the appropriate Discord channel.

Office Hours: Tuesday 2-4 pm on Discord. Feel free to contact me if you want an appointment some other time. TA's office hours and contact information are available on the course website.

Learning Modality:

- Lectures will be synchronous and in person. The recordings (technology permitting) will be posted on the course website after the lecture.
- Tutorials will be synchronous, on-campus. You must bring a laptop to the tutorials. See Carleton's laptop requirements [here](#).
- Assignments and weekly quizzes will be submitted online via Brightspace.
- Final exam and in-class tests will be synchronous, on-campus. You must bring a laptop to the exams.
- Office hours will be conducted online on our official Discord server (see course website for the link to join). Do not hesitate to contact me if you require in-person office hours.

Recommended Textbooks:

This course does not require any official textbook. Some recommended free online textbooks (one with free, interactive text) can be found below. You are encouraged to follow any one or more of these e-books.

1. [How to Think Like a Computer Scientist: Interactive Edition](#) - provides immediate feedback on your answers. If you do not prefer the interactive edition, you can use [this link](#).
2. [Think Python - 2nd Edition by Allen Downey](#) - a good general overview of the Python language. Includes exercises.
3. [Python for Everybody - Exploring Data Using Python 3 by Dr. Charles R. Severance](#) - a book on Python language with a focus on data exploration.

Assessment Scheme:

In this course, students will be evaluated according to the following criteria.

Criteria	#	Total %	Tentative dates*
Practice Problems	Best 9/11	9%	weekly, beginning the week of Sept 12th, due on Friday at 11:59 pm (see the course calendar on Brightspace)
Tutorials	Best 10/11	10%	weekly, beginning the week of Sept 12th, due on Friday at 11:59 pm (see the course calendar on Brightspace)
In-class tests	2	10 + 15 = 25%	Oct 9 th and Nov 23 rd (tentative) more information will be available on Brightspace
Assignments + Self-evaluation quizzes	Best 4/5	34 + 2 = 36%	weekly, see the course calendar for due dates. Self-evaluation quizzes are associated with assignments, more information is available on Brightspace
Final	1	20%	scheduled by the Registrar
Bonus - best 2 of the remaining tutorial and practice problem scores		2%	will be applied at the end of the term

*Dates are subject to change. Announcements will be made in the class and on the course website.

Software Requirements:

We will use Python (version 3.x) in this course. Download and install the latest version of Python from the [official website](#). Installation instructions are available in the Tutorial-1 specification on the course website.

In addition, you would benefit from using an IDE (Integrated Development Environment). You are recommended to download and configure Visual Studio Code (VS Code) or the IDE of your choice. IDE installation instructions are available in Tutorial -1 specification.

- Download and setup VS Code
<https://code.visualstudio.com/docs>
- Python in Visual Studio Code
<https://code.visualstudio.com/docs/languages/python>
- Getting Started with Python in VS Code
<https://code.visualstudio.com/docs/python/python-tutorial>

Practice Problems:

Every week a set of practice problems related to the lecture materials will be posted on Brightspace. These questions will test your knowledge of the concepts and the grammar of the Python programming language. Hopefully, this will reinforce your understanding of these programming tools to think computationally and solve problems. Each problem set will open on Monday and is **due on Friday at 11:59 pm**. Multiple attempts within the week are allowed. **The best 9 scores will be counted.** Late attempts will not be allowed.

Tutorials:

Tutorials will be done weekly. Attendance is not mandatory, however **tutorial questions will only be answered during the tutorials**. To receive full marks, you must submit the completed work on Brightspace by the deadlines. **The best 10 scores will be counted.** Late submissions will not be accepted.

In-class Tests:

Tests will be held during lecture time. You must attend, write, and submit your tests immediately upon completion to be graded. If you are unable to attend a test due to extenuating circumstances, you must inform the instructor via email **before the test begins**. There will be no make-up test but students who receive accommodations will have the weight of the missed test moved to the next one or the Final exam. Accommodations are granted at the discretion of the instructor. Failure to follow the above instructions will result in a grade of zero (0) for your missed test.

Assignments:

All assignments will be made available in Brightspace, and you will use Brightspace to submit your assignments. The assignment component of your final grade is computed from the score you receive on the best four (4) out of five assignments. **All assignment submissions must be your individual and original work (see Plagiarism section below).**

Assignment submission: multiple submissions are allowed before the due date. You are expected to work on your assignments consistently once they are released (uploading your progress periodically). As a result, **the instructor does not grant exemptions for the assignments due to sudden sickness, or any technical problems** such as problems regarding internet connectivity or computer hardware and/or software. **No provision is made for missed assignments, and no extra credit assignments will be available.** Therefore, you are advised to:

- periodically upload your progress (i.e., upload your progress at least daily).
- attempt to submit your final submission at least one hour in advance of the due date and time.

Assignment submissions are handled electronically, so there is no "grace period" with respect to the deadline. For each assignment, you will be submitting one or more files that contain source code, and these files must be given the correct filename and be provided in the specified format. **Assignments that are incorrectly named or in the incorrect format will be penalized and may receive a zero (0) mark.**

If any of the source code files you submit **does not run**, it will receive a zero mark. Consequently, after you upload your submission to Brightspace you must re-download it immediately and ensure that:

- your submission is a "zip" file that is not corrupt (i.e., it can be opened properly).
- each of your source code files can be run from an IDE or command line without error.
- each of your source code files can be viewed in a text editor (for marking purposes).
- your submission and each of your source code files follow the proper naming scheme.

You are expected to demonstrate good programming practices at all times, and your code may be penalized if it is poorly written.

Final Exam

The time and the format of the final exam will be announced later in the term. The registrar's office will schedule the exam time and more information can be found on the [exam schedule website](#). The deferral process for formally scheduled exams is handled through the registrar's office as well, see the registrar's website for more details.

Grading and Appeal:

All assignments, tutorials, and tests submitted through Brightspace will be graded by the TAs. Practice problems will be auto graded. It is your responsibility to ensure that your marks (assignments, tutorials, tests, practice problems) published in Brightspace are correct within **seven (7) working days** of the date the marks were released. Concerns or complaints about the grading must be communicated first to the TA who marked your work, then, if the result is unsatisfactory, to the instructor within that time. After that one week, no further consideration will be offered, and students will not be able to request their marks be changed under any circumstances.

Carleton has temporarily suspended the need for doctor's notes or medical certificates for academic accommodation requests related to COVID-19. In place of a doctor's note or medical certificate, students will be advised to complete and send me the [self-declaration form](#) available on the Registrar's Office website to request academic accommodation for missed exams. No medical documents are required for a missed assignment/tutorial/practice problems as the 'best-of' policy will be in effect for these assessment criteria. **Please note** that a student **cannot**, for any reason, be exempted from more than 1 tutorial, 2 practice problems, 1 assignment, and 1 test.

Bonus:

Any remaining tutorials and practice problems outside of your best submissions as explained above are available for the bonus points. Bonus points are completely optional; not doing bonus points will not negatively impact your final grade. At most 2 bonus points can be added to your final mark, and they cannot move you from an F to a passing grade.

Learning Outcomes:

If a student engages with the course material and completes all assignments, tutorials, and practice problems, 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 differences between algorithm design and implementation

- Apply different problem-solving heuristics (e.g., divide-and-conquer, abstraction)
- Explain the following topics:
 - data types, variable assignment, propositional logic, Boolean values, strings
 - branching, repeating, and nested control structures (i.e., "if", "for", "while")
 - data structures - lists, dictionaries, tuples, etc.
 - functions, scopes, and recursion
 - objects and classes for data storage and manipulation
 - runtime analysis
- Implement some basic searching and sorting algorithms

Plagiarism Policy:

Any student that violates academic integrity (intentionally or not) must be reported to the Associate Dean (Undergraduate) who will investigate the matter. The standard penalties for an academic integrity violation are as follows:

- First offence (everyone else): F in the course
- Second offence: One-year suspension from the program
- Third offence: Expulsion from the University

Note: these are minimum penalties. More-severe penalties will be applied in cases of egregious offences. Penalties for such offences can be found on the [ODS webpage](#).

There is a separate plagiarism policy document for this course that is located on Brightspace. Students must read this document thoroughly and must agree to adhere to this policy (and to all policies stated in this course outline) before the assignment resources will be made available.

If you are still unsure of the expectations regarding academic integrity (how to use and cite references, how much collaboration with lab or classmates is appropriate), you are invited to discuss any concerns with the instructor at the earliest opportunity.

Respect in the Classroom and Forums: Please remember to treat your peers and the course staff with respect. Treat the course spaces as professional spaces and behave accordingly. This includes any in-person activity and any course-related forums (Brightspace, Discord) and other electronic communications (emails). It is not acceptable to use offensive language or disparage a person or group, no matter the intent. Behavioural misconduct may be reported to Student Affairs. We recommend you read over our discord #rules-please-read channel and 'Class respect and Behaviour' on Brightspace course page. You are responsible for behaving within these parameters. If you feel you have been disrespected or abused either by other students or course staff, please contact us (email) immediately.

Additional Notes

In addition to the time spent reading/viewing lecture materials and completing tutorials, students can expect to spend **at least ten (10) hours per week** on this course. Students are responsible for all course materials, including lecture notes, tutorial exercises, and all materials discussed in class and on any of the official discussion forums.

Students are asked to **pose all questions related to course content using the official discussion boards on Discord**; students **should not email 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 two (2) working days of the time the message was received unless the email requests information already posted on Brightspace, Discord, or in this course outline. To ensure that all announcements are received, **students are expected to check their email daily**.

Copyright: All materials created for this course (including, but not limited to, lecture notes, recorded videos, 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 whole, without the written consent of the instructor, is strictly prohibited.

Undergraduate Academic Advisor

The Undergraduate Advisor for the School of Computer Science is available in Room 5302C HP; 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.

University Policies

For information about Carleton's academic year, including registration and withdrawal dates, see [Carleton's Academic Calendar](#).

Academic accommodations: The Carleton University Information on Academic Accommodation applies to this course. Here is [information](#) on how to apply for academic accommodation.

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 be awarded penalties which range from a reprimand to receiving a grade of *F* in the course or even being expelled from the program or University. Examples of punishable offences include: plagiarism and unauthorized co-operation or collaboration. Information on this policy may be found [here](#).

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. Standard penalty guidelines can be found [here](#).

Unauthorized Co-operation or Collaboration. Senate policy states that "to ensure fairness and equity in assessment of term work, students shall not co-operate 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.

Information for Pandemic Measures: It is important to remember that COVID is still present in Ottawa. The situation can change at any time and the risks of new variants and outbreaks are very real. There are [a number of actions you can take](#) to lower your risk and the risk you pose to those around you including being vaccinated, wearing a mask, staying home when you're sick, washing your hands and maintaining proper respiratory and cough etiquette.

Feeling sick? Remaining vigilant and not attending work or school when sick or with symptoms is critically important. If you feel ill or exhibit COVID-19 symptoms do not come to class or campus. If you feel ill or exhibit symptoms while on campus or in class, please leave campus immediately. In all situations, you must follow Carleton's [symptom reporting protocols](#).

Masks: Carleton has paused the [COVID-19 Mask Policy](#), but continues to strongly recommend masking when indoors, particularly if physical distancing cannot be maintained. It may become necessary to quickly reinstate the mask requirement if pandemic circumstances were to change.

Vaccines: Further, while proof of vaccination is no longer required as of May 1 to attend campus or in-person activity, it may become necessary for the University to bring back proof of vaccination requirements on short notice if the situation and public health advice changes. Students are strongly encouraged to get a full course of vaccination, including booster doses as soon as they are eligible, and submit their booster dose information in [cuScreen](#) as soon as possible. Please note that Carleton cannot guarantee that it will be able to offer virtual or hybrid learning options for those who are unable to attend the campus.

All members of the Carleton community are required to follow requirements and guidelines regarding health and safety which may change from time to time. For the most recent information about Carleton's COVID-19 response and health and safety requirements please see the [University's COVID-19 website](#) and review the [Frequently Asked Questions \(FAQs\)](#). Should you have additional questions after reviewing, please contact covidinfo@carleton.ca.

Territory Acknowledgement: I would like to acknowledge that the location of the Carleton University campus is on the traditional, unceded territories of the Algonquin nation. In doing so, I acknowledge that I and Carleton University have a responsibility to the Algonquin people and a responsibility to adhere to Algonquin cultural protocols.

SCS Tech Support: Technical support information can be found at: <https://carleton.ca/scs/technical-support/>. Technical support is available in room HP5161 Monday to Friday from 9:00 until 17:00 or by emailing SCS.Tech.Support@cunet.carleton.ca.