
Course Outline

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

Course Information

Instructor Name**Dave McKenney****Instructor Email**david.mckenney@carleton.ca**Lecture Hours****Office Hours**

Monday and Wednesday

<https://www.carleton.ca/culearn/>

14:35 – 15:55

Azrieli Theatre, Room 302

Course Forum<https://www.carleton.ca/culearn/>**Course Website**<https://www.carleton.ca/culearn/>

Required Textbook

Readings will be assigned from the following online textbook:

http://do1.dr-chuck.com/pythonlearn/EN_us/pythonlearn.pdf

Assessment Scheme

Your performance in this course will be formally assessed using **three (3) in-tutorial midterms** (weeks #5, #9, and #12) and a **final examination** (to be scheduled by the registrar). Your final grade will be calculated using the grades you achieve on these components using the following weights:

Midterms: 20% each, 60% total

Final Examination: 40%

There will also be many practice problems available throughout the course. The goal of these is to provide learning opportunities for you and to prepare you to succeed on the midterms and exam. These items will not be formally assessed and will not contribute toward your final grade. However, you are expected to attend office hours and tutorials to discuss your solutions with TAs and receive feedback on your work. This step is extremely important in ensuring that you are properly understanding the course content and setting yourself up for success on the midterms and exams. Since the practice problems are not formally graded, you are free to discuss them openly with other students in the class as well.

There will be an opportunity for an additional project later in the course, which can be used to decrease the weight of your final exam by up to 10%. This will involve creating additional practice problems and solutions to be used in future offerings of this course. More information will be provided as the term progresses.

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Learning Outcomes

If a student attends every lecture and completes the recommended 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/procedural 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 and apply them in the design and implementation of computer programs:
 - data types, variable assignment, propositional logic, Boolean values
 - branching, repeating, and nested control structures, "if" statements, "for" and "while" loops
 - one-dimensional and multi-dimensional lists, other collections (i.e., dictionaries)
 - functions and recursion, simulation
- Implement some basic searching and sorting algorithms
- Understand the basics of runtime/memory complexity analysis and identify/discuss trade-offs between different algorithmic solutions

Important Considerations Regarding Illness

Students with an illness on the day of a midterm might be granted an exemption if and only if they provide a Carleton University Medical Certificate (http://carleton.ca/registrar/wp-content/uploads/med_cert.pdf) that has been completed and signed by a physician.

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 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. Some examples of offences are plagiarism and unauthorized co-operation or collaboration. Information on this policy may be found in the Undergraduate Calendar.

Plagiarism

As defined by the 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 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". For the purposes of this course, the only items you are not allowed to collaborate or cooperate on are the midterms and final exams. All practice problems, which are not allocated any formal grades, can be working on with others in the course.

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

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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.

Religious Obligation and 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: carleton.ca/equity/wp-content/uploads/Student-Guide-to-Academic-Accommodation.pdf

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 its 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: carleton.ca/sexual-violence-support

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. <https://carleton.ca/senate/wp-content/uploads/Accommodation-for-Student-Activities-1.pdf>

Medical Certificate

The following is a link to the official medical certificate accepted by Carleton University for the deferral of final examinations or assignments in undergraduate courses. To access the form, please go to <http://www.carleton.ca/registrar/form>

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

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 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.

You must also read: <http://calendar.carleton.ca/undergrad/regulations/academicregulationsoftheuniversity/>

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Additional Notes

Including the time spent attending lectures and completing practice problems, 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, practice problem exercises, and all materials discussed in class and on any of the official discussion boards.

Students are asked to pose all questions related to course content using the official public forums; 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 48 hours of the time the message was received, unless the email requests information already posted on cuLearn or in the course outline. All emails regarding the course should be sent from your Carleton email account. To ensure that all announcements are received, students are expected to check their Carleton email on a daily basis.

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.

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