Course Outline

COMP 1405: A first course in programming emphasizing problem solving and computational thinking. Topics include pseudocode, variables, conditionals, iteration, arrays, objects, functions, sorting, searching, and simulation.

COMP 1406: A second course in programming emphasizing problem solving and computational thinking in an object-oriented language. Topics include abstraction, mutable data structures, methods, inheritance, polymorphism, recursion, program efficiency, testing and debugging.

Course Information

Instructor Name	**Dave McKenney**
Instructor Email	**david.mckenney@carleton.ca**
Lecture Hours	**Course Webpage**
Monday and Tuesday	**https://culearn.carleton.ca**
8:35 – 9:55 AM	
Online	
Course Discord Server	**Course GitHub**
Link will be posted soon	Link will be posted soon

Course Delivery

This course will be delivered using a mix of asynchronous and synchronous delivery methods (i.e., using a blended approach). Required lecture material will be delivered via pre-recorded videos. Scheduled lecture and tutorial sessions will be used to deliver supplementary material and activities, as well as for further discussion of course concepts, practice problems, and course projects. Where possible, scheduled activities will be recorded and shared with students for later use. The scheduled lecture times will also be used for the midterm and final exam within the 1405 portion of the course. The instructor, lab coordinator, and TAs will be available via Discord during scheduled hours to answer questions and clarify topics. Students will be required to use an alias that includes their first and last name, as listed on cuLearn, in the course Discord and in any other course meetings or activities (Zoom, etc.).

Required Textbook

This course will not require the purchase of any textbooks. Reading material will be shared on the course Discord server and GitHub page.

Assessment Scheme – COMP 1405Z

Your performance in the COMP 1405 portion of the course (first half of term) will be formally assessed using several components. These include **one (1) midterm, one (1) course project proposal, one (1) course project, one (1) final exam, as well as community participation throughout the first half of the term**. Your final grade will be calculated using the grades you achieve on these components using the following weights:

Midterm (during lecture time, Tuesday October 6th)	20%
Final Exam (during lecture time, Tuesday November 3rd)	25%
Course Project Proposal	5%
Course Project	30%
Community Participation	20%

Course Outline

You are required to achieve a grade of at least 50% on the exam in order to pass the 1405 portion of this course. A grade of less than 50% on the final exam will result in a failing grade for the 1405 portion. **Additionally, to be eligible to complete the 1406 portion of the course, a student must receive an overall grade of C or higher in the 1405 portion. No exceptions will be made on the above cut-offs**. In the event a student does not qualify to proceed to the 1406 section of the course, remedial 1405 work will be assigned, and the student will be given a chance to redo each graded 1405 assessment in the second half of the term.

Assessment Scheme – COMP 1406Z

Your performance in the COMP 1406 portion of the course (second half of term) will be formally assessed using several components. These include **one (1) course project proposal, one (1) course project, one (1) final exam, as well as community participation throughout the second half of the term**. Your final grade will be calculated using the grades you achieve on these components using the following weights:

Final Exam (to be scheduled by exam services)	25%
Course Project Proposal	5%
Course Project	50%
Community Participation	20%

You are required to achieve a grade of at least 50% on the final exam in order to pass the 1406 portion of this course. A grade of less than 50% on the final exam will result in a failing grade for the 1406 portion.

Learning Outcomes – COMP 1405

If a student engages with all lecture material, completes the recommended practice problems, and regularly participates in supplementary activities, 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

Learning Outcomes – COMP 1406

If a student engages with all lecture materials, completes the recommended practice problems, and regularly participates in supplementary activities, then by the end of this course that student should be able to:
- Implement computer programs using the object-oriented programming paradigm and the Java programming language
- Understand and effectively apply the key principles of object-oriented programming: encapsulation, abstraction, inheritance, and polymorphism
- Understand the basic memory model of Java programs
- Solve problems using a recursive approach
- Work with abstract data types to solve problems
- Apply exception handling to build fault-tolerant programs

Course Outline

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. For more information, including the Standard Penalty Guideline, see https://science.carleton.ca/academic-integrity/.

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". Please refer to the course outline statement or the instructor concerning this issue.

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 details, visit the Paul Menton Center 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.

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.

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 where 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

Course Outline

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. For more details, see the policy.

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/

Additional Notes

Including the time spent viewing lectures, completing practice problems, and working on other course material, **students can expect to spend at least twenty (20) hours per week on this course**. Students are asked to pose all questions related to course content using the official course Discord server. 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 inquiry received within 48 hours of the time the message was received, unless the email requests information that has already been addressed in the course Discord server 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 and the course Discord server 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.