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	**Instructor Email**
Dave McKenney	davidmckenney@cunet.carleton.ca

Scheduled Lecture Hours	**Course Webpage**
Wednesdays	http://brightspace.carleton.ca/
11:35 AM – 2:25 PM	

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 shared through Brightspace. Scheduled in-person lecture hours will be used to deliver supplementary material and activities, as well as for further discussion of course concepts, practice problems, tutorials, and the course projects. Where possible, recordings of in-person activities will also be shared online.

Required Textbook

This course will not require the purchase of any textbooks. Reading material will be shared on Brightspace.

SCS Laptop Requirement

Everyone enrolled in a 1st year COMP course after the 2020/2021 school year 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. Additional proctoring software may also be required for midterms and exams.

Assessment Scheme – COMP 1405Z

Your performance in COMP 1405Z (early fall term) will be formally assessed using several components. These include **five (5) tutorials, one (1) midterm, one (1) course project, and one (1) final exam**. Your final grade will be calculated using the grades you achieve on these components using the following weights:

Tutorials (5 x 4% each)	20%
Midterm (Wednesday, October 4th, 11:35am-2:25pm)	20%
Course Project	30%
Final Exam (to be scheduled by Exam Services)	30%

You are required to achieve a grade of at least 50% on the final exam to pass COMP 1405Z. A grade of less than 50% on the final exam will result in a failing grade for COMP 1405Z. For more information about how this will be handled, see the "What happens if I fail COMP 1405Z in the first half of the term?" section below.

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Assessment Scheme – COMP 1406Z

Your performance in COMP 1406Z (late fall term) will be formally assessed using several components. These include **five (5) tutorials, one (1) midterm, one (1) course project, and one (1) final exam**. Your final grade will be calculated using the grades you achieve on these components using the following weights:

Tutorials (5 x 4% each)	20%
Midterm (Wednesday, November 22nd, 11:35am-2:25pm)	20%
Course Project	30%
Final Exam (to be scheduled by Exam Services)	30%

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

Important Dates and Deadlines

As this course is split into an early fall term course (COMP 1405Z) and a late fall term course (COMP 1406Z), there are several important dates and deadlines you should make note of (drop dates, fee adjustments, etc.). For a complete list of University dates and deadlines, see https://calendar.carleton.ca/academicyear/

What happens if I fail COMP 1405Z in the first half of the term?

If you do not successfully pass COMP 1405Z in the first half of the term, or you withdraw from the COMP 1405Z course, you will not be allowed to complete COMP 1406Z in the second half of the term. However, you will be able to register for an alternate COMP 1405U section in the late fall term. During this time, you can recomplete and submit any COMP 1405Z course work to improve your early fall term grade. You will also be allowed to complete a second exam held in December. More information will be emailed to students who do not pass COMP 1405Z.

Learning Outcomes – COMP 1405Z

If a student successfully 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 1406Z

If a student successfully 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

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- Solve problems using a recursive approach
- Work with abstract data types to solve problems
- Apply exception handling to build fault-tolerant programs

Incentive Program

This course has been registered in the Incentive Program offered through the Centre for Student Academic Support (CSAS). The Incentive Program is **fully online**. CSAS Learning and Writing Support Workshops are designed to help students cultivate and refine their academic skills for a university environment. To earn 10% bonus marks in this course, students are expected to complete 10 workshops throughout the term (1 workshop = 1% bonus). The workshops must be completed by Friday October 20th to receive credit in COMP 1405Z and completed by Friday December 8th to receive credit in COMP 1406Z. Students will be able to choose how to assign any valid bonus percentages (e.g., 2% to COMP 1405Z and 6% to COMP 1406Z if you completed at least 2 workshops prior to October 20th and 6 other workshops before December 8th). Unused bonus from the COMP 1405Z section can be applied to COMP 1406Z grades.

For students' attendance to be captured, they must complete all workshop components and achieve 100% on the final assessment. Once students achieve 100% on the final assessment, they will receive a **Record of Completion award** from Brightspace. Students will need to download the Record of Completion PDF for each applicable workshop and submit them to the assignment submission box within their instructor's course. For more information about workshop attendance and submitting the Records of Completion, please visit the Incentive Program Policies website.

To view the complete list of the workshops and their descriptions, please visit the Learning and Writing Support Workshops page on the CSAS website. Please note that CSAS in-person workshops are not eligible for the Incentive Program.

To access the online workshops, please self-enrol on the CSAS Online Resources page. **Recommended workshops to complete for this course: Learning Preferences, Academic Integrity, Balance Life and Learning, Building Successful Study Habits, Critical Thinking, Academic Reading, Editing and Proofreading, Effective Presentations, Introduction to Fundamentals of Academic Writing, Introduction to Starting Academic Papers**.

For further information on the Incentive Program, please visit the Incentive Program FAQs page. For additional questions, please contact the Centre for Student Academic Support at csas@carleton.ca.

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/.

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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. 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.

Use of AI Systems (e.g., ChatGPT, etc.)

Many of the assessed activities in this course were designed to be completed by an individual student working alone. Unless it is explicitly stated otherwise, the use of any AI tool to complete work will be considered academic misconduct. This includes, but is not limited to, chatbots (e.g., ChatGPT, Google Bard, Bing Chart), research assistants (e.g., Elicit), and image generators (e.g., Stable Diffusion, Dall-E), etc.

Academic Accommodations

Carleton is committed to providing academic accessibility for all individuals. Please review the academic accommodation available to students here: https://students.carleton.ca/course-outline/.

Undergraduate Academic Advisor

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

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

Additional Notes

This is an accelerated course that covers two courses in one term. Including the time spent viewing and attending 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.

Upon request, each student will be granted one 72-hour extension during the term. This extension can be used for any single tutorial or the course project. The extension may not be applied to midterms or exams. To receive the extension, the student must email the instructor before the official deadline that they wish to receive the extension for. Outside of this one-time exception, no late submissions will be allowed. Assignment submissions are handled electronically (i.e., through Brightspace) and there is no "grace period" with respect to a deadline - an assignment submitted even one minute after the deadline is late and will receive a mark of zero.

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Technical problems do not exempt you from this requirement, so if you wait until the last minute and then have issues with your connection, you will still receive a mark of zero. Consequently, you are advised to periodically upload you progress (e.g., upload your progress at least daily) and attempt to submit your final submission at least one hour in advance of the due date and time.

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 mark of zero.
If any of the source code files you submit does not run, it may receive a mark of zero. Consequently, **after you upload your submission to Brightspace you should re-download it immediately and ensure that**:
• your submission is the correct file type and has the correct filename
• each of your source code files can be run successfully
• each of your source code files can be viewed in a text editor (for marking purposes)
You are expected to demonstrate good programming practices at all times and your code may be penalized if it is poorly written. You are also expected to do the necessary preparatory work (i.e., devising an algorithm) before you start coding. You may be asked to present either pseudocode or a flowchart before you will receive any assistance from the instructor or a teaching assistant.

The instructor will attempt to answer every student inquiry received within 48 hours of the time the message was received, unless the request is for information that has already been addressed 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.