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## 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.*

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## Course Information

### Instructor Name

Dave McKenney

### Instructor Email

[david.mckenney@carleton.ca](mailto:david.mckenney@carleton.ca)

### Live Lecture Hours

Tuesdays/Wednesdays  
8:35 – 11:25 AM

Online

Information will be posted on Brightspace/Discord

### Course Webpage

<http://brightspace.carleton.ca/>

### Course Discord

Information will be posted on Brightspace

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## 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 Tuesday lecture sessions held through Zoom will be used to deliver supplementary material and activities, as well as for further discussion of course concepts, practice problems, and the course projects. Where possible, scheduled live activities will be recorded and shared with students for later use. Scheduled Wednesday lecture times will be used for the midterm and final exam for COMP 1405Z, as well as the midterm for COMP 1406Z. The instructor, lab coordinator, and TAs will be available via Discord during scheduled hours to answer questions and assist students. Students will be required to use an alias that includes their first and last name, as listed on Brightspace, in the course Discord and in any other course meetings or activities (Zoom, etc.).

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## Required Textbook

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

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## Assessment Scheme – COMP 1405Z

Your performance in COMP 1405Z (first half of 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 6 <sup>th</sup> , 8:30-11:30am)	20%
Course Project	30%
Final Exam (Wednesday, November 3 <sup>rd</sup> , 8:30-11:30am)	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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## Course Outline

### Assessment Scheme – COMP 1406Z

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Your performance in COMP 1406Z (second half of 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 24 <sup>th</sup> , 8:30-11:30am)	20%
Course Project	30%
Final Exam (scheduled by the University during exam period)	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.

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

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If you do not successfully pass COMP 1405Z in the first half of the term, there will be several options available to you:

1. Remain registered in both courses and complete COMP 1406Z course work while concurrently redoing course work from COMP 1405Z. You may redo any of the tutorials from the course or the course project to improve your grade. A second COMP 1405Z exam will be held at the end of the term and can be used to replace your original exam grade. A second midterm will not be offered.
2. Drop COMP 1405Z but remain in COMP 1406Z. Typically, this is not allowed as COMP 1405 is a prerequisite for COMP 1406, but temporary exceptions are being made for the Z section. You will still be required to successfully complete COMP 1405 at some point in the future.
3. Drop both COMP 1405Z and COMP 1406Z. You will be able to retake COMP 1405 in the Winter term and COMP 1406 in the Summer term.

The instructor will contact any students that have failed COMP 1405Z to provide further information if necessary.

### Learning Outcomes – COMP 1405Z

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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

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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

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## Course Outline

- 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

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## 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. 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.

### 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](mailto: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](#).

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## Course Outline

### 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](http://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. For more details, [see the policy](#).

### Undergraduate Academic Advisor

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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](mailto: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

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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 course project. The extension may not be applied to midterms or exams. In order 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.

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 your 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.

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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 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. **Posting, 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.**