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	david.mckenney@carleton.ca

Scheduled Lecture Hours	Course Webpage
Tuesdays/Thursdays	http://brightspace.carleton.ca/
11:35 AM – 2:25 PM	
SA 624	**Course Discord**
	Information will be posted on Brightspace

Course Delivery

This course will be delivered using a mix of asynchronous and synchronous delivery methods (i.e., using a blended approach). Most lecture material will be delivered via pre-recorded videos shared through Brightspace. Scheduled 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.

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 (Thursday, October 6th, 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.

Course Outline

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 (Thursday, November 24th, 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. Some of these important dates are listed below. For a complete list of University dates and deadlines, see https://calendar.carleton.ca/academicyear/

Sept. 7th	**First day of early Fall term.**
Sept. 13th	Last day for registration and course changes in early fall courses.
Sept. 20th	Last day for registration and course changes in late fall courses.
Sept. 20th	**Last day to withdraw from early fall courses with a full fee adjustment.** Withdrawals after this date will result in a permanent notation of WDN on the official transcript.
Sept. 30th	Last day to request Formal Examination Accommodations Forms for Oct/Nov final examinations to the Paul Menton Center for Students with Disabilities.
Oct. 1st	**Last day for academic withdrawal from early fall courses.**
Oct. 10th	**Statutory holiday. University closed.**
Oct. 14th	Last day for summative tests or examinations, or formative tests or examinations totaling more than 15% of the final grade, in early fall term undergraduate courses, before the official Oct/Nov final examination period.
Oct. 21st	**Last day of early fall classes. Last day that can be specified by a course instructor as a due date for term work for early fall courses.**
Oct. 24th-28th	**Fall break, no classes.**
Oct. 29th-30th	**Final examinations in early fall undergraduate courses will be held.**
Oct. 31st	**Late fall classes begin.**
Nov. 5th-6th	**Final examinations in early fall undergraduate courses will be held.**
Nov. 11th	**Last day to withdraw from late fall term courses with a full fee adjustment.** Withdrawals after this date will result in a permanent notation of WDN on the official transcript.
Nov. 11th	Last day to request Formal Examination Accommodation Forms for December full fall and late fall final examinations and fall/winter midterm examinations to the Paul Menton Centre for Students with Disabilities.
Nov. 15th	**Last day for academic withdrawal from full fall and late fall courses.**
Nov. 18th-20th	**Early fall undergraduate deferred final examinations will be held.**
Dec. 2nd	Last day for summative tests or examinations, or formative tests or examinations totaling more than 15% of the final grade, in late fall term undergraduate courses, before the official final examination period.
Dec. 9th	**Fall term ends.** Last day of late fall classes. **Classes follow a Monday schedule.** Last day that can be specified by a course instructor as a due date for term work for full and late fall courses.
Dec. 10th-22nd	**Final examinations in full fall and late fall courses will be held.** Examinations are normally held all seven days of the week.

Course Outline

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 a second section of COMP 1405Z 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 COMP 1405Z 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
- 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 October 21st to receive credit in COMP 1405Z and completed by December 9th 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 21st and 6 other workshops before December 9th).

Course Outline

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 on our 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

Special 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

Course Outline

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.

Doctor's note or medical certificate: in effect for Fall 2022 term. In place of a doctor's note or medical certificate, students are advised to complete the self-declaration form available on the Registrar's Office website to request academic accommodation for missed course work including exams and assignments. Students should also discuss with the course instructor the required accommodations arising from the COVID-19 situation.

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 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.

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

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

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

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 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.

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.

Course Outline

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. **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.