COMP1006:1406 B:E (Winter 2025)
Introduction to Computer Science II
Course Outline

We, the people of the Faculty of Science at Carleton University, acknowledge that our campus is located on the traditional, unceded territories of the Algonquin Anishinabeg people. We are grateful for this land, the air that we breathe, and the water that sustains us all as well as for the animals, plants, and other living beings: these enable us to research, teach, mentor, support, study, and learn. We recognize our responsibility to our natural environment and to reconciliation with Indigenous peoples.

**Course Description:** 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.

**Instructor:** Farah Chanchary (she/her)

**Email:** farahchanchary@cunet.carleton.ca

**Lectures:** Monday/Wednesday: Section B: 10:05 – 11:25, Section E: 14:35 – 15:55

**Tutorials:**

| | |
|---|---|
| B1 | Monday: 16:05 - 17:25 |
| B2 | Thursday: 08:35 - 09:55 |
| B3 | Thursday: 14:35 - 15:55 |
| E1 | Friday: 10:05 - 11:25 |
| E2 | Friday: 14:35 - 15:55 |
| E3 | Thursday: 17:35 - 18:55 |

**Location:** Please check Carleton Central for the most up-to-date room location.

**Course Website:** All course materials and resources will be available on Brightspace.

**Office Hours:** TA's office hours and contact information are available on the course website.

**Learning Modality:**

- Lectures will be in person.
- Tutorials will be in person. Attendance is not mandatory but recommended. You must bring a laptop to the in-person tutorials. See Carleton's laptop requirements here.
- Assignments and weekly quizzes will be asynchronous and delivered via Brightspace.
- The midterm and final exams will be in person. The midterm exams will be held during lecture hours. You must attend your section.

**Topics Covered and Learning Outcomes:**

If a student engages with the course material and completes all assignments, tutorials, and practice problems, then by the end of this course that student should be able to:

- Implement object-oriented computer programs using 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
- Work with abstract data types to solve problems
- Apply exception handling to build fault-tolerant programs
- Create basic graphical user interfaces using the JavaFX library
- Save data to and load data from files

A detailed list of topics to be covered, including dates and required reading for each week is available in Brightspace.

**Assessment Scheme:**
In this course, students will be evaluated according to the following criteria.

| Criteria | Frequency | Total % | Tentative dates* |
|---|---|---|---|
| Quizzes | Best 10/11 | 10% | Weekly, due on Friday at 11:59 pm |
| Tutorials | Best 10/11 | 20% | Weekly, due on Friday at 11:59 pm |
| Midterm exams (in-person) | 2 | 20% | Wednesday, February 12 and Wednesday, March 26 |
| Assignments + self-evaluation quizzes | 4 | 30% | Self-evaluation quizzes are associated with assignments, more information is available on the course web page |
| Final exam | 1 | 20% | Scheduled by the exam services |
| Bonus | Remaining quiz, and tutorial scores | 2% | It will be applied at the end of the term. |

*Dates are subject to change. Announcements will be made in the class and on the course website.

Important dates and deadlines can be found here: https://carleton.ca/registrar/registration/dates/academic-dates/, including class suspension for the winter breaks, and statutory holidays.

**Double-pass rule:** This course does not use a double-pass rule. To pass it, a student must obtain at least 50% of the overall course weight.

**Software Requirements:** we will use Java programming language in this course. Download the latest JDK for your computer's operating system from Oracle's official website (https://www.oracle.com/technetwork/java/javase/downloads/index.html). Be sure to install the JDK and not just the JRE. You may use JDK 21 or higher for this course.

**Recommended Textbooks:**
This course does not require the purchase of any textbook. Reading materials will be shared on Brightspace.

**Collaboration** is NOT allowed on any assessment criteria. Assignments, tutorials, quizzes, and exams must be completed individually. Discussing assignments, tutorials, and quiz problems is allowed on a high level, but students should write code without any assistance from others.

- The use of any AI system to generate assignment code 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. Students are not allowed to post questions/answers online (to sites like Chegg, CourseHero, etc.) and are never permitted to share or upload course materials without explicit permission from their instructor.
- There is a separate plagiarism policy document for this course in Brightspace. Students must read this document thoroughly and must agree to adhere to this policy (and to all policies stated in this course outline) before the assignment resources will be made available.
- If you are still unsure of the expectations regarding academic integrity (how to use and cite references, how much collaboration with lab or classmates is appropriate), you are invited to discuss any concerns with the instructor at the earliest opportunity.

**Late and Missed Work Policies:** all weekly quizzes and assignments are due on Friday at 11:59 pm (night). A 56-hour grace period is granted for each submission and ends on Monday at 8 am (morning). TA office hours and forum monitoring are not available during the grace period. You may submit your quiz/assignment solutions at any time within this grace period with no penalty. Beyond this submission window, extensions will not be possible for any reason.

**Weekly quizzes:** Every week a set of practice problems (MCQs, short answers, etc.) related to the lecture materials will be posted in Brightspace. These questions will test your knowledge of the concepts and the programming language. Two attempts per quiz are allowed. Late attempts will not be allowed. The best 10 scores will be counted.

**Tutorials:** Tutorials will be done weekly. To receive full marks, you must submit the completed work on Brightspace by the end of the deadlines. The best 10 scores will be counted. A few tutorials within the course will cover two topics and have double weight (double tutorials). This will be clearly stated in the tutorial specification and students will have more time to complete a double tutorial. The best 10 scores will be counted.

**Midterm exams:** The midterm exams will be held in person during lecture time. You must attend, write, and submit your exam immediately upon completion to be graded. If you are unable to attend the exam due to extenuating circumstances, you must inform the instructor via email before the exam begins. There will be no make-up exam but students who receive accommodations will have the weight of the missed exam moved to the Final/next midterm exam. Accommodations are granted at the discretion of the instructor. Failure to follow the above instructions will result in a grade of zero (0) for your missed exam.

**Assignments:** All assignments will be made available in Brightspace, and you will use Brightspace to submit your assignments. All assignment scores will be counted.

**Tutorial/Assignment submission:** multiple submissions are allowed before the due date and only the last one will be graded. You are expected to work on your assignments consistently once they are released and upload your progress on Brightspace periodically. As a result, the instructor does not grant exemptions for the assignments due to sudden sickness, or any technical problems such as problems regarding internet connectivity or computer hardware or software. No provision is made for missed assignments, and no extra credit assignments will be available. Therefore, you are advised to:

- periodically upload your progress (i.e., upload your progress whenever a change is made).
- attempt to submit your final submission at least one hour before the due date and time.

For each assignment, you will submit one or more files that contain source code, and these files must be given the correct filename and provided in the specified format. Assignments that are incorrectly named or in the incorrect format will be penalized and may receive a zero (0) mark.

**Two-factor process:** if any of the source code files you submit does not run, it will receive a zero mark. Consequently, after you upload your submission to Brightspace you must re-download it immediately and ensure that:

- your submission is a "zip" file that is not corrupt (i.e., it can be opened properly).
- each of your source code files can be run from an IDE or command line without error.
- each of your source code files can be viewed in IntelliJ (for marking purposes).
- your submission and each of your source code files follow the proper naming scheme.

You are expected to demonstrate good programming practices at all times. Your code may be penalized if it is poorly written.

**Grading and Appeal:** Midterm exams and all assignments and tutorials submitted through Brightspace will be graded by the TAs. Weekly quizzes will be auto-graded. It is your responsibility to ensure that your marks (assignments, tutorials, exams, quizzes) published in Brightspace are correct within seven (7) working days of the date the marks were released. Concerns or complaints about the grading must be communicated first to the TA who marked your work, then, if the result is unsatisfactory, to the instructor within that time. After that one week, no further consideration will be offered, and students will not be able to request their marks be changed under any circumstances.

**Bonus:** The remaining quiz and tutorial scores, if completed, will be used as bonus points. This is completely optional; not working for the bonus points will not negatively impact your final grade.

**SCS Computer Laboratory:** students taking a COMP course can access the SCS computer labs. The lab schedule and location can be found here. All SCS computer lab and technical support information can be found here. Technical support staff may be contacted in person or virtually, see this page for details.

**Additional Notes**
In addition to the time spent reading lecture materials and completing tutorials, 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, tutorial exercises, and all materials discussed in class and on any of the official discussion forums.

Students are asked to pose all questions related to course content using the official discussion boards; 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's email within three (3) working days from the message received unless the email requests information already posted on Brightspace, the discussion forum, or this course outline. To ensure that all announcements are received, students are expected to check their email daily.

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 whole, without the written consent of the instructor, is strictly prohibited.

**Plagiarism Policy:**
Any student who violates academic integrity (intentionally or not) must be reported to the Associate Dean (Undergraduate) who will investigate the matter. Penalties for such offences can be found on the ODS webpage.

There is a separate plagiarism policy document for this course that is located on Brightspace. Students must read this document thoroughly and must agree to adhere to this policy (and to all policies stated in this course outline) before the assignment resources will be made available.

If you are still unsure of the expectations regarding academic integrity (how to use and cite references, how much collaboration with lab or classmates is appropriate), you are invited to discuss any concerns with the instructor at the earliest opportunity.

**Respect in the Classroom and Forums:** Please remember to treat your peers and the course staff with respect. Treat the course spaces as professional spaces and behave accordingly. This includes any in-person activity and any course-related forums (Brightspace) and other electronic communications (emails). It is not acceptable to use offensive language or disparage a person or group, no matter the intent. Behavioral misconduct may be reported to Student Affairs. We recommend you read over the 'Class respect and Behaviour' on the Brightspace course page. You are responsible for behaving within these parameters. If you feel you have been disrespected or abused either by other students or course staff, please contact me (email) immediately.

*This calendar is tentative and subject to change.*

| | Sun | Monday | Tuesda | Wednesday | Thursday | Friday | Sat |
|---|---|---|---|---|---|---|---|
| Week 1: Introductions to the course and Java, No Tutorial | Jan 5 | 6<br>Lecture | 7 | 8<br>Lecture | 9 | 10 | 11 |
| Week 2: Classes and Objects<br>Tutorial 1 due | 12 | 13<br>Lecture | 14 | 15<br>Lecture | 16 | 17 | 18 |
| Week 3: Principles of OOP - Abstraction and Encapsulation<br>Tutorial 2 due | 19 | 20<br>Lecture | 21 | 22<br>Lecture | 23 | 24 | 25 |
| Week 4: Principles of OOP - Inheritance, Abstract Classes, and Interfaces, Tutorial 3 due | 26 | 27<br>Lecture | 28 | 29<br>Lecture | 30 | 31 | Feb 1 |
| Week 5: Principles of OOP - Polymorphism<br>Tutorial 4/5, Assignment 1 due | 2 | 3<br>Lecture | 4 | 5<br>Lecture | 6 | 7 | 8 |
| Week 6: Linear Abstract Data Types (ADTs), Tutorial 4/5 due | 9 | 10<br>Lecture | 11 | 12<br>Midterm #1 | 13 | 14 | 15 |
| Week 7<br>No Tutorials or Lectures | 16 - 22 | | | Winter break. Enjoy! | | | |
| Week 8: Non-Linear Abstract Data Types (ADTs)<br>Tutorial 6/7, Assignment 2 due | 23 | 24<br>Lecture | 25 | 26<br>Lecture | 27 | 28 | Mar 1 |
| Week 9: Exceptions, File Input/Output, Tutorial 6/7 due | 2 | 3<br>Lecture | 4 | 5<br>Lecture | 6 | 7 | 8 |
| Week 10: Intro to GUIs and JavaFX<br>Tutorial 8 due | 9 | 10<br>Lecture | 11 | 12<br>Lecture | 13 | 14 | 15 |
| Week 11: Model View Controller (MVC) Paradigm<br>Tutorial 9/10<br>Assignment 3 due | 16 | 17<br>Lecture | 18 | 19<br>Lecture | 20 | 21 | 22 |
| Week 12: Recursion and Data Structures (linked lists, binary trees)<br>Tutorial 9/10 due | 23 | 24<br>Lecture | 25 | 26<br>Midterm #2 | 27 | 28 | 29 |
| Week 13: Recursion and Data Structures (other structures)<br>Tutorial 11 and Assignment 4 due | 30 | 31<br>Lecture | Apr 1 | 2<br>Lecture | 3 | 4 | 5 |
| Week 14: Review class<br>No Tutorial | 6 | 7<br>Lecture | 8 | 9<br>No Class | 10 | 11 | 12 |

**Undergraduate Academic Advisor**
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. 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.

---------- **University Policies** ----------

For information about Carleton's academic year, including registration and withdrawal dates, see Carleton's Academic Calendar.

**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 Equity Services.

**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 Equity Services.

**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 Centre 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 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.

**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. Examples of

punishable offences include: plagiarism and unauthorized co-operation or collaboration. Information on this policy may be found here.

**Plagiarism.** As defined by 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 the 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.

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 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.