

COMP 2404 B/C :: Winter 2023 :: "Introduction to Software Engineering"

Course Outline :: Revised version :: Last modified: April 12, 2023

1. Course Information

Instructor:	Dr. Christine Laurendeau (she/her)	Lectures-B:	Tue / Thu 8:35 - 9:55 am
Email:	ChristineLaurendeau@cunet.carleton.ca	Lectures-C:	Mon / Wed 1:05 - 2:25 pm
Office:	HP 5320	Tutorials:	posted in Carleton Central
Office hours:	Wed. 10:00 am - 12:15 pm	Classrooms:	posted in Carleton Central
Teaching team:	listed in Brightspace	Web site:	Brightspace

Land acknowledgement: Carleton University acknowledges the location of its campus on the traditional, unceded territories of the Algonquin nation.

2. Course Description

Introduction to object-oriented software development, with emphasis on the design and implementation of maintainable, reusable software. Topics include abstraction, modularity, encapsulation, and an introduction to design patterns. Precludes additional credit for SYSC 3010, SYSC 3110.

Prerequisite(s): COMP 2401 with a minimum grade of C-.

3. Topics Covered

The course will cover the following topics, although some material may be omitted due to time constraints:

- Basics of C++ development: basic language features, programming conventions, basic C++ classes, memory management
- Basics of object-oriented design: object design categories, UML class diagrams
- Essential object-oriented techniques: encapsulation, inheritance, polymorphism, design patterns, overloading, templates, exception handling
- C++ library: the C++ standard template library (STL), files and streams

4. Textbook(s)

No textbook is required for this course. There are several good C++ reference books, including: Deitel and Deitel, *C++ How to Program*, any recent edition, Prentice Hall.

5. SCS Laptop Requirement

Every student that has been enrolled in a 1000-level (i.e., first year) course offered by the School of Computer Science after the 2020/2021 school year is required to have a laptop. This includes COMP1001, COMP1005, and COMP1006. For more information, please visit <https://carleton.ca/scs/scs-laptop-requirement/> and then review the requirements at <https://carleton.ca/scs/scs-laptop-requirement/laptop-specs/>.

6. Assessment Scheme (REVISED)

6.1. Students will be assessed in this course according to the following measures:

Component	Weight	Due dates
Assignments	24%	Feb. 2, Feb. 16, Mar. 9, Apr. 11
Tutorials (best 6 out of 8)	6%	Weekly
Midterm	20%	Section C: Mar. 1 Section B: Mar. 2
Final exam	50%	April 18

- 6.2. The assessment scheme in paragraph 6.1 will be in effect as long as the course remains in the in-person format. If courses are shifted to online modality by the University at any point during the term, a new assessment scheme will be provided.
- 6.3. **REVISED - Weighting of assignments:** Only three (3) of the five (5) assignments will count towards the final grade, and each is worth 8%. The best two (2) of the first three (3) assignments will be counted for the final grade, and so will Assignment #5. None of these assignments will be waived, for any reason.

7. Assessment Notes

- 7.1. All assignments, tutorials, and all course work must be completed **individually**. Collaborating on any course work is strictly disallowed and will be reported as an academic integrity offence.
- 7.2. In addition to the time spent attending lectures and completing tutorials, students can expect to spend at least nine (9) hours per week on this course.
- 7.3. Students **must** write the midterm in the section (B or C) in which they are registered. Students who write the midterm in the wrong section will receive a midterm grade of zero.
- 7.4. It is the student's responsibility to ensure that their midterm, tutorial, and assignment marks posted in *Brightspace* are correct. All marking disputes must be addressed with the individual responsible for marking the work (TA or instructor), **within one week** of the marks being posted. In cases where a student and a TA cannot agree, the matter will be referred to the instructor for resolution. For course work that is due close to the end of the term, the dispute period may be shortened to allow for the timely submission of final grades.
- 7.5. Technical problems do not exempt students from any submission requirement. If students wait until the last minute and then have issues with their computer or internet connection, their submission will still receive a mark of zero.
- 7.6. There will be no extra credit available in this course.

8. Course Material

- 8.1. All concepts covered during the lectures and during tutorials are part of the course material, including the course notes and annotations, all in-class coding examples, tutorial exercises, and in-class and forum discussions.
- 8.2. Lecture recordings may be provided, but **exclusively** as a supplemental study aid. They are not a substitute for lecture attendance and note taking. *Some lectures may not be recorded, and some recordings may not be available*, for either technical or pedagogical reasons. Students are responsible for learning the material covered during all lectures, whether recordings are available or not.
- 8.3. All materials created for this course (including, but not limited to, course notes, coding examples, lecture recordings, tutorial specifications, tutorial code bases, assignment specifications, assignment code bases, project specifications, project code bases, marking schemes, midterms, exams, and midterm and exam solutions), except where otherwise noted, remain *the intellectual property of the instructor*. They are intended for the personal and non-transferable use of students registered in the course. Reproducing, reposting, and/or redistributing any course materials, in part or in whole, without the written consent of the instructor, is a violation of IP rights, and is **strictly prohibited**.

9. Assignments

- 9.1. **REVISED:** The best two (2) of the first three (3) assignments will count towards the final grade, as will Assignment #5. Assignment requirements will be posted in *Brightspace*.
- 9.2. To ensure that the learning outcomes of the course are met, assignments must be completed **strictly** according to the provided instructions and constraints, using only the library functions and programming techniques covered in the in-class examples. Code that undermines the learning outcomes of the course will not earn marks. Students are expected to seek clarifications by attending the instructor's office hours, or by posting in the corresponding forum in *Brightspace*, as needed.

- 9.3. All assignments **must** be completed within the Virtual Machine (VM) provided for the course. The provided VM is the *only* programming environment in which course work will be graded.
- 9.4. All assignment code submitted for credit, with the exception of base code provided by the instructor, must be *original*, and the student submitting the assignment code must be its sole author.
- 9.5. **Late penalty:** Late assignments will incur a deduction of 5 marks (out of 100) for every 30 minutes late, or part of 30 minutes late, up to a maximum of three (3) hours past the submission deadline. Once this three-hour time window has elapsed, the *Brightspace* submission link will expire, and no submissions, substitutions, or corrections will be accepted, for any reason.
For example, if a submission is between 1 and 30 minutes late, it earns a 5 mark deduction. If it's late by 31 to 60 minutes, it's a 10 mark deduction, and so on.
- 9.6. **Extensions:** Students may request a 72-hour deadline extension for a maximum of one (1) assignment during the term. Extension requests must be submitted **before** the original due date for the assignment, using the online form provided in *Brightspace*. No additional extensions will be granted, for any reason. Extension requests received after the assignment deadline will automatically be denied. Once granted, extensions cannot be cancelled.
- 9.7. Only assignment files uploaded into *Brightspace* will be graded for credit. Students are responsible for the integrity of their assignment submissions. Submissions that contain incorrect, corrupt, or missing files may receive a grade of zero, in accordance with the marking scheme. Corrections to submissions will not be accepted after the submission link expires. **Students must verify that their submission is correct and complete** by re-downloading it from *Brightspace*, uncompressing it into a fresh directory in the VM, and compiling and running the code.
- 9.8. The **only** valid reason to appeal an assignment grade is an error by a TA in applying the grading scheme. Student errors, including but not restricted to submitting a wrong or corrupted file, or submitting code that doesn't compile or doesn't run, are **not** a basis for appealing a grade. All appeals of this nature will automatically be denied.
- 9.9. Students are expected to make regular backups of their work, to a file system outside the course VM, at least once for every hour of work. No accommodations can be made if submission files get overwritten or corrupted, or if the VM stops working.
- 9.10. Assignment marks will be released to students when **all** the grading is completed.
- 9.11. Prior to each assignment due date, the instructor will hold a 30-40 minute in-class workshop to discuss the assignment requirements and to answer student questions. The workshops dates will be posted in *Brightspace*.

10. Tutorials

- 10.1. Tutorial attendance:
 - 10.1.1. Tutorials begin on Jan. 16. The complete schedule is posted in *Brightspace*.
 - 10.1.2. **REVISED:** There will be eight (8) tutorials. Of those 8, the best six (6) will count towards the final grade.
 - 10.1.3. Students **must** attend the tutorial session *for which they are registered*. We are unable to accommodate requests to attend alternate sessions.
 - 10.1.4. Tutorials will not be posted in advance, for any reason.
 - 10.1.5. Tutorials must be completed **individually**. Collaboration between students is strictly disallowed.
- 10.2. Tutorial grading is at the discretion of the lab coordinator and TAs, and is not negotiable. Tutorial grades are for attendance, working on the tutorial questions for the entire session, and answering TA questions about the work.
- 10.3. Tutorial work that is started or completed before the session will earn zero marks.

11. Collaboration Policy

- 11.1. Collaborating on any course work, including but not restricted to assignments, projects, tutorials, mid-terms, and final exams, is **strictly disallowed** and will be reported to the Dean of Science as an academic integrity offence. Penalties for such offences can be found on the [ODS web page](#). Students must complete all course work by themselves.
- 11.2. Examples of academic integrity offences include: emailing code to other students; uploading code to a web site, at any time; copying code from any sources, even cited ones; working with other students; getting help from anyone other than the course TAs or the instructor; submitting code, or portion thereof, written by anyone other than the student submitting the work.
- 11.3. Posting course work and/or its solutions online, including assignment work, project work, tutorial work, midterm work, and final exam work, and distributing course work and/or solutions to other students **at any time** is strictly prohibited and will be reported to the Dean of Science as an academic integrity offence. This includes work publicly posted on source control sites like GitHub.
- 11.4. Posting course work after the conclusion of the course is also strongly discouraged, as it is of no benefit to anyone other than future students looking to cheat. Employers want to see evidence of candidates' creativity and initiative, neither of which is demonstrated in 2nd year course work. Coming up with your own creative and original project ideas, and completing these projects on your own time is the best recipe for impressing potential employers.

12. Communications Policy

- 12.1. Students are expected to check their email on a **daily** basis. Important course-related announcements will be posted in *Brightspace* and forwarded to students' cmail accounts.
- 12.2. Due to a high volume of emails, the instructor will respond to student emails within 2 to 3 [business days](#). This timeframe excludes weekends, statutory holidays, and other days when the University is closed. Emailed questions that request information already available in a discussion forum, or in an assignment specification, or in the course outline may take longer.
- 12.3. Students are asked to post all course-related and assignment-related questions in the corresponding discussion forum in *Brightspace*. Please verify whether the question has already been answered. If not, the question can be posted in a solution-free manner in the appropriate forum, and it will be answered there.
- 12.4. **TA office hours** are the first point of contact for students requiring help with debugging their code. However, TAs are not experts in the course material, or in the assignment requirements. For questions about course work requirements, please see the instructor during office hours or post the questions in the appropriate *Brightspace* forum, where the instructor will answer and clarify.
- 12.5. The **lab coordinator** is the first point of contact for students requiring help with all matters related to tutorials.
- 12.6. **Instructor office hours** are the first point of contact for students requiring help with the course material, or with understanding assignment requirements, or for academic advising. The instructor will be happy to assist with debugging during office hours as well, however the time available to each student will be limited if a large number of students are seeking help at the same time.
- 12.7. In case of technical issues with the installation or operation of the provided VM, students are required to first **read the documentation** posted in *Brightspace*. Additional assistance may be provided by the course TAs.
- 12.8. Student emails to the TAs, the lab coordinator, and/or the instructor **must** indicate the course code and section in the subject line. Their tone and content must be *professional*, and not personal, in nature. Specifically, they must be written as to a colleague or co-worker, not as to a family member or friend.
- 12.9. Students are expected to behave and communicate in a **courteous** and **professional** manner at all times. Any communications, either in person, or online in forum posts and email, that do not follow the basic precepts of common courtesy and professionalism will not be answered, and in extreme cases will be reported to university authorities. Carleton University's expectations of student behaviour online can be found at [this link](#).

13. Undergraduate Academic Advisors

The Undergraduate Advisors for the School of Computer Science are 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 the Writing Tutorial Services.

14. SCS Computer Laboratory

Students taking a COMP course can access the SCS computer labs. The lab schedule and location can be found at: <https://carleton.ca/scs/tech-support/computer-laboratories/>. All SCS computer lab and technical support information can be found at: <https://carleton.ca/scs/tech-support/>. Technical support staff may be contacted in-person or virtually, see this page for details: <https://carleton.ca/scs/tech-support/contact-it-support/>.

15. 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 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.

Unauthorized Student Recordings and Use of Instructor Recordings: Unauthorized student recording of classroom or other academic activities (including advising sessions or office hours) is prohibited. Unauthorized recording is unethical and may also be a violation of University policy. Students requesting the use of assistive technology as an accommodation should contact the [Paul Menton Centre](#). Unauthorized use of classroom recordings – including distributing or posting them – is also prohibited. Under the University's [Copyright Policy](#), faculty own the copyright to instructional materials – including those resources created specifically for the purposes of instruction, such as lectures slides, lecture notes, and presentations. Students cannot copy, reproduce, display, or distribute these materials or otherwise circulate these materials without the instructor's written permission. Students who engage in unauthorized recording, unauthorized use of a recording, or unauthorized distribution of instructional materials will be referred to the appropriate University office for follow-up.

16. Special Information

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: 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 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 Winter 2023 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.