An Introduction to object-oriented software development (in C++). Basics of C++ development: basic language features, programming conventions, class definitions, constructors and destructors, memory management · Basics of object-oriented design: object design categories, UML class diagrams · Essential object-oriented techniques: encapsulation, inheritance, design patterns, polymorphism, overloading, templates, exception handling · C++ library: STL, files and streams. Prerequisites COMP 2401

Course Information

Instructor Name **Contact Information**	**Darryl Hill** **darrylhill@cunet.carleton.ca**
Lecture Hours* Tuesdays and Thursdays 11:35 – 12:55 Via **Zoom** (Zoom link on Brightspace)	**Office Hours** TBD Or by appointment
Course Website **https://www.carleton.ca/Brightspace/**	**Important Links (Zoom, Discord, Textbook)** **https://www.carleton.ca/Brightspace/**

Recommended Textbook

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

Assessment Scheme

Your performance in this course is assessed using several components. These include **ten (10) tutorials**, **four (4) assignments**, **a midterm**, and a **final examination** (scheduled by the registrar). Final grades will be determined using the scheme described below, and **no extra credit assignments will be provided under any circumstances.**

Tutorials (top 8 of 10) (1 .5% each)	12%
Assignments (x4) (12 % each)	48 %
Midterm	10 %
Final Examination	30 %

The midterm will be held during the class it is scheduled for and will be **open-book**.

Tutorials are mandatory and you will **use Brightspace to submit them**. The top **8 out of 10** tutorial marks will determine your tutorial grade. **This includes tutorials missed because of illness and as such no other exemptions will be made for tutorial grades.**

Assignments are mandatory and you will **use Brightspace to submit them**. The assignment component of your final grade is computed from the score you receive on each assignment; **the lowest assignment grade will <u>not</u> be "dropped"**. You are expected to work on your assignments consistently once they are released (uploading your progress at least daily). As a result, **you will never be granted an exemption from an assignment, even for a legitimate medical reason.**

It is your responsibility to ensure that your quiz and assignment marks posted to Brightspace are correct within two weeks of the date the marks were released. Concerns or complaints about the grading of must be communicated (first to the teaching assistant, then, if the result is unsatisfactory, to the instructor) within that time. **After those two weeks, all marks are considered final and will not be changed under any circumstances**.

Course Delivery Details (Hybrid)

The **delivery** of material will consist of the following:

1) **Lectures** will be given live via **Zoom.** They will also be recorded, published on **YouTube,** and the videos will have a link on **Brightspace**.
2) **Tutorials** are small weekly programming assignments in **C++** to be submitted to **Brightspace.** The tutorial times are times that TA's will be available on Discord to help with the tutorial material. **Attendance is not mandatory,** however tutorials must be submitted by midnight **the day your tutorial is scheduled.**
3) **Assignments** will be programmed using **C++** and uploaded to **Brightspace.**
4) **The Midterm** will be an online activity on **Brightspace** and must be done during class time.
5) **Office hours,** and all questions pertaining to **lectures, quizzes**, and **general course material** will be conducted / answered on **Discord**.
6) **The final exam** will be a 2 hour activity on **Brightspace**. The precise timing of delivery must be coordinated with Exam Services, and is yet to be determined.

Discord will be the primary communication tool between the teaching staff and students outside of lectures. Since **Discord** is primarily a message board, it offers **accessibility** in terms of low bandwidth requirements and asynchronous nature (you do not have to be immediately present to benefit from the interactions of others). It also offers **flexibility** in terms of video and audio chat, desktop sharing, etc.

DO NOT let the lack of face-to-face contact isolate you**.** The advantage of University over other models of learning is that it is a social environment. **STAY CONNECTED. Off topic rooms on our Discord server will be available, and their use encouraged.** Get to know your fellow students. Collaborate. **Discussion of material, problems** and **approaches to solving them** is highly encouraged**. DO NOT publicly post complete solutions, but DO describe techniques, approaches, give hints, etc.** And **BE SURE TO WRITE YOUR OWN SOLUTIONS**.

Unacceptable collaboration: "Here is my solution:"

Acceptable collaboration: "I found using a for-loop for that part worked for me."

Important Considerations

The late assignment policy is detailed on each assignment. Assignments 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 the penalty described on the assignment specification.

Late tutorials are never accepted. Tutorial submissions are handled electronically (i.e., through Brightspace) and there is no "grace period" with respect to a deadline - a tutorial submitted even one minute after the deadline is late and will not be accepted.

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 the penalty. Consequently, you are advised to:
- **periodically upload you progress** (i.e., upload your progress at least daily)
- attempt to **submit your final submission at least one hour in advance** of the due date and time

For each assignment and tutorial, you will be submitting a zip file with the precise file structure as outlined in the specification. This is extremely important if we decide to utilize an automated marking script (which **WILL BE** how we mark tutorials). **If the interface does not match what the automated marking program expects you will get 0 on that section**.

If any of the files you submit cannot be opened it will receive a mark of zero. Consequently, **after you upload your submission** to Brightspace you must **re-download it immediately** and ensure that **your submission is the correct type of file and has the correct filename.**

Students with an **illness during the span of time a midterm is offered might be granted an exemption** only if they provide a copy of the **Carleton University Self Declaration Form** (https://carleton.ca/registrar/wp-content/uploads/self-declaration.pdf). The weight of the midterm will then be applied to the final exam mark. **Please note that a student cannot, for any reason, be exempted from more than two (2) of the tutorials**. Furthermore, because assignments are posted well in advance of their due dates, **illness does not excuse a student from completing an assignment**. No provision is made for missed assignments, and no extra credit assignments will be available.

Additional Notes

In addition to the time spent **attending lectures**, students can expect to spend **at least nine (9) hours per week on this course**. **Students are responsible for all course materials**, including lecture notes, and all materials discussed in class and on any of the official discussion boards.

Students are asked to **pose all questions related to course content using the official discussion boards** on Brightspace or Discord; **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 email received within three business days** of the time the message was received, **unless the email requests information already posted** on Brightspace or in the course outline. To ensure that all announcements are received, **students are expected to check their email on a daily basis**.

All materials created for this course (including, but not limited to, lecture notes, in-class examples, 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**.

Plagiarism Policy

If you are unsure of the expectations regarding academic integrity (how to use and cite references, how much collaboration with lab- or classmates is appropriate), ASK your instructor. Sharing assignment or quiz specifications or posting them online (to sites like Chegg, CourseHero, OneClass, etc.) is considered academic misconduct. You are never permitted to post, share, or upload course materials without explicit permission from your instructor. Academic integrity offences are reported to the office of the Dean of Science. Penalties for such offences can be found on the ODS webpage: https://science.carleton.ca/academic-integrity/.

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.

SCS Computer Laboratory

SCS students can access one of the designated labs for your course. The lab schedule 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/technical-support/. Technical support is available in room HP5161 Monday to Friday from 9:00 until 17:00 or by emailing SCS.Tech.Support@cunet.carleton.ca.

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.