



COURSE OUTLINE

1. **Course:** CPSC 331, Data Structures, Algorithms, and Their Analysis - Fall 2020

Lecture 01: TR 09:30 - 10:45 - Online

Instructor	Email	Phone	Office	Hours
Dr Wayne Eberly	eberly@ucalgary.ca	403 220-5073	ICT 613	TR 12:00pm - 12:50pm or by appointment

Lecture 02: TR 14:00 - 15:15 - Online

Instructor	Email	Phone	Office	Hours
Dr Wayne Eberly	eberly@ucalgary.ca	403 220-5073	ICT 613	TR 12:00pm - 12:50pm or by appointment

Online Delivery Details:

This course is being offered online in real-time via scheduled meeting times, you are required to be online at the same time.

Students will be supplied with material to work through on the course website before each lecture and tutorial. A brief set of notes, describing what took place during each lecture, will be supplied on the course website as well. Neither the lectures nor the tutorials will be recorded.

Course Site:

D2L: CPSC 331 L01-L02 (Fall 2020) - Data Structures, Algorithms, and Their Analysis

Note: Students must use their U of C account for all course correspondence.

2. **Requisites:**

See section [3.5.C](#) in the Faculty of Science section of the online Calendar.

Prerequisite(s):

3 units from Computer Science 251, Mathematics 271 or 273; and 3 units from Computer Science 219, 233, 235, Computer Engineering 335, 339 or Software Engineering for Engineers 337.

Antirequisite(s):

Credit for Computer Science 331 and 319 will not be allowed.

3. **Grading:**

The University policy on grading and related matters is described in [F.1](#) and [F.2](#) of the online University Calendar. In determining the overall grade in the course the following weights will be used:

Component(s)	Weighting %	Date
Assignment #1	13 1/3 %	Friday, October 9
Assignment #2	13 1/3 %	Friday, November 6
Assignment #3	13 1/3 %	Friday, December 4
Midterm Test	25 %	Start Time: 6 a.m. Tuesday, October 20 End Time: 6 a.m. Wednesday, October 21
Final Examination	35 %	To be completed in a twenty-four hour interval during the examination period

Each piece of work (reports, assignments, quizzes, midterm exam(s) or final examination) submitted by the student will be assigned a grade. The student's grade for each component listed above will be combined with the indicated weights to produce an overall percentage for the course, which will be used to determine the course letter grade.

The conversion between a percentage grade and letter grade is as follows.

	A+	A	A-	B+	B	B-	C+	C	C-	D+	D
Minimum % Required	95 %	90 %	85 %	80%	75%	70 %	66 %	62%	58%	54 %	50 %

The midterm test will be designed to be completed in 90 minutes, and the final examination will be designed to be completed in 120 minutes.

The total percentage grade (a real number between 0 and 100) will be rounded up to the nearest integer before the letter-to-grade conversion table is applied.

This course has a registrar scheduled final exam.

In order to obtain a grade above "D+", student must obtain a weighted-average grade of "C-" (58%) or better on the test component for this course - that is, for the midterm test and the final examination.

4. **Missed Components Of Term Work:**

The university has suspended the requirement for students to provide evidence for absences. Please do not attend medical clinics for medical notes or Commissioners for Oaths for statutory declarations.

In the event that a student legitimately fails to submit any online assessment on time (e.g. due to illness etc...), please contact the course coordinator, or the course instructor if this course does not have a coordinator to arrange for a re-adjustment of a submission date. Absences not reported within 48 hours will not be accommodated. If an excused absence is approved, then the percentage weight of the legitimately missed assignment could also be pro-rated among the components of the course.

5. **Scheduled Out-of-Class Activities:**

There are no scheduled out of class activities for this course.

6. **Course Materials:**

Recommended references are all freely available as ebooks through the University of Calgary library. Links to these ebooks are provided on the course web site.

7. **Examination Policy:**

Students may access the course web site and their notes when writing tests in this course. No other aids are allowed.

Students should also read the Calendar, [Section G](#), on Examinations.

8. **Approved Mandatory And Optional Course Supplemental Fees:**

There are no mandatory or optional course supplemental fees for this course.

9. **Writing Across The Curriculum Statement:**

For all components of the course, in any written work, the quality of the student's writing (language, spelling, grammar, presentation etc.) can be a factor in the evaluation of the work. See also Section [E.2](#) of the University Calendar.

Students' writing will be assessed in this course.

10. **Human Studies Statement:**

Students will not participate as subjects or researchers in human studies.

See also [Section E.5](#) of the University Calendar.

11. **Reappraisal Of Grades:**

A student wishing a reappraisal, should first attempt to review the graded work with the Course coordinator/instructor or department offering the course. Students with sufficient academic grounds may request a reappraisal. **Non-academic grounds are not relevant for grade reappraisals.** Students should be aware that the grade being reappraised may be raised, lowered or remain the same. See [Section I.3](#) of the University Calendar.

- a. **Term Work:** The student should present their rationale as effectively and as fully as possible to the Course coordinator/instructor within **ten business days** of either being notified about the mark, or of the item's

return to the class. If the student is not satisfied with the outcome, the student shall submit the Reappraisal of Graded Term work form to the department in which the course is offered within 2 business days of receiving the decision from the instructor. The Department will arrange for a reappraisal of the work within the next ten business days. The reappraisal will only be considered if the student provides a detailed rationale that outlines where and for what reason an error is suspected. See sections [I.1](#) and [I.2](#) of the University Calendar

- b. **Final Exam:** The student shall submit the request to Enrolment Services. See [Section I.3](#) of the University Calendar.

12. Other Important Information For Students:

- a. **Mental Health** The University of Calgary recognizes the pivotal role that student mental health plays in physical health, social connectedness and academic success, and aspires to create a caring and supportive campus community where individuals can freely talk about mental health and receive supports when needed. We encourage you to explore the mental health resources available throughout the university community, such as counselling, self-help resources, peer support or skills-building available through the SU Wellness Centre (Room 370, MacEwan Student Centre, [Mental Health Services Website](#)) and the Campus Mental Health Strategy website ([Mental Health](#)).
- b. **SU Wellness Center:** For more information, see www.ucalgary.ca/wellnesscentre or call [403-210-9355](tel:403-210-9355).
- c. **Sexual Violence:** The Sexual Violence Support Advocate, Carla Bertsch, can provide confidential support and information regarding sexual violence to all members of the university community. Carla can be reached by email (syva@ucalgary.ca) or phone at [403-220-2208](tel:403-220-2208). The complete University of Calgary policy on sexual violence can be viewed at (<https://www.ucalgary.ca/policies/files/policies/sexual-violence-policy.pdf>).
- d. **Misconduct:** Academic misconduct (cheating, plagiarism, or any other form) is a very serious offence that will be dealt with rigorously in all cases. A single offence may lead to disciplinary probation or suspension or expulsion. The Faculty of Science follows a zero tolerance policy regarding dishonesty. Please read the sections of the University Calendar under [Section K](#). Student Misconduct to inform yourself of definitions, processes and penalties. Examples of academic misconduct may include: submitting or presenting work as if it were the student's own work when it is not; submitting or presenting work in one course which has also been submitted in another course without the instructor's permission; collaborating in whole or in part without prior agreement of the instructor; borrowing experimental values from others without the instructor's approval; falsification/ fabrication of experimental values in a report. **These are only examples.**
- e. **Academic Accommodation Policy:** Students needing an accommodation because of a disability or medical condition should contact Student Accessibility Services in accordance with the procedure for accommodations for students with disabilities available at [procedure-for-accommodations-for-students-with-disabilities.pdf](#).

Students needing an accommodation in relation to their coursework or to fulfill requirements for a graduate degree, based on a protected ground other than disability, should communicate this need, preferably in writing, to the Associate Head of the Department of Computer Science, Nelson Wong by email nelson@cpsc.ucalgary.ca or phone [403-210-8483](tel:403-210-8483). Religious accommodation requests relating to class, test or exam scheduling or absences must be submitted no later than **14 days** prior to the date in question. See [Section E.4](#) of the University Calendar.

- f. **Freedom of Information and Privacy:** This course is conducted in accordance with the Freedom of Information and Protection of Privacy Act (FOIP). Students should identify themselves on all written work by placing their name on the front page and their ID number on each subsequent page. For more information, see [Legal Services](#) website.
- g. **Student Union Information:** [VP Academic](#), Phone: [403-220-3911](tel:403-220-3911) Email: suvpaca@ucalgary.ca. SU Faculty Rep., Phone: [403-220-3913](tel:403-220-3913) Email: sciencerep@su.ucalgary.ca. [Student Ombudsman](#), Email: ombuds@ucalgary.ca.
- h. **Surveys:** At the University of Calgary, feedback through the Universal Student Ratings of Instruction ([USRI](#)) survey and the Faculty of Science Teaching Feedback form provides valuable information to help with evaluating instruction, enhancing learning and teaching, and selecting courses. Your responses make a difference - please participate in these surveys.
- i. **Copyright of Course Materials:** All course materials (including those posted on the course D2L site, a course website, or used in any teaching activity such as (but not limited to) examinations, quizzes, assignments, laboratory manuals, lecture slides or lecture materials and other course notes) are protected

by law. These materials are for the sole use of students registered in this course and must not be redistributed. Sharing these materials with anyone else would be a breach of the terms and conditions governing student access to D2L, as well as a violation of the copyright in these materials, and may be pursued as a case of student academic or [non-academic misconduct](#), in addition to any other remedies available at law.

Course Outcomes:

- Discover assertions that explain why algorithms are correct, and that can be used as documentation or to make programs self-testing.
- Develop mathematical expressions for time and storage requirements, for simple algorithms, given pseudocode for these algorithms.
- Explain - clearly and precisely - why algorithms, discussed in this course, are correct and efficient.
- Use asymptotic notation to simplify expressions for resource requirements of algorithms, without omitting essential information about these.
- Understand and correctly identify asymptotic relations between functions that are commonly used to bound resource requirements - including logarithmic functions, polynomial functions with various degrees, and exponential functions with various bases.
- Describe various classical abstract data types including stacks, queues, dictionaries and graphs as well as the operations that each supports.
- Describe several data structures that can be used to implement each of the abstract data types that have been studied, and compare and contrast the resource requirements for the resource requirements for each operation when each data structure is used.
- Use simple English descriptions as well as pseudocode to describe algorithms to implement the operations of an abstract data type when a given data structure is used to implement it.
- Identify the abstract data types that can be used to solve a variety of computations, along with data structures that can be used to implement these when resource bounds for the cost of operations are also supplied.
- Use a modern (object-oriented) programming language to implement various abstract data types using specified data structures and use a software library - which includes industry-standard implementations of abstract data types with promised resource bounds for the costs of operations - to write short and simple programs that solve nontrivial computation problems correctly, and within specified resource bounds.

Electronically Approved - Aug 24 2020 16:14

Department Approval