

Course Outline: August 26, 2024

Advanced Algorithms

People

Instructor	Prosenjit (Jit) Bose jit@scs.carleton.ca	HP5175	Office Hours: TBD
TA	TA info: https://brightspace.carleton.ca	Office TBD	Office Hours: TBD

Course Information

Class Time	Days: Wednesday & Friday Time: 2:35 - 3:55
Course Website	https://brightspace.carleton.ca

Lectures will be given live and in class. Assignments should be typeset and uploaded to Brightspace. All questions pertaining to general course material can be asked on a discussion board in Brightspace.

Course Description

This course is an advanced course on the design and analysis of computer algorithms. Topics include: Randomized Algorithms, Graph Algorithms, Geometric Algorithms, Data Structures, Amortized Analysis and Approximation Algorithms.

Prerequisites

COMP 3804 or equivalent. Cannot be taken if you took COMP 4804 at Carleton.

Reference Textbook

There is no required textbook for this course. All of the concepts taught in the class will have many freely available online references. As new topics are introduced in class, the online references will be provided. Also, my handwritten notes will be posted online.

Evaluation

20%	Four assignments
20%	Journal paper review/critique
60%	Three tests in class (dates: Oct 4, Nov 15, Dec 4)
100%	Total

For the Journal paper review/critique, students will be required to select a journal paper that is related to Algorithms. The paper needs to be approved by the instructor by Oct 11. Students need write a report that reviews the results in the paper and offers a critique. The review will be due on Nov 29. More details will be provided by the second week of class.

Grades: Grades will be posted on Brightspace. The paper review, the best 3 out of 4 assignment scores and best 2 out of 3 test scores will be used to calculate the final grade. As such, one test and one assignment may be considered optional.

Collaboration Policy

 \star There is absolutely no collaborating allowed for the tests.

Collaboration on assignments is acceptable but only at the level of discussion. When writing down the solutions, please write them down on your own. Please cite all references (articles, web, AI) and collaborations. If you need help, please contact a TA or your instructor. Posting assignment solutions on discussion boards before the due date and time is prohibited. Late assignments will not be accepted, so periodically upload your progress to avoid last minute technical issues.

If you are unsure of the expectations regarding academic integrity (such as how to use and cite references, etc), then ask your instructor. Sharing assignment solutions or posting them online (to sites like Chegg, CourseHero, OneClass, etc.) is ALWAYS considered academic misconduct. You are NEVER permitted to post, share, or upload course materials without explicit permission from your instructor. Academic integrity offenses are reported to the office of the Dean of Science. Information, process and penalties for such offenses can be found on the ODS webpage: https://science.carleton.ca/students/academic-integrity/

Students with an illness during the span of time a test is offered might be granted an exemption only if they provide a copy of the Carleton University Self Declaration Form. 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. 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 for your assignment. Consequently, you are advised to periodically upload your progress.

Additional Notes

Students are responsible for all course materials, including lecture notes, and all materials discussed in class. Students are asked to pose all questions related to course content using **the official discussion board on Brightspace**; the instructor (and TA) will review and attempt to answer all questions posted on the official discussion board within 24 hours. 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 is in the course outline. To ensure that all announcements are received, students are expected to check their Carleton email and the discussion board regularly.

Undergraduate Academic Advisor

The Undergraduate Advisor for the School of Computer Science is available in Room 5302 HP or can be contacted by email at scs.ug.advisor@carleton.ca.

The undergraduate advisor can assist with information about prerequisites and preclusions, course substitutions/equivalencies, understanding your academic audit and the remaining requirements for graduation. The undergraduate advisor will also refer students to appropriate resources such as the Science Student Success Centre, Learning Support Services and the Writing Tutorial Services.

University Policies

Full academic regulations are found in the University's calendar (http://calendar.carleton.ca/undergrad/regulations/academicregulationsoftheuniversity/. Carleton University is committed to providing access to the educational experience in order to promote academic accessibility for all individuals. Information on how to apply for academic accommodation can be found at https://students.carleton.ca/course-outline/ Some excerpts are below.

Academic Integrity

Every student should be familiar with the Carleton University student academic integrity policy. If you have been accused of breaching the Academic Integrity Policy, your Faculty Dean will inform you by email and in writing of the nature of the charge, the evidence against you, the procedures to be followed. For details on the procedure and policy, see https://carleton.ca/registrar/academic-integrity/

Requests for Academic Accommodation

You may need special arrangements to meet your academic obligations during the term. For an accommodation request, the processes are as follows:

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. Visit the PMC website: http://carleton.ca/pmc

Religious Obligations

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 https://carleton.ca/equity/focus/discrimination-harassment/religious-spiritual-observances/