Computer Science/Mathematics 3804

Design and Analysis of Algorithms I

Description&Prerequisites

Course Description

An introduction to the design and analysis of algorithms.

Topics include: recurrence relations, sorting and searching, divide-and-conquer, dynamic programming, greedy algorithms, NP-completeness.

Prerequisites

COMP 2002 or COMP 2402, and either COMP 1805 or both of MATH 2007 and MATH 2108, or equivalents.

To help students achieve their individual objectives in this course, we will do an initial assessment test (anonymous) and provide students with three background review sessions. They are not mandatory but are HIGHLY recommended.

Assessment

Since 3804 traditionally has a large failure rate, we want to help by trying to see why this is the case.

This in-class assessment is for you to assess whether you have the right background information.

We then offer a review of key material.

Highly Recommended background prep. sessions

Tutorials

Algorithms and Complexity
Friday Sept. 6th 8:35 – 9:55

Elementary Data Structures and Simple Graphs Algorithms
Friday Sept. 13th 8:35 – 9:55

Counting
Friday Sept. 20th 8:35 – 9:55

Office Hours

Office Hours:

Professor J.-R. Sack

Mondays 10:00-11:00

or by special appointment

online Link see Brightspace

- PRIMARY:
- Introduction to Algorithms (3rd Edition or later) by
  - Thomas H. Cormen, Charles E. Leiserson, Ronald L. Rivest and Clifford Stein (2009). ISBN 0-262-03384-4. Published by MIT Press.
  - (the authors are working on a fourth revision)

- alternate reference - not as detailed,
  but I base some discussion on material from
- Algorithms by
  - S. Dasgupta, C.H. Papadimitriou, and U.V. Vazirani, (2007) Published by McGrawHill may also available be available online

Tests/Assignments/Final

Assignments will be submitted online in pdf via Brightspace (details to be provided by me). Typed assignments are preferred (not mandatory though). Figures may be drawn and scanned in.

It is your responsibility to ensure that the quality of the pdf is good so that the TAs can read them easily. Use good-quality pictures from cell phones or scanners which are also accessible at many locations on Campus.

Tests/Assignments/Final

Please note that tests and examinations in this course may use services provided by Scheduling and Examination Services. The test/exams are in-person (only after approval by me can students who are abroad take it electronically following the strict rules of Carleton which includes installing proctoring software on your computer).

Details on the test/exam will follow as soon as they are available.

Assignments, Test, Exam and Evaluation

Evaluation

Students will be evaluated according to the following measures:

Component	Weight	Due Dates (estimated – final dates tbd)
Assignment 1	10%	Tuesday, October 1st 23:59 online
Assignment 2	10%	Tuesday, October 29th 23:59 online
Test	20%	**TBA- It will be announced on Brightspace when Scheduling and Examination Services confirm the date, time and location– it could be scheduled on a Friday, evening, Saturday, or Sunday.**
Assignment 3	10%	Tuesday, November 12th 23:59 online
Assignment 4	10%	Tuesday, December 3rd 23:59 online
Final Exam	40%	by central scheduling

Assignments

The assignment schedule and test date is listed on the course outline.

Late assignments will not be accepted. Late is after the deadline specified. You must do the assignment without outside help that includes e.g., AI-based tools.

Academic Integrity/Plagiarism/...

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. Some examples of offences are: plagiarism and unauthorized co-operation or collaboration. Information on this policy may be found in the Undergraduate Calendar.

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.

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".

Other information

The course outline contains all other important items of information, please read it!