COMP 3711 Design and Analysis of Algorithms

Lecture 0: Course Mechanics

Version of January 26, 2019

All information also available at
https://canvas.ust.hk/courses/23888

COMP3711 - Fall 2019 - Basics

- Lectures
  - L1
    - Tuesday & Thursday, 16:30 – 17:50 , Room G010, CYT Bldg
      Instructor: Professor Mordecai GOLIN
    - www.cs.ust.hk/~golin golin@cse.ust.hk
  - L2
    - Wednesday & Friday, 13:30-14:50, Room 4619
    - Instructor: Professor Xiaojuan MA
    - https://www.cse.ust.hk/~mxj mxj@cse.ust.hk

- Tutorials
  - T1: Monday 18:00 - 18:50, Room 2306
  - T2: Thursday 18:00 - 18:50, Room 1104
  - T3: Monday 15:00– 15:50, Room 2406
  - T4: Wednesday 15:30– 16:20, Room 2304

- NO TUTORIALS ON
  Wed, Jan 30, Thursday, Jan 31, Monday, Feb 4, Monday, Feb 11, 2019
  First Tutorial Meeting on Wednesday, February 13, 2019

Topics Covered (tentative)

- Techniques (with multiple examples)
  - Divide & Conquer
  - Greedy Algorithm Design
  - Dynamic Programming
- Sorting
- Basic Randomized Algorithms
- Graph Algorithms
  - Breadth & Depth First Search
  - Shortest Paths
  - Spanning Trees
  - Maximum Flow and Bipartite Matchings

Prerequisites

- COMP2711 – Discrete Math
  - In particular
    - $O(\ )$ notation
    - Basic Formulas, e.g., formulas for $\sum i$, $\sum i^2$, geometric series
    - Basic Combinatorics, e.g, $\binom{n}{2} = \theta(n^2)$

- COMP 2011 – Basic Data Structures
  - In particular
    - Linked Lists (singly and doubly)
    - Stacks and Queues
    - Binary (Search) Trees

Tutorials

- NO TUTORIALS ON
  Wed, Jan 30, Thurs, Jan 31, Mon, Feb 4, Mon, Feb 11, 2019

  First Tutorial Meeting on Wednesday, February 13, 2019
- Tutorial problems will be distributed online the prior week
  - They will not be marked and are only for your benefit
  - Recommend trying to solve them BEFORE TA goes over their solutions in physical tutorial section
  - Tutorial solutions will be posted (but often not until after Tutorial)
  - Not all materials in the tutorial handouts will be covered DURING the tutorial sessions. Some supplementary/extended material is provided for your further revision.
- Supplementary material on mathematical prerequisite revision will also be posted online, on the tutorial page. This is for personal review and will NOT be covered in the tutorial sessions.

Assignments & Exams

- 30% Written Assignments
  - 4 written Assignments
  - 10-14 days each
  - Will need to be submitted both in hard copy and online
    - Online submission will require a CSE computer account, not an ITSC one. Information on how to register for a CSE account will be provided later
- 30% Midterm Exam
  - TBA
- 40% Final Exam
  - Will cover the entire semester's material

Grading

- 30% Written Assignments
- 30% Midterm Exam
- 40% Final Exam

Final Class grade will be based on weighted average of above

- Guarantee
  - A- for ≥ 90
  - B- for ≥ 80
  - C- for ≥ 70
  - D for ≥ 60

- The above is a lower bound guarantee. Grades will usually be curved, so thresholds for A-, B-, C- will be lower.
  Past experience is that mean/median is around a B-/C+

Course Policies

- Making up Missed Exams
  - Only for medical reasons (with Doctor's note)
  - OR prior approval of instructor, e.g., need to be away for academic competition
  - In cases above, if missed exam is Midterm, after discussion with instructor, makeup might not be given & Final will count towards 70% of grade.
- Assignments
  - See web page for instructions on what constitutes a "solution"
  - Plagiarism: While collaboration **is** allowed,
    - Assignment solutions must be written in your own words (not copied or modified from someone else's write-up).
    - You must understand your solution and its derivation. (I may ask you to explain your solution to me.)
    - You must explicitly acknowledge in writing in the assignment your collaborators (whether or not they are classmates) or any other outside sources on each assignment.
    - Failing to do any of these will be considered plagiarism, and may result in a failing grade in the course and notification for appropriate disciplinary action.