CS3230 - Design and Analysis of Algorithms (DAA) - Course Admin

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About CS3230

Course Objectives:

- To study algorithms in a *formal* way
- To learn different techniques to *design efficient* algorithms (and to implement those algorithms)
- To analyse the *correctness* and the *performance* of algorithms (and the required analysis techniques)

Learning Outcomes:

- Design efficient algorithms to solve problems
- Perform analysis of the asymptotic performance of algorithms
- Able to prove correctness of designed algorithms
- Prove/analyse inherent hardness of a problem
- PS: Able to implement those algorithms

Modes of Learning

- Lectures
- Tutorials
- Learning outside classrooms
- Assignments
- Tests

For detailed information, please see the course webpage at
`https://www.comp.nus.edu.sg/~stevenha/cs3230.html`

Lectures (2%) and Lecturers

- 2 hours lecture every week (Tue, 10am-12nn, at LT11)
  - Major portion of the lecture will be on presentation
  - There will be 13 VisuAlgo Online Quizzes (`https://visualgo.net/tests`) About the topic of that week's lecture
  - Auto start on Tue, 10am; Auto close on Tue, 12nn Any attempt during that 2 hours worth a free 0.2%
  - (Virtually) attending any 10 out of 13 gives full 2% (the cap)
  - Each student is expected to score $\approx$ [1.8..2.0]% here
- Lecturers
  - CHANG Yi-Jun (`cyijun@nus.edu.sg`) Consultation hour: Thursday (11:00-12:00) @ COM3-02-24 (just appear, open door policy)
  - Steven HALIM (`dcssh@nus.edu.sg`) Consultation hour: Monday (12:00-13:00) @ COM2-03-37 (just appear, open door policy)

Tutorials (3%) and TAs

- 1 hour tutorial every week (Wed/Thu/Fri, at SR9/10)
  - Week 02 (to compensate for Week 11) to Week 13
- Tutorial group size is set at 27 pax/group
  - Up to 3% tutorial attendance marks, 1% per answer 'attempt'
  - Most questions are public (prepare answers before tutorial)
  - A few (variant) questions are disclosed during the tutorial itself
  - Students (rotated) will be asked to present their answers
  - Total 11 sessions of about [5..6] questions each
  - Each student is expected to score $\approx \frac{11 \times 5.5}{27} = [2..2.5]\%$ here
  - Those who want it can get full 3% as early as Tut03
- There are 17 tutorial groups (and 17 TAs)
  - Your TA is also your assignment grader
  - Your TA is your main point of contact in CS3230 (D&C)
  - The list of TAs can be found at course webpage `https://www.comp.nus.edu.sg/~stevenha/cs3230.html`

Learning outside classrooms

- Discord
  - You can go anonymous if you want
  - Post your questions about CS3230 there (let's do a live post)
  - Share your (continuous) feedback and suggestions
- VisuAlgo
  - Animations for many (but not yet all) CS3230 topics
  - In-lecture Online Quizzes (`https://visualgo.net/tests`)
  - More CS3230-related features will be added over time
- Textbook(s)
  - Main Textbook is CLRS22, Introduction to Algorithms (4th edition), by Cormen, Leiserson, Rivest, Stein, 2022
  - Reference Textbooks are KT06, Algorithm Design, by Kleinberg & Tardos, 2006, and HHE20, Competitive Prog 4, by Halim[2] and Effendy, 2020
- The whole WWW

Assignments ($(40 + \epsilon)\%$)

- There are 3 written and 2 (semi-)programming assignments
- Two weeks per assignment, from Week 2 to 12
- We will pick the *best 4 out of 5* (approx $(10 + \epsilon)\%$ each)
  But we do not provide deadline extension or make-up
- Submit (scanned copy of your handwriting or soft copy) of your solutions in the CS3230 Canvas Assignments sub-page (details later by the first assignment)
- For (semi-)programming assignments, you will have to do some form of coding, although what you will submit are still in written format (e.g., the proof of correctness of your algorithm, the analysis of your algorithms, and/or the (empirical) experiments results).

Academic Policy (for Assignments)

- Do your work YOURSELF
- WRITE YOUR OWN ANSWERS
- If you are (REALLY) stuck, post high-level questions on Discord (another student can help), ask your TAs (there are 17 TAs), and only ask lecturer as the last resort (only 2 of us)
- Discussion of high-level approach with fellow students is OK, but any detailed discussion is not allowed
- Give any citations for any help you received
- Do NOT copy/compare answers!
  If you are caught for plagiarism, NUS policies will apply (and 10% is big)
- Please do not post assignment questions and put your solution/code in public repositories, e.g., do NOT post anything on stackoverflow, your own public GitHub repo, etc
- Verbal remarks on AI tools, e.g. ChatGPT

Summary of Continuous Assessments (40%)

- 'Free marks': *attend* 13 lectures ($min(13 \times 0.2, 2) = 2\%$)
- 'Some work': *attempt* 3 Qs during 11 tutorials ($3 \times 1 = 3\%$)
- Do 5 Assignments, *choose best 4* ($4 \times (10 + \epsilon) = (40 + \epsilon)\%$)
- Notice that the sum is $> 40\%$
- We cap the CA component at 40%
- We expect about $\approx \frac{2}{3}$ of the cohort will score full 40% marks
- TL;DR: It is *hard to fail this course* if you put enough effort

Tests (60%)

- 1 Midterm Test (20%)
  - Date: Sat, 05 Oct 2024 (end of Week 07)
  - Time: 100 minutes, exact 100 minutes block TBC
  - Venue: onsite, F2F, should be MPSH (TBC)
  - Make-up test (one session only, on Tue of Week 11) is available for midterm, but only for medical or official reasons as per NUS policy (PS: generally harder than the official midterm)
- 1 Final Assessment (40%)
  - Date: Fri, 29 Nov 2024
  - Time: 2.30-5.00pm (2**.5** hours)
  - Venue: onsite, F2F, should be MPSH (TBC)
  - No make-up session

Both midterm and final are written tests (pen/pencil and paper)

Q&A

We hope that you will enjoy this course

Question 1 at VisuAlgo Online Quiz

Declare Your First Lecture Attendance

- Go to `https://visualgo.net/tests` (you need to login)
  FAQ: If you forgot your password,
  `https://visualgo.net/password/reset` it
  (use your e0123456@u.nus.edu)
- Start "CS3230 S1 AY24/25 L1 Quiz"
- Answer the first question (an MCQ):
  "When is the midterm test date of CS3230 S1 AY24/25?"
  FAQ: Correctness is secondary, we only track your *attempt*
- Keep the session open, there are a few more questions
- Click "Submit Quiz" nearing the end of this first lecture
  But you can do so now if you know the answer of all questions