COMP2823: Data Structures and Algorithms (advanced)

Introduction

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Welcome to COMP2823

This class is your formal introduction to algorithms and data structures. Although you have been programming for a while and have been using algorithms and data structures, this class will lay the **foundations** for you to come up with your own algorithms and data structures and to be confident of their correctness.

After this class, getting your code to work will seem less like magic and more like science.

Data Structures and Algorithms

This UoS comes in three flavors:

– COMP2123: Normal UG stream

– COMP2823: Advanced UG stream

– COMP9123: PG stream

What's the difference?

– Assignments and final are slightly different

– COMP2823 covers some more advanced topics

Overview

Timetable:
- Main lecture: Tuesdays 2:00-4:00pm, online

Textbook (recommended but not mandatory):
- Algorithm Design and Applications by Goodrich and Tamassia

Systems:
- Canvas: Quizzes, lecture recordings, practice exam
- Ed: Discussion, slides, tutorials, programming exercises, and assignments (programming)
- Gradescope: Assignments (written)

On using Ed

Where can I find what I'm looking for?

– Resources: slides, tutorials, solutions, extra resources/guides, written assignments

– Discussion: forum

– Lessons: programming exercises, programming assignments

Asking questions:

– Googling your problem and/or reading our guides should solve most technical issues (i.e., git)

– Use Ed's search function to see if it's been answered before

– When asking a new question:

  – Add a descriptive title
  – Select the correct tag, e.g. questions about Quiz 4 should be tagged with Quizzes → Q4.
  – Describe what you've already tried to solve the problem
  – *Don't take a screenshot and say "what does this mean?"*

Assessments

Quizzes (worth 10%):

- 10 short equal-weight quizzes
- released after lecture (starting W2), due midnight before next lecture

Assignments (worth 30%):

- 5 short equal-weight assignments
- released on Friday (starting W2), due Thursday two weeks later
- either written (Gradescope) or programming (Ed)
- late submissions cost 5% of available marks per day for first 4 days, after that mark becomes 0

Final exam (worth 60%):

- open book
- 40% barrier

Late Submission Example

If you have not been granted special consideration (through the University):

- If your work would have scored 60% and is 1 hour late, you get 55%

- If your work would have scored 70% and is 3 days 23 hours late, you get 50%

- If your work would have scored 90% and is 4 days late, you get 0%

Keep in mind:

Submission sites can become very slow near deadlines

Special Consideration

If your performance on assessments is affected by by illness or misadventure:

Follow proper procedures
- Have a professional practitioner sign the USyd form
- Submit your application online, upload supporting documents
- Deadline is 3 days after assessment is due
- https://sydney.edu.au/students/special-consideration.html

There is a similar process for other reasons for special consideration, such as religious observance, military service, representative sports

Academic Integrity

We'll be running all submissions through similarity checking software: TurnitIn for textual tasks (*make sure your submission is scannable, i.e., document contains text*), other systems for code.

Posting or using an answer from site like Chegg, Geeks for geeks, etc. is **cheating**.

Copying an answer literally, from any source, doesn't show your understanding and will generally get you very few marks and copying without attribution is **plagiarism**.

Working together to understand a problem is fine, but you should come up with your own solution and write it in your own words.

Penalties for academic dishonesty or plagiarism can be sever and can delay the release of your result at the end of the semester.

Tutorials

We will post in Ed a tutorial sheet with exercises covering that week's material (for the tutorial the week after).

To get the most out of the tutorial, try to solve as many problems as you can **<u>before</u>** the tutorial. Your tutor is there to help you get unstuck, not to lecture.

After all tutorials of a given week are over, we will post solutions to selected exercises.

Communication

Email is an inefficient way to communicate in large classes such as ours. Unless yours is a personal issue, do not sent us email.

If you have questions about the lecture materials, homework assignments, or any logistics related to the class, please use the Ed discussion forum so that others can benefit from the answers.

Finally, if you spot a question that you know the answer for, please feel free to answer. It helps your classmates but more importantly, writing your thoughts down helps you crystalize your understanding.

About the lecturer

Since we will be working hard together, it would be nice to get to know each other a bit better. Even though I cannot really ask you all to introduce yourselves, I can still introduce myself:

- – From the Netherlands, but lived in Canada, Japan, and Australia
- – My field of research is Algorithms focusing on computational geometry
- – Joined University of Sydney in 2018
- – Hobbies: Hiking, cycling, board games, movies/anime

Feel free to just address me as "André" (he/him).

Do you have a disability that impacts on your studies?

You may not think of yourself as having a 'disability' but the definition under the **Disability Discrimination Act (1992)** is broad and includes temporary or chronic medical conditions, physical or sensory disabilities, psychological conditions and learning disabilities.

The types of disabilities we see include:
Anxiety // Arthritis // Asthma // Autism // ADHD
Bipolar disorder // Broken bones // Cancer
Cerebral palsy // Chronic fatigue syndrome
Crohn's disease // Cystic fibrosis // Depression
Diabetes // Dyslexia // Epilepsy // Hearing impairment //
Learning disability // Mobility impairment // Multiple
sclerosis // Post-traumatic stress // Schizophrenia //
Vision impairment
and much more.

In order to get assistance, students need to register with Disability Services. It is advisable to do this as early as possible. Please contact us or review our website to find out more.

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Disability Services Office
sydney.edu.au/disability
02-8627-8422