

Lecture 0: Course Overview

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Overview

- Introduction
 - What is this course about?
 - What to expect from me
 - What do I expect from you?

- Logistics
 - Structure of Lectures
 - Homework & Exams
 - Final Project
 - Student drop-in hours
 - Piazza

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- expand your algorithmic toolkit (amortized analysis, use of randomness, dealing with NP-complete problems, etc.)
- get you started with *research* in algorithm design and analysis

What to expect from me

Here is what you can expect from me:

- Give lectures
- Provide homework which helps you understand the material better
- Be very present/interactive during student drop-in hours
- Help you in all stages of your final project
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I care much more about your **learning** rather than your **grades**.

I also care much more about your **exploration** of this vast field of algorithm design and analysis rather than **forcing on you** any opinion on what are the “important algorithms.”

So I am trying to design a course which will reflect that, and will give you an opportunity to work on a research project.

What to expect from the TAs and myself

- This class, albeit difficult, is not designed in an adversarial format
We are here to help you learn and grow, and we are very happy and excited to do so!
- Use us (and one another) as a resource for this class!
- Ask questions in class
- Come to office hours and ask questions
- Start your work early!! This has many benefits:
 - Allows you to ask us questions if you don't understand the homework problem statements
 - Your brain will be unconsciously working on the material
 - You have more chances to come to office hours and ask questions
 - You will minimize your stress of clutch-time homework solving (which is not great for your learning)
- Also use office hours for feedback on how to write solutions (this is also an important part of learning)

What do I expect from you?

If you are taking the class, I expect that you:

- Do the homework and have fun with the final project
- Participate in class (asking questions, correcting me, etc.)
- Always ask yourself: “why is this important? Why should I care?”
- Explore the topics, and/or some area that fascinates you!
- Always keep an open mind!
- Be kind to your classmates, to the TAs and myself
- Participate a lot on Piazza (asking questions, answering your classmates' questions if you know the answer)
- Provide me *feedback* on how the course is going

This is an *experimental version* of this course, so your feedback is very valuable!

- Let me know if any problems arise during the term, so we can help as soon as possible.

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Structure of lectures

- Each lecture will be 1h 20min long
- We will have *three* lectures per week (Mon/Wed/Fri)
 - First part of experiment: from previous feedback, there was not enough time to work on final project
 - this timeline helps us give you enough time, and to have learned enough material to choose a fun project!
 - you will have roughly 3 weeks from end of lectures until your final project

Purpose of Lectures and Homework

The purpose of a story is not to hold your attention, but to put you back doing your work, inner and outer.

A story is not for presenting some explicit meaning, and it is not for anyone's entertainment.

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The purpose of a lecture is not to exhaustively explain the entirety of a
concept,

but to give you a basic understanding of the material
and instigate your own exploration, of the material and of yourself.

The purpose of homework isn't to automatically repeat what was taught,
but for you to go a bit further in your understanding and (meta-) skills.

Homework

We will have 4 sets of homework for this class.

See *assignments* section in <https://cs.uwaterloo.ca/~r5olivei/courses/2024-spring-cs466/homework/>.

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- May 21st
- May 31st
- June 26th
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In addition, I will post practice problems (won't be graded/don't turn in) which are selected so that you can get a better understanding of the material. I am a strong believer that we only *learn by doing*.

Homework Submissions

- We will use crowdmark for homework submissions
- We strongly recommend you to write your solutions in LaTeX.
- If you are handwritting your solution, please:
 - 1 Write in a *clearly legible* manner
 - 2 Take a very good picture of your solution (one where we can clearly read and understand what you wrote)
 - 3 Illegible solutions will be given a *zero* mark

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 - 3 Illegible solutions will be given a *zero* mark
- Solutions will be posted within 5 days after the homework is due.
- We will do our best to grade your homework within *14 days after submission*
- Late submissions will be dealt with as follows: each late day will have a penalty of 25% on your total grade for that homework.

Exams

- There will be two exams in this class, each worth 20% of your grade
- Exam dates and times:
 - *June 5th* from **5pm to 8pm**
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- The exams **will not** require 3h to complete - I just decided to have the 3h so that you have tranquility to properly think about the problems and not feel the time pressure.

Final Project

<https://cs.uwaterloo.ca/~r5olivei/courses/2024-spring-cs466/final-project/>

- Topic of your choice (see page above for suggestions)

I must approve the topic though!

- You can work in groups of at most 2 people.
- Goal: work on an open problem and/or present a survey on a problem or area of your choice within algorithm design.
- To turn in: project report (at most 10 pages - use LaTeX template provided)

Student drop-in hours

TBD

Piazza Policy

- We strongly encourage everyone to interact a lot on Piazza
- Whenever you have a question about the material or the HW, please ask them in public mode (as chances are other students also have same question).
- To encourage participation, the TAs and myself will wait for ~ 5 h before answering a question on Piazza, so that you have a chance to collaboratively work through it.
- I will do my best to answer lecture-related questions on piazza with the timeline above as well
- Please **do not expect** the TAs and myself to be active on Piazza at late hours (say from 10pm until 9am)
- **Do not expect** the TAs to answer Piazza questions *over the weekend*.

Questions?