Course introduction
COMS20010 2021, Video lecture 1-1

John Lapinskas, University of Bristol

Course ethos

This will **not** be a coding unit. The focus will be on **algorithms**, with very little code and not even much pseudocode.

Why? Four reasons:

- One day you might need to implement these algorithms.
- One day you might need to understand how these algorithms work.
- One day you might need to come up with your own algorithms. (Much more likely than the above two!)
- One day you might have to go through a job interview...

Assessment and expectations

Bad news: This unit is hard. Getting a 2.i is something to be proud of. Last year less than half of students got a 2.i or better.

Good news: Getting a pass in this unit is much easier! Last year less than 10% of students failed.

Your final grade will be determined by:

- **90%** from the final exam.
- **10%** from weekly Blackboard quizzes.

The exam questions will start out easy, asking about algorithms you've already seen, then get harder, asking you to design new algorithms.

Bad news: The exam will be in-person.

Good news: You can bring notes! (Details TBD, probably 4 pages).

More good news: The quizzes are free marks!

Blackboard quizzes

These are auto-marked questions worth **10%** of your final grade:

- One per week, due at noon on Mondays. (**Including next week!**)
- They should take roughly 1 hour each, but no time limit.
- You can start a quiz and then finish it later.
- Collaboration, online resources etc. are all fine. Study together!
- The usual late policy for coursework applies, so don't miss the deadline or you'll lose a lot of marks very quickly.

Important: If you get 50% or more on a blackboard quiz, this will count as **full marks** in the final grade calculation!

Last year **almost everyone** got above 90% final marks for quizzes. **More than half** got 100%. Free marks!

After a quiz, you get immediate answers and feedback. Don't abuse this. They're important exam prep, so you'd only be cheating yourselves...

Unit schedule

Schedule for week n material:

- Lecture and quiz release: 10AM Monday, week n.
  - Lectures are asynchronous videos.
- Q&A session: 10AM Thursday, week n, online.
  - Ask questions anonymously (but moderated) via Padlet.
  - Vote on which questions you want me to answer!
  - Alternatively, ask questions on the unit team (1 working day response).
- Quiz due date and problem sheet release: Monday, week $n + 1$.
- In-person problem class: 90 minutes Friday mornings, week $n + 1$.
  - These will be half-lab, half-lecture, all-important.
  - You don't have to do the sheet first! (See unit page...)
  - You **do** have to have tried your best to understand the week's material.
- Problem sheet answers release: End of Friday, week $n + 1$.

Planning your time

During term, aim to spend about **7 hours per week** on this unit:

- 2 hours watching the week's lecture videos.
- 2.5 hours *understanding* the week's lecture videos. This could, but doesn't have to, include:
  - Attending the one-hour Q&A session;
  - Asking questions on the unit Team;
  - Reading textbooks and other sources;
  - Working together with other students;
  - Trying the problem sheet.
- 1 hour finishing the week's Blackboard quiz.
- 1.5 hours attending the week's problem class.

Further details about unit organisation are on the unit page.

Useful references

Proofs on slides are hard, so I provide recommended readings each week on the unit page as an alternative source.

These are all available **as free eBooks** from the university library at https://www.bristol.ac.uk/library/. The most common three will be:

- **Introduction to Algorithms (Cormen et. al.)**
  - Exhaustive reference, classic in the field.
  - As an undergrad I found it quite dry, technical and difficult...
- **Algorithm Design (Kleinberg & Tardos)**
  - Moves very slowly and spells things out in great detail.
  - Does a great job at teaching underlying principles — "how did anyone come up with this?"
  - The book I wish I'd had as an undergrad. Read it!
- **The Algorithm Design Manual (Skiena)**
  - For engineers, by an engineer.
  - The least technical option — great if you're having trouble with proofs.

On COVID and masks

University policy: Masks are optional.

Reality: 4-5% of people who get COVID **still have symptoms 3–4 months later**. (Source: ONS)

Even for omicron. Even if you're triple-vaccinated.

3.1% of the **entire UK population** has long COVID. (Source: ONS)

I can't force you to wear a mask to classes, but... very few things are worth risking long-term disability for, and this unit isn't one of them.

A good mask with a decent fit and N95+ filters (e.g. Airinum, Vogmask, Cambridge Mask) keeps you mostly safe.

A *great* mask with a perfect fit and FFP2+ filters (e.g. 3M Secure Click with D-3135 filters) keeps you 100% safe, but is bulky and silly-looking.

This is a pretty neutral comparison site.

Mindset for the unit

This unit is hard, because solving problems is hard.

But like most things, you get **much** better at it with practice.

Case in point...

So keep at it, and climb the mountain. ;-)