0 Administrativa

26 September 2022

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COMP526 (Fall 2022)
University of Liverpool
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Welcome to COMP 526 – Applied Algorithms

- Instructor: Dr. Sebastian Wild
  Ashton Building 223
  wild@liverpool.ac.uk

  Tutorials: Ben Smith
  b.m.smith@liverpool.ac.uk

- Module website: www.wild-inter.net/teaching/comp526
  → your first address for any infos on COMP 526

- *Campuswire:* collaborative Q&A (more on this later)
  also used for announcements
  → please register via link from the Canvas announcement
  https://campuswire.com/p/GB60E1FEF PIN 3007

- *Slido:* student response system for formative feedback
  please bring your smartphone, laptop, etc. to class

- Final mark: 60% final exam + 40% continuous assessments (more later)

Clicker Question

Wishful thinking question:

How would you rank these **modes of teaching** (for lectures) in terms of their **effectiveness for your (personal) learning**?

Assume a setup like this class:
70 students in a standard lecture hall (fixed seat rows, capacity 100)

- **A** F2F traditional lecture
- **B** F2F seminar-style lecture
- **C** video conference
- **D** live stream + polls&chat
- **E** prerecorded videos
- **F** website + media

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My approach to lectures

My conclusions (from years of own experience and from observing others)

irrespective of the mode of delivery!

0. Good explanations (intuitions!) and well-structure material are the most important aspect.

1. **Synchronous (live) lectures** beat videos in keeping up with class. (but recordings are great!)

2. Only a small minority of students asks questions in class. ⇝ other backchannels

3. **Interaction** makes content memorable (and keeps brains awake!) ⇝ *Slido* tasks

Components of COMP 526

Slido questions

immediate feedback
simple questions

Lectures

new material
discussions
big picture

Tutorials

practice problems
solve deep questions

Campuswire

collaborative Q&A knowledge base

Class tests

frequent test of
basic understanding

Programming tasks 1 & 2

find & realize creative solutions

Overview of the module

Goals:

- build / enhance your toolbox of algorithmic methods and techniques
  - ⇝ focus on practical methods
- enable you to reason about and communicate algorithmic solutions
  - ⇝ level of abstraction, proofs, mathematical analysis
- enable you to apply, combine and extend methods

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Units:

0. Administrativa & Proof Techniques
1. Machines & Models
2. Fundamental Data Structures
3. Efficient Sorting
4. String Matching
5. Parallel Algorithms
6. Text indexing
7. Compression
8. Error-Correcting Codes
9. Range-Minimum Queries

Assessments

= continuous assessment

(More details on CA tasks later in the term)

final mark = 0.6 · exam mark
+ 0.1 · CA1 (programming puzzle 1) mark
+ 0.1 · CA2 (programming puzzle 2) mark
+ 0.15 · class test mark
+ 0.05 · participation mark

Class Tests

- ≈ *offload 15% of mark from exam to CA*
- several quizzes throughout term
- very short (1 question)
- fair format (IMHO)
  1. unmarked practice questions
     (try as often as you like, answer shown)
  2. same question type as marked quiz
- quick intermediate feedback

Bonus Points

- for good questions and answers on *Campuswire* class feed
- ⇝ earns **collective bonus points** for entire class
- bonus on class-test mark

Participation Marks

for good engagement, not correct answers!

- 5% for regular participation on *Slido*

What are clickers? Why use it?

- I use “clickers” as short term for any *student response system*
  We will use Slido, a web-based system.
- Goal: Collect immediate, formative feedback
  - Stay focused and engaged! (“active learning”)
  - Quick feedback (for you individually) if you are on track.
  - Quick feedback (for me) whether (most of) you are on track.

⇝ marks for *participation*, not for correct answers!

Clicker Question

Have you ever used an audience response system (Slido or similar) in lectures before?

A Yes

B No

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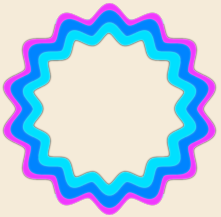
What is Campuswire?

Campuswire is an online space for lectures

1. ***Class Feed:*** questions on material
2. ***Chatrooms:*** structured social space
   similar to Slack or Discord



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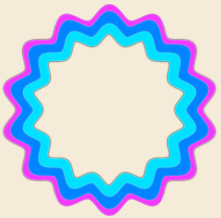

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We use Class Feed for **collaborative Q&A**

- Ask *public* questions
  - *"Why is* $\lg(n^3) = \Theta(\log n)$*?"*
  - *"Will there be classes during Carneval?"*
- ***Answer*** **your peers' questions!**
  - Know the answer? → put it in!
  - Know a partial answer? → Post it, others can build on it!
  - Found a helpful answer (or question)? → Vote it up!
- Ask *private* questions
  - if your question might contain "spoilers" for assessments
  - if you feel the answer is only relevant for you personally

How to Campuswire

- My goals for Campuswire Q&A:
  1. **be fair** Same answers for everyone
  2. **learning by teaching** YOU will answer most questions!
  3. **be inclusive** posts can be anonymous; you can take your time to ask and answer

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- Therefore, we instructors will
  - redirect you to Class Feed for questions,
  - wait before answering, to give other students a chance to answer first,
  - explicitly mark good answers (and questions!) as such

- You will collectively earn **bonus points**:
  - 10 points for each good question
  - 20 points for each good answer
  - 10 extra points for each good answer that did not require clarification from us

⇝ every 100 points earns everyone *+1* on *class-test mark*

Philosophy of the module

COMP 526 is part of a *scientific* course.

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Less . . .

https://imgur.com/gallery/vX118

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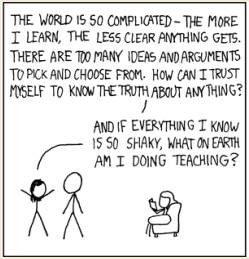

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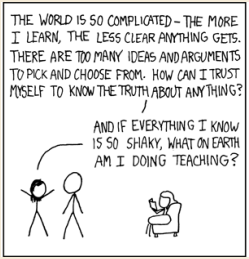

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⇝ Focus on *universal truths* of practical algorithms

- model of reality (machines, programs, data)
- quantitative predictions
- validate model in experiments

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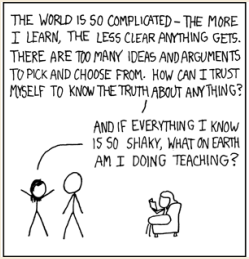

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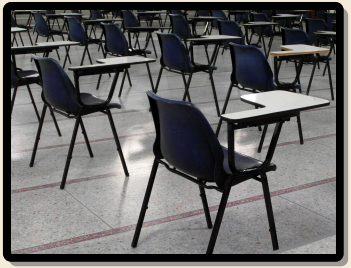
- ⇝ Focus on *universal truths* of practical algorithms
  - model of reality (machines, programs, data)
  - quantitative predictions
  - validate model in experiments
- ⇝ Need some math techniques. (up next)

But before we start . . .



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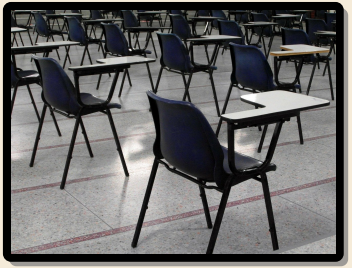

Prior-knowledge survey

- not graded
- anonymous
- formative assessment
  - helps me to tailor teaching to needs
  - helps you to know where you and others stand
- Questions cover various topics, some or tough

I don't expect you can answer everything!
We don't need everything for COMP526!

`tiny.cc/526-survey`