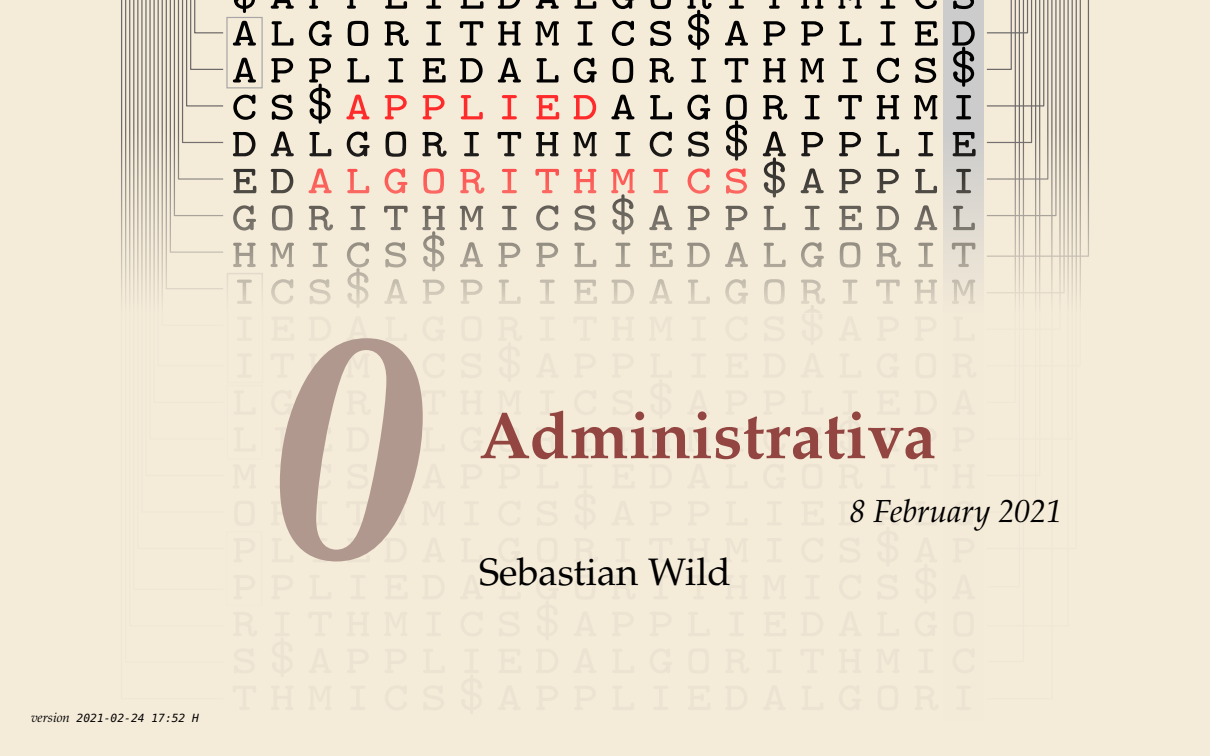


0 Administrativa

8 February 2021

Sebastian Wild

version 2021-02-24 17:52 H

Welcome to COMP 526 – Applied Algorithms

- Lecturer: Sebastian Wild
  Ashton Building 223 . . . normally
  wild@liv.ac.uk

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

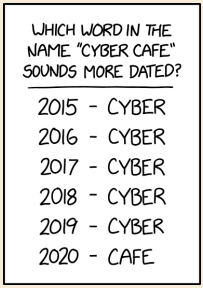
- Module website: www.wild-inter.net/teaching/comp526
  → your first address for any infos on COMP 526

- *Campuswire:* collaborative Q&A (more on this later)
  also used for announcements
  → please register via link on website (https://campuswire.com/p/GE5147F44)

- *Slido:* student response system for formative feedback

- Final mark: 50% final exam + 50% assessments (more later)

My approach to remote lectures



- Learning remotely is … *different*. It can be tough to
  - stay motivated (and sane!),
  - socialize with other students,
  - keep up a routine for study,
  - while home schooling kids, caring for sick relatives, cheering up lonely friends, maintaining some exercise, juggling finances, trying to focus in a room with 5 siblings, …

⇝ I'll try to be flexible and accommodating. (Please don't exloit it.)

My conclusions (from 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. *Zoom/Teams* great for *small* groups, but don't scale well to lectures.
"Just unmute yourself" & "Please show some faces" more annoying than helpful? ⇝ other backchannels
(also: video & audio quality mediocre ⇝ *YouTube*)

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
solving deep questions

Campuswire

collaborative Q&A knowledge base

Video presentation

disseminate knowledge

Class tests

test 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

Units:

0. Administrativa & Proof Techniques
1. Machines & Models
2. Fundamental Data Structures
3. Efficient Sorting
4. String Matching
5. Parallel String Matching
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 = $0.5 \cdot$ exam mark
$+ \; 0.1 \cdot$ CA1 (video presentation) mark
$+ \; 0.1 \cdot$ CA2 (programming puzzle 1) mark
$+ \; 0.1 \cdot$ CA3 (programming puzzle 2) mark
$+ \; 0.15 \cdot$ class test mark
$+ \; 0.05 \cdot$ participation mark

Class Tests

- $\approx$ *offload 15% of mark from exam to CA*
- several throughout term
- very short
  (1 practice question + 1 marked question)
- quick intermediate feedback

Bonus Points

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

Participation Marks

for good engagement, not correct answers!

- 5% for regular participation in *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) if (most of) you are on track.

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

Let's try it!

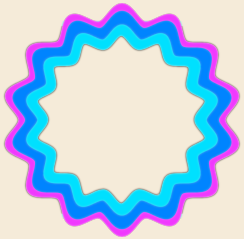
`sli.do/comp526`

Click on "Polls" tab right of video

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



Join via link on website:
`campuswire.com/p/GE5147F44`

Use in brower
`campuswire.com/c/GE5147F44`

or via app
`campuswire.com/download`

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

- 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

$\rightsquigarrow$ every 100 points earns everyone *+1* on *class-test mark*

Video Presentation

- **Goals:**
  - engage with research literature
  - explore cutting-edge research in one topic
  - try out novel ways of disseminating knowledge

- **Schedule:**
  - till **week 3**: form teams of 3 – 4 students
  - till **week 5**: select an article
    - recommendation:

      COMMUNICATIONS OF THE ACM (CACM.ACM.ORG)

      a *contributed article*, *review*, *practice*, or *research highlight* from 2020

      ask me!
    - or: other recent paper in reputable journal/conference with connection to algorithms
  - till **13 April**: present article in video presentation and upload it!

    alternatively, create an interactive website

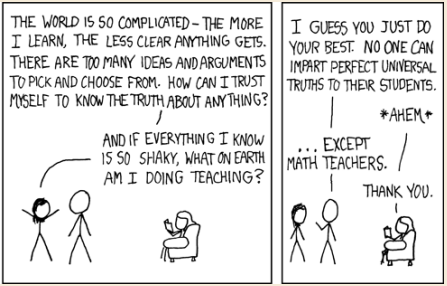
Philosophy of the module

COMP 526 is part of a *scientific* course.

Less . . .

https://imgur.com/gallery/vX118

. . . and more



https://xkcd.com/263/

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