

Welcome to COMP 526 – Applied Algorithms

- ▶ Instructor: Dr. Sebastian Wild

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- ▶ 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)



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

Units:

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

Assessments

= continuous assessment

(More details on CA tasks
later in the term)

$$\begin{aligned} \text{final mark} = & 0.6 \cdot \text{exam mark} \\ & + 0.1 \cdot \text{CA1 (programming puzzle 1) mark} \\ & + 0.1 \cdot \text{CA2 (programming puzzle 2) mark} \\ & + 0.15 \cdot \text{class test mark} \\ & + 0.05 \cdot \text{participation mark} \end{aligned}$$

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

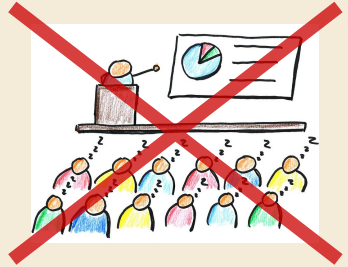
- ▶ 5% for regular participation on *Slido*

for good engagement,
not correct answers!

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!

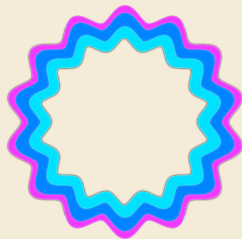


What is Campuswire?

Campuswire is an online space for lectures

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

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



Join via link on website:
campuswire.com/p/GB60E1FEF

Use in browser
campuswire.com/c/GB60E1FEF

or via app
campuswire.com/download

- ▶ 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



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

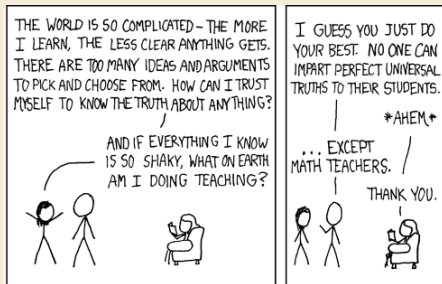
Philosophy of the module

COMP 526 is part of a *scientific* course.

Less ...



... and more



↪ 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)