

# Discrete Mathematics in Computer Science

## A1. Organizational Matters

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University of Basel

September 20, 2023

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## A1.1 Organizational Matters

### A1.2 About this Course

## A1.1 Organizational Matters

## People

### Lecturers



Malte Helmert

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- ▶ office: room 06.004, Spiegelgasse 1



Gabi Röger

- ▶ email: [gabriele.roeger@unibas.ch](mailto:gabriele.roeger@unibas.ch)
- ▶ office: room 04.005, Spiegelgasse 1

### Assistant



Salomé Eriksson

- ▶ email: [salome.eriksson@unibas.ch](mailto:salome.eriksson@unibas.ch)
- ▶ office: room 04.003, Spiegelgasse 5

## People

### Tutors

- ▶ Leonhard Badenberg (leonhard.badenberg@unibas.ch)
- ▶ Maria Desteffani (maria.desteffani@unibas.ch)
- ▶ Renato Farruggio (renato.farruggio@unibas.ch)
- ▶ Claudia Grundke (claudia.grundke@unibas.ch)
- ▶ Sebastian Lenzlinger (sebastian.lenzlinger@unibas.ch)

## Target Audience

### target audience:

- ▶ this is an introductory course on the Bachelor's level
- ▶ we cover mathematical foundations that are particularly useful for the computer science curriculum
- ▶ main target audience: B.Sc. Computer Science, 1st and 3rd semester
- ▶ all other students welcome

## Enrolment

- ▶ <https://services.unibas.ch/>
- ▶ **official deadline:** October 16
- ▶ better today, so that you get all relevant emails and access to the ADAM workspace

## Language

- ▶ The course is taught in English.
- ▶ All lecture material is in English.
- ▶ We (lecturers, assistant, tutors) speak German and English.
- ▶ You are also welcome to ask questions in German.
- ▶ Also exercise submissions can be in English or German.

## Lectures

- ▶ **time:** Mon 16:15 - 18:00, Wed 16:15 - 17:00
- ▶ **place:** Hörsaal 1, Pharmazentrum
- ▶ first half of the course taught by Gabi Röger, second half by Malte Helmert
- ▶ on December 20: **Q&A session for exam preparation**

## Exercises

### Exercise sheets (homework assignments):

- ▶ mostly theoretical exercises
- ▶ exercise sheets on ADAM every Monday
- ▶ must be solved in **groups of three** ( $2 \neq 3 \neq 4$ )
- ▶ due Monday 4pm the following week (upload to ADAM at <https://adam.unibas.ch/>)
- ▶ we only accept readable PDFs  
→ with a bonus point if created with  $\LaTeX$

Question: Who has experience with  $\LaTeX$ ?

## Exercise Sessions With Tutors

### Exercise Sessions (starting September 27/28/29)

Wed 17:15 - 18:00 Seminarraum U1.193, Biozentrum  
 Wed 17:15 - 18:00 Computer-Labor U1.001, Spiegelgasse 1  
 Wed 17:15 - 18:00 Seminarraum 05.001, Spiegelgasse 5  
 Thu 17:15 - 18:00 Seminarraum 00.003, Spiegelgasse 1  
 Fri 17:15 - 18:00 Seminarraum 00.003, Spiegelgasse 1

- ▶ common mistakes/misconceptions (full model solutions on ADAM)
- ▶ questions about exercise sheets
- ▶ questions about the course
- ▶ as time permits, support while you solve the exercises

**important:** please fill in the survey on ADAM for the group assignment until **Friday 12:00** (September 22).

## Discrete Mathematics Course on ADAM

### ADAM

<https://adam.unibas.ch/>

- ▶ link to website with slides
- ▶ submission of exercise sheets
- ▶ model solutions for exercise sheets
- ▶ link to Discord server (for interaction among participants, but you also get answers from lecturers, assistant and tutors)
- ▶ additional material

## Exam

- ▶ Written exam
- ▶ 6 ECTS credits
- ▶ Monday, January 22, 2024, 4-6 p.m
- ▶ M.E.Müller Saal, Biozentrum
- ▶ admission to exam: 50% of the exercise marks
- ▶ grade for course determined exclusively by the exam

## Required Time

### Official calculation

- ▶ 1 CP  $\approx$  30 hours
- ▶ The course has 6 CP.
- ▶ You need to invest about 180 hours.
- ▶ With 40 hours for exam preparation, this leaves **10–11 hours/week** during the teaching period.

### Alternative calculation

- ▶ A fulltime student achieves 30 CP per semester.
- ▶ The course corresponds to a 5th of 30 CP.
- ▶ With a 42h week, this still corresponds to **8.4 hours/week**.

## Plagiarism

### Plagiarism (Wikipedia)

*Plagiarism is the “wrongful appropriation” and “stealing and publication” of another author’s “language, thoughts, ideas, or expressions” and the representation of them as one’s own original work.*

### consequences:

- ▶ 0 marks for the exercise sheet (first time)
- ▶ exclusion from exam (second time)

if in doubt: check with us what is (and isn't) OK **before submitting** exercises too difficult? we are happy to help!

## Special Needs?

- ▶ We (and the university) strive for equality of students with disabilities or chronic illnesses.
- ▶ Contact the lecturers for small adaptations.
- ▶ Contact the Students Without Barriers (StoB) service point for general adaptations and disadvantage compensation.

## A1.2 About this Course

## Content: Discrete Mathematics in Computer Science

- ▶ mathematical thinking and proof techniques
- ▶ sets and relations
- ▶ group theory and permutations
- ▶ modular arithmetic
- ▶ graphs and trees
- ▶ recurrence relations
- ▶ formal logic

## Learning Goals

- ▶ proficiency in abstract thinking
- ▶ ability to formalize mathematical ideas and arguments
- ▶ knowledge of common mathematical tools in computer science