Discrete Mathematics in Computer Science

A1. Organizational Matters

Malte Helmert, Gabriele Röger

University of Basel

September 20, 2023

A1.1 Organizational Matters

A1.2 About this Course

A1.1 Organizational Matters

People

Lecturers

Malte Helmert
- ▶ email: malte.helmert@unibas.ch
- ▶ office: room 06.004, Spiegelgasse 1

Gabi Röger
- ▶ email: gabriele.roeger@unibas.ch
- ▶ office: room 04.005, Spiegelgasse 1

Assistant

Salomé Eriksson
- ▶ email: 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
$\rightarrow$ 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 ≈ 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