Foundations of Artificial Intelligence

A1. Organizational Matters

Malte Helmert

University of Basel

February 16, 2026

Introduction: Overview

Chapter overview: introduction

- A1. Organizational Matters
- A2. What is Artificial Intelligence?
- A3. AI Past and Present
- A4. Rational Agents
- A5. Environments and Problem Solving Methods

A1.1 People

Teaching Staff: Lecturer

Lecturer

Malte Helmert

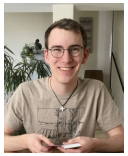
- email: malte.helmert@unibas.ch
- office: room 06.004, Spiegelgasse 1

Teaching Staff: Assistant

Assistant

Clemens Büchner

- email: clemens.buechner@unibas.ch
- office: room 04.005, Spiegelgasse 1



Teaching Staff: Tutors

Tutors

Claudia Grundke

- email: claudia.grundke@unibas.ch
- office: room 04.001, Spiegelgasse 5

Aeneas Meier

- email: aeneas.meier@unibas.ch

Carina Schrenk

- email: carina.schrenk@stud.unibas.ch

Students

target audience:

- Bachelor Computer Science, ∼3rd year
- Bachelor Computational Sciences, ∼3rd year
- Master Data Science
- other students welcome

prerequisites:

- algorithms and data structures
- basic mathematical concepts
  (formal proofs; sets, functions, relations, graphs)
- complexity theory
- programming skills (mainly for exercises)

A1.2 Format

Structure Overview

Foundations of AI week structure:

- Monday: release of exercise sheet
- Monday and Wednesday: lectures
- Wednesday/Friday: exercise session
- Sunday: exercise sheet due
- exceptions due to holidays

Time & Place

Lectures

- Mon 16:15–18:00 in Biozentrum, lecture hall U1.141
- Wed 14:15–16:00 in Biozentrum, lecture hall U1.141

Exercise Sessions

- Wed 16:15–18:00 in Biozentrum, SR U1.193
- Wed 16:15–18:00 in Spiegelgasse 1, room U1.001
- Fri 14:15–16:00 in Pharmazentrum, room 1067
  (with some exceptions, see course directory/VV online)

first exercise session: February 18/20 (this week)

Exercises

exercise sheets (homework assignments):

- mostly theoretical exercises
- sometimes programming exercises

exercise sessions:

- initial part:
  - discuss common mistakes in previous exercise sheet
  - answer questions on previous exercise sheet
- main part:
  - we support you solving the current exercise sheet
  - we answer your questions
  - we assist you comprehend the course content

Theoretical Exercises

theoretical exercises:

- exercises on ADAM every Monday
- covers material of that week (Monday and Wednesday)
- due Sunday of the same week (23:59) via ADAM
- solved in groups of at most two ($2 = 2$)
- support in exercise session of current week
- discussed in exercise session of following week

Programming Exercises

programming exercises (project):

- project with $\sim$4 parts over the duration of the semester
- additional one-off programming exercises (occasionally)
- integrated into the exercise sheets (no special treatment) (solved in the same groups)
- implemented in Java; need working Linux system for some
- solutions that obviously do not work: 0 marks

A1.3 Assessment

Course Material

course material that is relevant for the exam:

- slides
- content of lecture
- exercise sheets

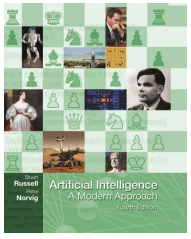
additional (optional) course material:

- textbook
- bonus material

Textbook

Artificial Intelligence: A Modern Approach
by Stuart Russell and Peter Norvig
(4th edition, Global edition)

- covers large parts of the course (and much more), but not everything



Exam

- written exam on Wednesday, June 24
  - 14:00-16:00
  - 105 minutes for working on the exam
  - location: Organische Chemie, Grosser Hörsaal (Organic Chemistry, large lecture hall)
- 8 ECTS credits
- admission to exam: 50% of the exercise marks
- class participation not required but highly recommended
- no repeat exam

Course Homepage and Enrolment

Course Homepage

`https://dmi.unibas.ch/en/studies/computer-science/course-offer-spring-2026/13548-lecture-foundations-of-artificial-intelligence/`

- course information
- slides
- bonus material (not relevant for the exam)
- link to ADAM workspace

enrolment:

- `https://services.unibas.ch/`

Communication Channels

Communication Channels

- lectures and exercise sessions
- ADAM workspace (linked from course homepage)
  - link to Discord server
  - exercise sheets and submission
  - exercise FAQ
  - bonus material that we cannot share publicly
- Discord server (linked from ADAM workspace)
  - opportunity for Q&A and informal interactions
- contact us by email
- meet us in person (by arrangement)
- meet us on Zoom (by arrangement)

Plagiarism

Plagiarism

Plagiarism is presenting someone else's work, ideas, or words as your own, without proper attribution.

For example:

- Using someone's text without citation
- Paraphrasing too closely
- Using information from a source without attribution
- Passing off AI-generated content as your own original work

Long-term impact:

- You undermine your own learning.
- You start to lose confidence in your ability to think, write, and solve problems independently.
- Damage to academic reputation and professional consequences in future careers

Plagiarism in Exercises

- You may discuss material from the course, including the exercise assignments, with your peers.
- But: You have to independently write down your exercise solutions (in your team).
- Help from an LLM is acceptable to the same extent as it is acceptable from someone who is not a member of your team.
- The exercise submission includes a declaration on plagiarism and use of AI tools.

Immediate consequences of plagiarism:

- 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.

A1.4 About this Course

Classical AI Curriculum

"Classical" AI Curriculum

1. introduction
2. rational agents
3. uninformed search
4. informed search
5. constraint satisfaction
6. board games
7. propositional logic
8. predicate logic
9. modeling with logic
10. classical planning
11. probabilistic reasoning
12. decisions under uncertainty
13. acting under uncertainty
14. machine learning
15. deep learning
16. reinforcement learning

$\rightsquigarrow$ wide coverage, but somewhat superficial

Our AI Curriculum

Our AI Curriculum

1. introduction
2. rational agents
3. uninformed search
4. informed search
5. constraint satisfaction
6. board games
7. propositional logic
8. ~~predicate logic~~
9. ~~modeling with logic~~
10. classical planning
11. ~~probabilistic reasoning~~
12. ~~decisions under uncertainty~~
13. acting under uncertainty
14. ~~machine learning~~
15. ~~deep learning~~
16. ~~reinforcement learning~~

Topic Selection

guidelines for topic selection:

- fewer topics, more depth
- more emphasis on programming projects
- connections between topics
- avoiding overlap with other courses
  - Pattern Recognition (B.Sc.)
  - Machine Learning (M.Sc.)
- focus on algorithmic core of model-based AI

Under Construction...

- A course is never "done".
- We are always happy about feedback, corrections and suggestions!