

# Foundations of Artificial Intelligence

## A1. Organizational Matters

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University of Basel

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# 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

# People

# Teaching Staff: Lecturer

## Lecturer

Malte Helmert

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# Teaching Staff: Assistant

## Assistant

Clemens Büchner

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# Teaching Staff: Tutors

## Tutors

Claudia Grundke

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Aeneas Meier

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Carina Schrenk

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# 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)

# 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

# Assessment

# Course Material

course material that is relevant for the exam:

- slides
- content of lecture
- exercise sheets

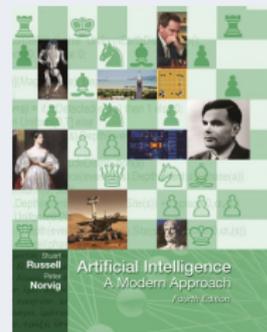
additional (optional) course material:

- 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.

# 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

↔ 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!