

General information (as of 13. Oktober 2026)

Lectures

Lectures start in the week of Oct. 12.

- Tuesday 10:15 - 11:45, lecture hall A2, Maria-von-Linden-Str. 1
- Thursday 10:15 - 11:45, lecture hall A2, Maria-von-Linden-Str. 1

Tutorials

There are 3 tutorial groups each week.

- Group 1: Tuesday 8:30-10:00, lecture hall A2, ground floor, Maria-von-Linden-Str. 1
- Group 2: Wednesday 10:00 - 12:00, lecture hall, ground floor, Maria-von-Linden-Str. 6
- Group 3: Thursday 8:30 - 10:00, lecture hall A2, ground floor, Maria-von-Linden-Str. 1

The tutorials and the assignments are organized by two PhD students:

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The teaching assistants are:

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Tutorials take place every week and start in the week of October 19. In the tutorials you can ask questions, we solve little assignments that help you to solve the main assignments of the week, and we run weekly quizzes in which you can earn bonus points.

In the Ilias course you can find subgroups for the tutorials. The registration for the tutorial groups starts on October 13th right after the lecture, at 11:45pm. The groups will be filled first-come-first-serve until they are full. The deadline for registration is thursday evening (Oct 15, 23:59).

In case you want to change your group, you need to find another student with whom you can switch groups and the contact both teaching assistants.

Contents and required skills

This course is intended for the students of the master program in machine learning. Depending on your background, (some of) the material might be a recap — or not. Contents of the course are linear algebra, multivariate analysis, optimization, probability theory, statistics. Note that the course requires a solid basis in mathematics, similar to the Mathematics 1 - Mathematics 3 lectures that Tübingen-based students would have attended in our Bachelor program in computer science (which was a pre-requisite to get accepted in our Master ML program). The course is not recommended for students without this background.

Course material

All material related to the course can be found on the following webpage. This includes general information, videos, slides, assignments, literature etc.

http://www.tml.cs.uni-tuebingen.de/teaching/2026_maths_for_ml/index.php

Some material is password protected, we are going to send you the password by email (after you have registered). Please do not distribute the password-protected material.

Assignments

For every week there will be an assignment (Übungsblatt) published on Monday. The first assignment will be published on October 19. We expect students to work on all of the assignments during the week. We very strongly encourage you to work in groups to solve the exercises. Solutions to the assignments do not need to be handed in and will not be graded. Instead, we will hold weekly quizzes about the assignments in the tutorials, see below.

Weekly quizzes

In each of the tutorials we will hold a weekly quizz about the assignments of the last week. The quizz will take about 20 min, and essentially you will be asked to provide the solution to one randomly chosen assignment of the last week. No supporting material will be allowed during these quizzes.

- **To be admitted to the exam, students must have participated in at least 3 quizzes (no matter whether they pass or not).**
- **By passing quizzes, you can get bonus points for the exam:**
 - Quizzes are graded by the teaching assistants, using a simple scheme that just results in pass or fail.
 - If you pass 100% of the quizzes, you will get a bonus that is equivalent to one grade. If you pass none of the quizzes, obviously no bonus happens. Between 0% and 100%, the bonus increases linearly and will be translate into exam points once we constructed the exam.
 - As we have three different tutorial groups taking place on different days, we try to give equal chances to all of them: for each group and each week we will randomly select one of the assignments of the current sheet as quizz, independently with replacement. Even if some assignments might be more difficult than others, we are confident that randomization substantially averages out differences over the term, and any remaining systematic group-level differences will be corrected at the end, see next point.
 - Re-adjusting: It may still happen that the assignments selected in one group are, on average, slightly more difficult than those selected in another group, or that one teaching assistant grades somewhat differently from another. To alleviate this, we may re-adjust the scores between the three groups at the end of the term, for example such that the average fraction of quizzes passed is the same in all three groups.

Using generative AI

The exercises are meant to help you understand the lecture contents and to prepare you for the exam. So please try to solve them yourself, rather than delegating to generative AI. **It is super-important that YOU work on the solutions yourself, to experience to fail through some approaches and succeed by others. YOU need to learn how to distinguish approaches that work and don't work and develop strategies for solving problems. Verifying and understanding LLM-created solutions is not the same as deriving your own solutions.**

So we recommend the following:

- We very strongly advise to work on the assignments in groups!
- First try hard to solve the assignment yourself. Some assignments do take time, sometimes even a couple of hours.
- Only if you are stuck for a long time, ask an LLM for a hint (not for the solution). Try to work along the hint. Once you have a solution, of course feel free to ask an LLMs whether it is correct.
- Only ask for solutions if you are desperate and have really tried hard yourself.

Exam requirements / admission / grading

Exam admission:

- To be admitted to the final exam, you have to participate in at least 3 of the weekly quizzes that take place in the tutorials.
- Participants of previous years: if you have participated in the Mathematics for Machine Learning lecture last year (winter term 2025/26) and have passed the criteria for being admitted to the exam, then you will be re-admitted to the exam without re-taking the assignments. If this applies to you, please send us an email that contains your name, study degree, matriculation number before you register for our exam.

Exam grading:

- By passing quizzes in the weekly tutorials, you can earn bonus points for the exam that might improve your grade, as described above.
- The final grade will be the one of the exam, with bonus applied if you earned it.

Exam logistics:

- There is going to be one exam at the beginning of the semester break and one at the end of the semester break (dates are not fixed yet because they are organized through a centralized process). You can choose yourself which of the two exams you would like to take. But note that there won't be a third exam: if you skip the first exam and fail the second one, you would need to wait a year to take the exam again.
- The general mode for exams is: You are not allowed to bring any material (books, slides, etc) except for what we call the controlled cheat sheet: one side (A4, one side only) of handwritten (!) notes, made by yourself. This cheat sheet needs to be handed in with the exam, but will not be graded.

Questions and answers

If you have a question, please try not to fire off emails to us right away. Please check our course website that we will regularly update with the newest information, ask your fellow students, or post your question in the Ilias Forum. You can also always approach us after the lecture or during the tutorials.

Suggestions, feedback, ...

If you have suggestions how to improve the lecture or tutorials, please do talk to us, for example in the Questions and Answer sessions. In case you want to give anonymous feedback, you can use an anonymous online form, the link is on the course webpage.