

# MACHINE LEARNING: THEORY AND ALGORITHMS

PROF. ULRIKE VON LUXBURG, SUMMER TERM 2018

## General information

Lecture: Prof. Ulrike von Luxburg

- Tuesdays 12:15-14:00 in F119 (Sand 6)
- Thursdays 10:15 - 12:00 in F119 (Sand 6)

Lecture start on April 17.

Tutorials: Diego Fioravanti ([diego.fioravanti@tuebingen.mpg.de](mailto:diego.fioravanti@tuebingen.mpg.de))  
Tobias Frangen ([tobias.frangen@student.uni-tuebingen.de](mailto:tobias.frangen@student.uni-tuebingen.de))  
Moritz Haas ([moritz.haas@student.uni-tuebingen.de](mailto:moritz.haas@student.uni-tuebingen.de))

- Tue 16-18 (up to 2 groups, A302 und C118)
- Wed 16-18 (up to 2 groups, A302 und C118)

### Important:

- **To get assigned to one of the tutorial sessions, please fill out the doodle** <https://doodle.com/poll/25adv7a6ttfnycq7> (link is also on our webpage) **by 10:00 Friday April 20. We publish which tutorial session you belong to by 12:00 at the same day on our webpage (see link below).**
- **Please join also the Ilias room. You can find it under** [https://ovidius.uni-tuebingen.de/ilias3/goto.php?target=crs\\_1659843&client\\_id=pr02](https://ovidius.uni-tuebingen.de/ilias3/goto.php?target=crs_1659843&client_id=pr02) (link is also on our webpage) **The password is “learning”.**

## Course material

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

[http://www.tml.cs.uni-tuebingen.de/teaching/2018\\_machine\\_learning/index.php](http://www.tml.cs.uni-tuebingen.de/teaching/2018_machine_learning/index.php)

Some material is password protected with login “machine” and password “learning”. Please do not distribute the protected material!

## Requirements

To pass the whole course, there are three requirements:

- You have to achieve in average at least 50 % of the points in the weekly assignments. Beyond this, no grade or bonus points are given for the assignments.
- Everybody needs to present at least solutions for two exercises in the tutorials (see below).
- You have to pass the final written exam (see below).

The final mark is then the one of the written exam.

## Tutorials

In the first week there will be only one tutorial session on April 17 at 16:15 in **room A302(Sand ?)**. This tutorial session will give you a Math-Racap. In the second week there will be again only one tutorial session on April 24 at 16:15 in room **room A302(Sand ?)**. This tutorial session will give you an introduction to Python. From the third week on there will be several tutorial sessions every week (see above). In order assign the groups please fill out the doodle (see above) before 10:00 Friday April 20. You will find which tutorial session you belong to on the webpage after 12:00. You need to check this so that you know which tutorial session you have to go to in the next week.

## Assignments

For every week there will be an assignment (Übungsblatt) published on Tuesday. It is due to the Tuesday of the next week. Some of the exercises are theoretical, some of them are implementation exercises in Python. We encourage you to work in groups to solve the exercises. To hand in the exercises, please form groups of two students each. Note that both students need to be familiar with all the solutions their group submits, so they can present them in the tutorial sessions.

- Solve the theoretical exercises either in a handwritten form and scan them in (the writing needs to be legible) or by using LaTeX. Name your solution `assignment[number]-[member1]-[member2].pdf` and send them to your tutor before the due date ends. Alternatively, you can also hand in your handwritten solution in the lecture on Tuesday.
- For the implementation exercises you will typically find a Jupyter notebook file coming with your assignment. Complete the code in this file and save it as `assignment[number]-[member1]-[member2].ipynb`. Then send it and the other files you wrote to solve the assignment to your tutor via mail **subject:**.

The solutions to the assignments will not be posted on the website. You are expected to attend the tutorial sessions and discuss your solutions. In particular, each student has to present the solutions of at least two exercises to be eligible for the exam.

## Python

To solve the implementation exercises you will need to work with Python. In particular we will use Jupyter notebook. We suggest to use the Anaconda distribution, where Jupyter notebook and all required packages are already included. You can download it from the following link for Windows, Linux and Mac. Please use the version with Python 3.6.

<https://www.anaconda.com/download/>

We will give an introduction to Python in the tutorial session in the second week.

## Exams

There will be written exams at the end of the semester. The dates are:

- First exam: Tuesday, 24.07.2018, 10:00-12:00 (room to be announced)
- Second exam: Thursday, 04.10.2018, 10:00-12:00 (room to be announced)

Please note that in case you miss the exams, you cannot simply take an oral exam instead, you will have to wait until next year's exams take place.

## Suggestions, feedback, ...

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