Machine Learning A (MLA): Course Introduction
Fall 2023

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Course Team

Course Team: Instructors

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(4 lectures)

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*(one lecture & course
management)*

Course Team: Teaching Assistants

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Julian Schön

Michael Ghandforoush

Monika Haubro

Nikolin Prenga

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Course Plan

Weekly Plan

	Mon	Tue	Wed	Thu	Fri
9:15 – 10:00	Lecture 1				Lecture 2
10:00 – 11:00	Lecture 1		TA (x1)		Lecture 2
11:00 – 12:00	Lecture 1 Q&A		TA (x1)		Lecture 2 Q&A
12:00 – 13:00			TA (x1)		
13:15 – 14:00	TA (x2)	TA (x4) + OTA			TA (x2)
14:00 – 15:00	TA (x2)	TA (x4) + OTA			TA (x2)
15:00 – 16:00	TA (x2)	TA (x4) + OTA	TA (x1)		TA (x2)
16:00 – 17:00			TA (x1)		
18:00			TA (x1)	HA DEADLINE	

- 'TA' denotes *physical* TA classes (3-hour slots).
- 'OTA' denotes the *online* TA class (held over Zoom).
- You can attend any and as many sessions you like.

Tentative Lecture Plan

Week	Monday, 9:15-12:00	Friday, 9:15-12:00
1	Course Introduction	Regression
	Introduction to Supervised Learning; K-Nearest Neighbors; Validation; Cross-validation	
2	Validation (continued); Markov's and Chebyshev's Inequalities	Feature Transformations; Classification/Regression in Transformed Feature Spaces; Regularization and Dimensionality Reduction
3	Hoeffding's Inequality; Generalization in Finite Hypothesis Classes	Occam's Razor; Decision Trees
4	Linear Classification; Perceptron; Logistic Regression	Random Forests
5	Neural Networks 1	PCA
6	Neural Networks 2	Clustering
-	*Autumn break*	
7	Course Summary	Course Evaluation

Yevgeny	Christian	Sadegh

Course Material

- **Main material:** Lecture notes, slides, some papers, ... and blackboard
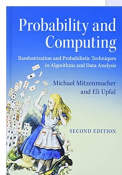
  ⸬ **Lecture Notes:**

  ⸬   🔗   **[YS] Machine Learning -- The Science of Selection under Uncertainty**

  ⸬   🔗   **[CI] A Short Course in Data Mining**

- **Supplementary material (optional):**
  - Learning from Data (with additional chapters online at amlbook.com)
  - Probability and Computing (free online copy available)

Home Assignments

Home Assignments

- Weekly home assignments
  - Only for exam eligibility; no contribution to the final grade — more on this in next slides.

- Every student must submit their own report:
  - Discussing the questions in small groups is allowed.
  - However, copying from each other (code or solution) is not allowed.

- No resubmissions (except for re-exam qualification, if necessary)

- Home Assignments are due **Thursdays, at 18:00**.

⚠️ Late submissions will not be graded
… irrespective of the reason

Home Assignments: Feedback and Ref Solutions

- We do not hand out written reference solutions.

- But some reference solutions will be provides during the Q&A hour at the end of each lecture.
  - This hour is also meant for other questions related to course material.
  - You are also welcome to ask on Absalon (the **Discussions** forum).

- TAs provide feedback on your submissions:
  - They are expected to make a *short comment* regarding what was wrong when they take points.
  - They are not expected to provide written feedback on how to fix your mistakes.
  - You can ask them such things orally at a TA session (or a Q&A hour).

Final Exam

Exam Eligibility

- You must score at least **50%** to be admitted to the final exam
  - E.g., 50% on all assignments, or 100% on half of the assignments, or anything in between; the average counts.
  - Eligibility is determined by taking a lower confidence bound on your score.

- *What happens if you get less than 50%?*
  - Your submissions demonstrate your work throughout the course; if you obtain close to the borderline 50%, we will take the number of submissions into account.
  - Submitting all home assignments is looked upon quite positively.

- No grade complaints under 20 points mistake
  - We are happy to help you with the material, but we do not want to waste time on point counting —you only have to score above 50%.

Final Exam

- Final exam is **7-day** take-home exam in the 8th week of the block (Oct 27 – Nov 3).

- Final exam must be solved **individually**.
  - Group work is not allowed by any means.
  - We will be very strict about cheating; if proven guilty you may be expelled from UCPH.
  - As per UCPH's rule, use of tools involving LLMs (like ChatGPT) is deemed cheating.

- Final grade = final exam grade