Course number	U-LAS11 20005 SE55

Course title (and course title in English)	Data Analysis Practice I-E2 Data Analysis Practice I-E2	Instructor's name, job title, and department of affiliation	

Group	Natural Sciences	Field(Classification)	Data Science(Development)

Language of instruction	English	Old group	Group B	Number of credits	2

Number of weekly time blocks	1	Class style	Seminar (Face-to-face course)	Year/semesters	2025 First semester

Days and periods	Thu.4	Target year	All students	Eligible students	For all majors

[Overview and purpose of the course]

Media and web apps regularly infiltrate our daily lives and we are confronted with a constant flow of information. How can we use public data to our advantage and discover patterns or extract useful information? This course is aimed at students from all disciplines who want to learn essential data analytics skills. Prior specialized knowledge is not required and topics will be introduced at a beginner's level. The course imparts methods to obtain, clean, analyze, and visualize data from the web via python and communicates basic concepts of data mining and statistical analyses.

[Course objectives]

In this course, students will
- learn about the theoretical basis of data mining and statistical learning
- gain the skills to retrieve, analyze, explore, and visualize data and draw conclusions for decision making
- become familiar with computational operations, python, and data structures

[Course schedule and contents)]

[WEEKS 01-07] THEORY:
- Fundamental statistics and exploratory data analysis
- Data visualization
- Linear regression
- Classification
- Supervised learning: decision trees, random forest, support vector machines, others
- Unsupervised learning: clustering

[WEEKS 08-14] PRACTICE:
Introduction to python (jupyter), demonstration and execution of data analysis workflows based on concepts covered in preceding theory section.

[Course requirements]

Access to a personal computer is required in order to complete homework assignments.

Data Analysis Practice I-E2(2)

[Evaluation methods and policy]

20 % Class attendance
30 % Mid-term exam
50 % Homework assignment

[Textbooks]

Instructed during class

[References, etc.]

References, etc.

Introduced during class

[Study outside of class (preparation and review)]

Weekly review of course content is advised.
The completion of the homework assignment in groups of 1 to 3 students requires additional time investment outside of class.

[Other information (office hours, etc.)]

Announced during class.

[Essential courses]