

Data Visualization and Machine Learning

Overview

Prof. Dr. Philipp Baumann

University of Bern

Fall 2023

(tentative, as of September 17, 2023)

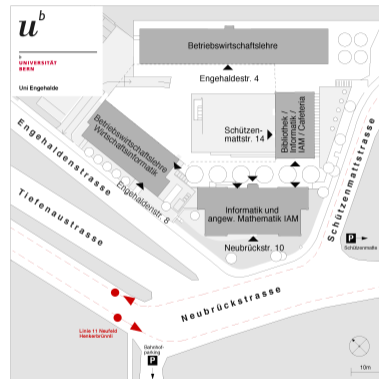


- 1 Lecturer
- 2 Course
- 3 Exam
- 4 Content
- 5 Literature

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- Born in Bern
- 2009: MSc in Business Administration, University of Bern
- 2013: PhD in Business Administration, University of Bern
- 2013–14: Research Scholar at IEOR Department, UC Berkeley
- 2014–15: Postdoc at IEOR Department, UC Berkeley
- Since 2015: Professor in Quantitative Methods and Operations Research, University of Bern
- Research:
 - Mathematical programming
 - Machine learning
 - Constrained clustering

- Department of Business Administration
- Chair in Quantitative Methods
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- Compulsory course for “Digitalization and Applied Data Science” students
- Optional course for business administration students
- No registration required for participation
- Required knowledge:
 - Introduction to Mathematics
 - Introduction to Statistics
 - Programming for data scientists I and II

- Time: Thursdays from 10:15 AM - 12 PM
- Location: Room 101, main building
- Start: Sep 21, 2023
- Download of material for lecture: ILIAS
- Lecture includes
 - Theory
 - Examples
 - Case studies
- Podcast will be provided (availability may be affected by technical issues)

- Time: Thursdays from 10:15 AM - 12 PM (instead of lecture)
- Location: Room 101, main building
- Dates: Oct 12, Oct 26, Nov 16, Dec 07
- Download of material for exercises: ILIAS
- Types of questions
 - Understanding
 - Multiple choice
 - Application of algorithms by hand
 - Application of algorithms with Python
- Podcast will be provided (availability may be affected by technical issues)

- Three assignments
 - Deadline assignment 1: Oct 11 at 5 PM
 - Deadline assignment 2: Oct 25 at 5 PM
 - Deadline assignment 3: Nov 15 at 5 PM
- Assignments are conducted individually
- Download of assignment: ILIAS
- Upload of your solution: ILIAS
- Feedback per email

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- 3 ECTS
- Written exam
- Exam will cover lecture, exercises, and programming assignments
- Permitted aids
 - Non-programmable hand-held calculator
 - Formulary (will be distributed before the exam)

- Dates (duration of exam is 60 minutes)
 - 1 Thursday, Dec 21, 2023 from 6:15 PM to 7:15 PM
 - 2 Thursday, Feb 15, 2024 from 10:15 AM to 11:15 AM
- Location: will be announced on KSL after closing date for exam deregistration
- Q&A in lecture on Thursday Dec 14, 2023

Exam on Dec 21, 2023

Closing date registration	Dec 14, 2023
Closing date deregistration	Dec 19, 2023
First date to access graded exam	Jan 11, 2024 (10:00 AM - 11:00 AM)
Second date to access graded exam	Jan 23, 2024 (3:00 PM - 4:00 PM)

Exam on Feb 15, 2024

Closing date registration	Feb 8, 2024
Closing date deregistration	Feb 13, 2024
First date to access graded exam	Feb 22, 2024 (10:00 AM - 11:00 AM)
Second date to access graded exam	Feb 26, 2024 (2:00 PM - 3:00 PM)

Registration and deregistration only via KSL

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- 1) Data visualization
 - Basics of visualization
 - Interactive plots and dashboards
- 2) Machine learning
 - Overview
 - Supervised learning (classification, regression)
 - Unsupervised learning (clustering)

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- 📖 Gareth James, Daniela Witten, Trevor Hastie, Robert Tibshirani, and Jonathan Taylor.

An introduction to statistical learning with applications in Python.

Springer International Publishing, 2023.

- 📖 Cole Nussbaumer Knaflic.

Storytelling with data: a data visualization guide for business professionals.

John Wiley & Sons, 2015.