Welcome to

Visualization (Vis)

Storytelling with Interactive Data Visualizations

Class Setup

Winter Term 2024/2025
Prof. Dr. Markus Breunig

Course Syllabus

- Course Description
  - This course is designed to equip students with the skills and knowledge to create interactive data visualizations that tell compelling stories. Students will learn how to engage their audience through interactive elements and effectively communicate data-driven insights. The course will cover the fundamentals of interactive data visualization and storytelling techniques.

- Course Objectives: By the end of this course, students will be able to:
  - Understand the principles of interactive data visualization and storytelling.
  - Design data stories and user-friendly interactive visualizations that enhance these.
  - Create effective interactive data visualizations.
  - Critically evaluate the effectiveness of interactive visualizations.

- Prerequisites
  - Basic knowledge of Statistics
  - Basic knowledge of Python
  - …and a curious mind!

Class Setup

- Schedule
  - 4 hours class time per week
  - Micro Flipped Classroom approach
  - (Some) Homework assignments – to be completed before the respective class
- Exam
  - PStA (Project Work)
  - Teams of (3-)4 students
  - Teams will form in the third week of the class = Start of PStA
- Credits
  - 5 ECTS CPs ≅ 150h of work per student

Flipping the classroom

- Traditional Classroom
  1) Frontal lectures in class
  2) Homework to deepen understanding
  3) Lab work to practise and demonstrate understanding

- Flipped (inverted) classroom concept
  1) Instructor prepares lectures ahead of class
  2) Students watch / listen to lectures ahead of class
  3) Class used to apply learnings

Micro-Flipped Classroom

- This Class: Micro-Flipped Classroom
  → best of both worlds
  1) Students prepare easy material at home (videos / reading assignments)
  2) Class = mixture of applying material from homework and frontal lectures for hard material
  - ➔ Homework mandatory!
  - ➔ Reserve about 2 h per week!

Project Information

- Project Teams
  - Group projects of (3-)4 students
  - Project teams will form between today and the third lecture
    ➔ Final decision on participation by the end of today's lecture necessary!
  - Project teams get to choose their project

- Project Content
  - Design and implement an interactive data visualization story
  - Tooling
    - Python visualization lib(s) of your choice: matplotlib, seaborn, bokeh, plotly or vega-altair
    - Streamlit 
    - Docker 

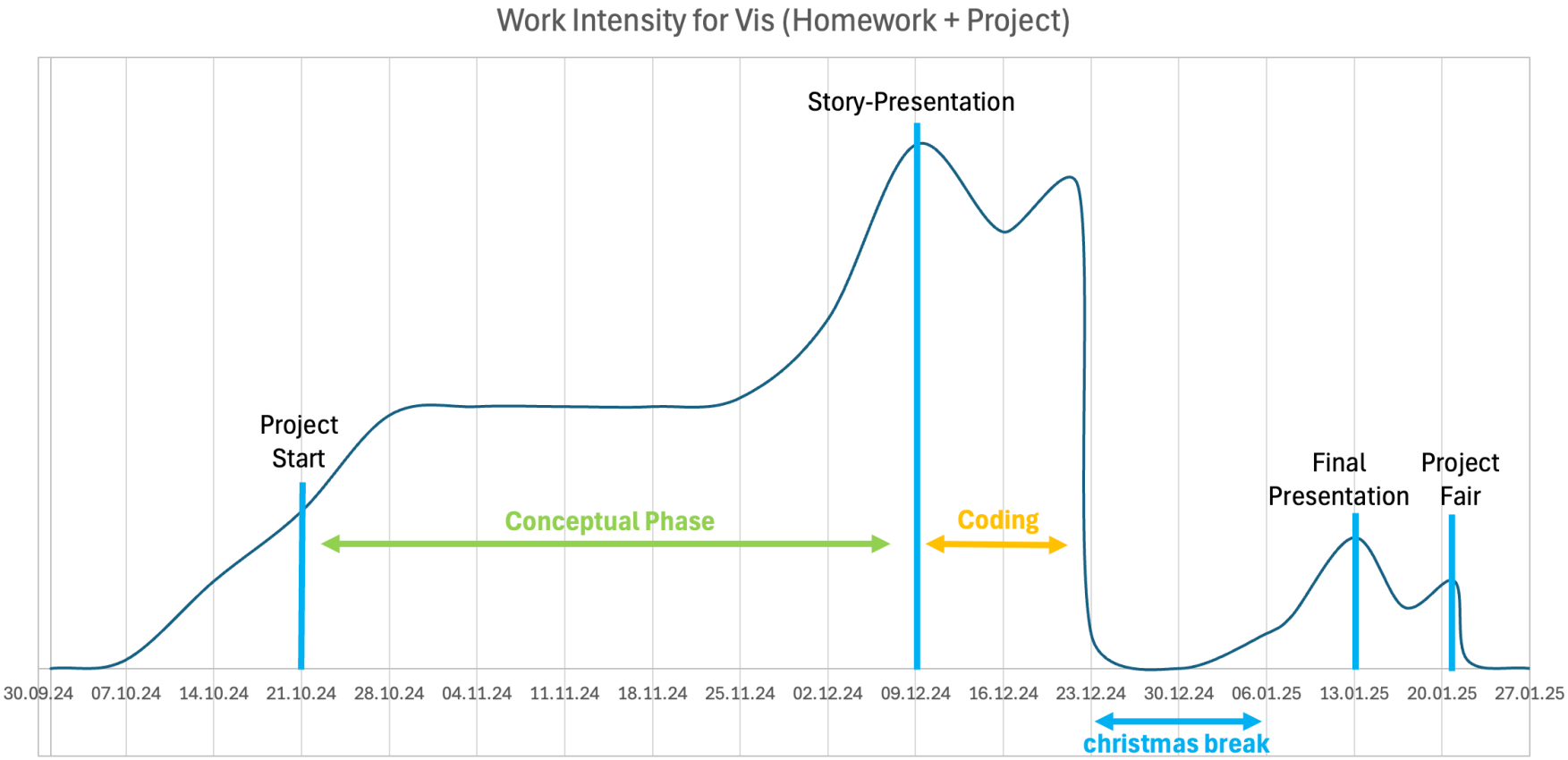
Schedule (tentative)

Visualization Schedule

Date		Project Part	Attendance
Mo	07.10.24	Decision on Class Participation	mandatory
Mo	14.10.24	Lecture	
Mo	21.10.24	Team Setup	mandatory
Mo	28.10.24	Discussion and First Selection of Vis Project Ideas (narrow it down to 1 or 2 ideas out of the 4)	mandatory
Mo	04.11.24	Project Work and Coaching	
Mo	11.11.24	Project-Idea-Presentations	mandatory
Mo	18.11.24	Lecture	
Mo	25.11.24	Lecture	
Mo	02.12.24	Project Work and Coaching	
Mo	09.12.24	Story Discussion	mandatory
Mo	16.12.24	Project Work and Coaching	
Mo	23.12.24	no lecture - christmas break	
Mo	30.12.24	no lecture - christmas break	
Mo	06.01.25	no lecture - public holiday	
Mo	13.01.25	Final Project Presentations	mandatory
Mo	20.01.25	(Buffer for Final Project Presentations)	(mandatory)
Tu	21.01.25	Digitalization Fair (to be confirmed)	mandatory
Mo	27.01.25	no lecture - examination period	

Note: tentative schedule, all dates (incl. mandatory attendance) may be moved (e.g. due to illness) --> you need to plan to attend all lectures!

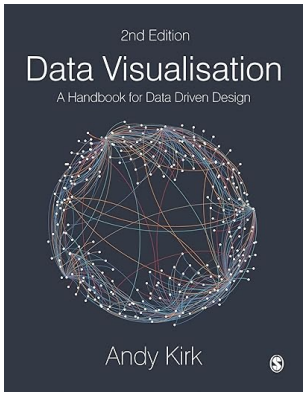
Expected Work Intensity



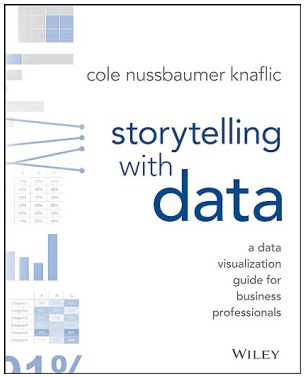
Note: you are free to extend the coding phase into the christmas break

Literature

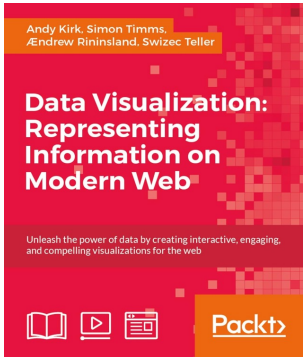
- Andy Kirk:
  Data Visualisation.
  (SAGE Publications, 2nd edition, 2019)



- Cole Nussbaumer Knaflic:
  Storytelling with Data.
  (Wiley, 2015)
  Available as ebook from TH Ro Library



- Andy Kirk:
  Data Visualization: Representing Information on Modern Web
  (Packt Publishing, 2016)
  Available as ebook from TH Ro Library



- Tamara Munzner:
  Visualization Analysis & Design.
  (A K Peters, 2014)
  Available as ebook from TH Ro Library