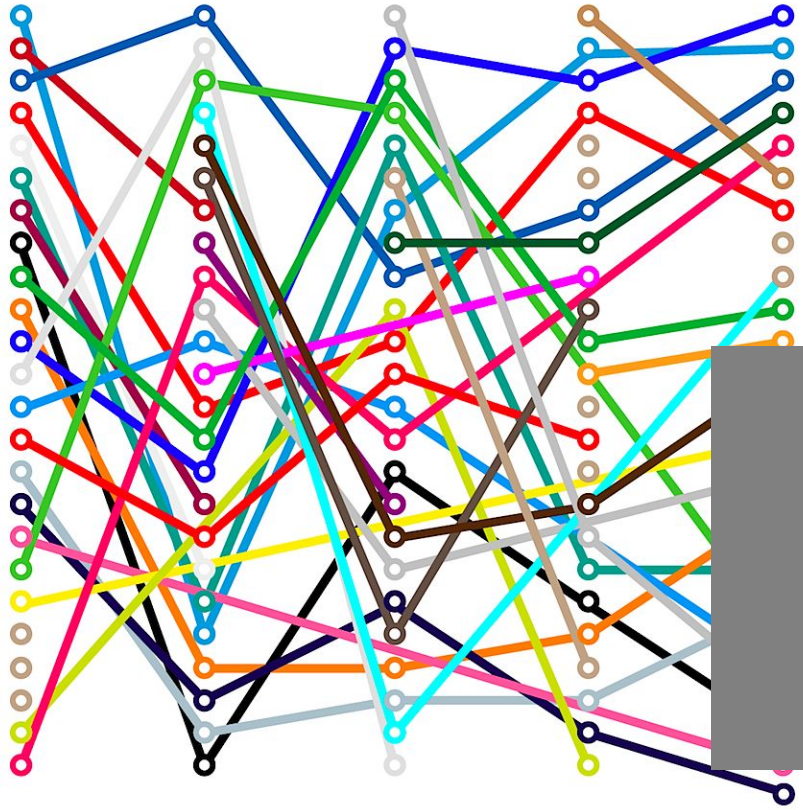

188.305 – VO: 2 hr.: 3 ECTS
188.308 – UE: 1 hr.: 1,5 ECTS

Information Visualization

Silvia Miksch, Wolfgang Aigner, Markus Bögl, Davide Ceneda,
Velitchko Filipov, Ignacio Messina, Sandhya Rajendran, Michaela Tuscher
Maximilian Jellen, Tutor

TU Wien
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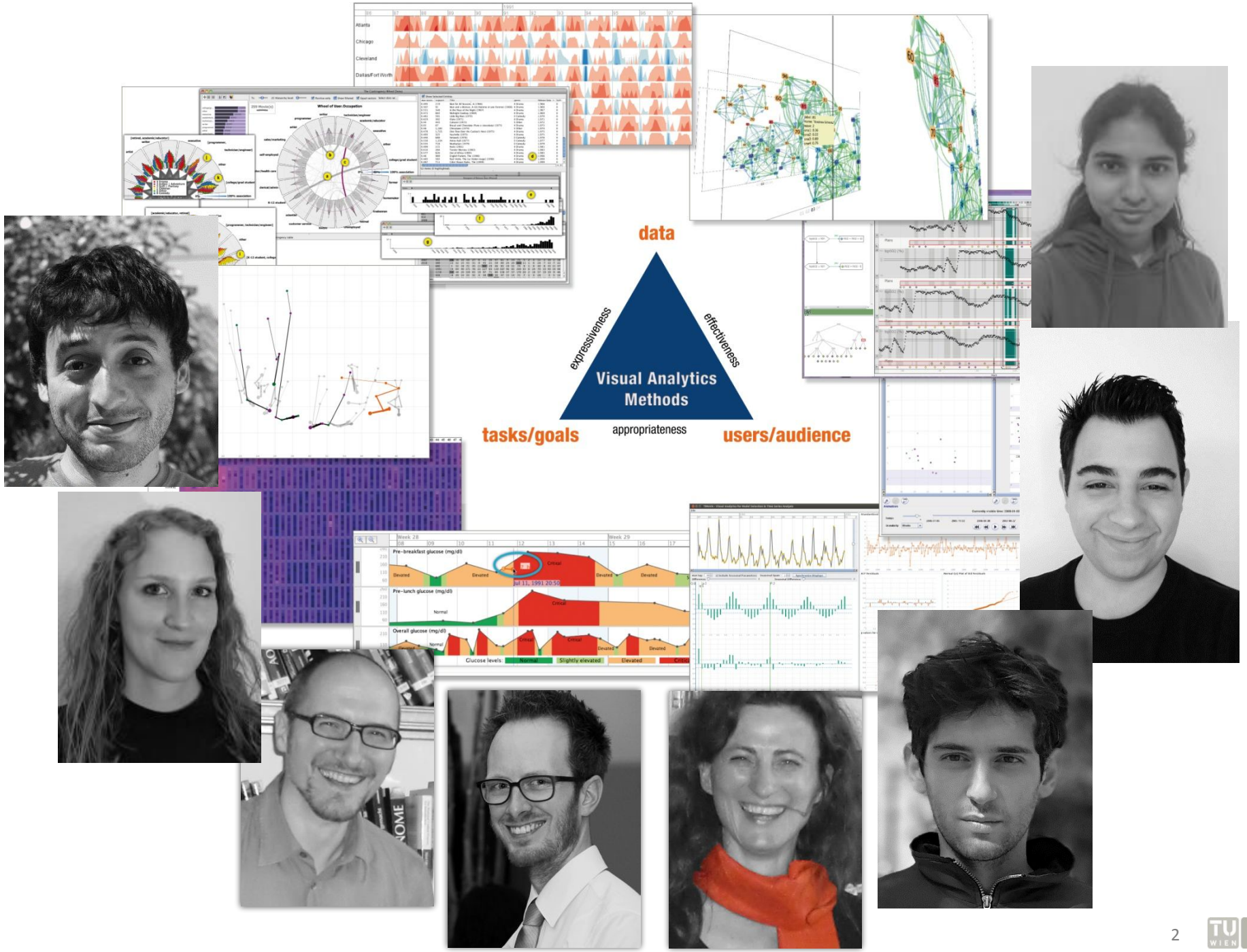
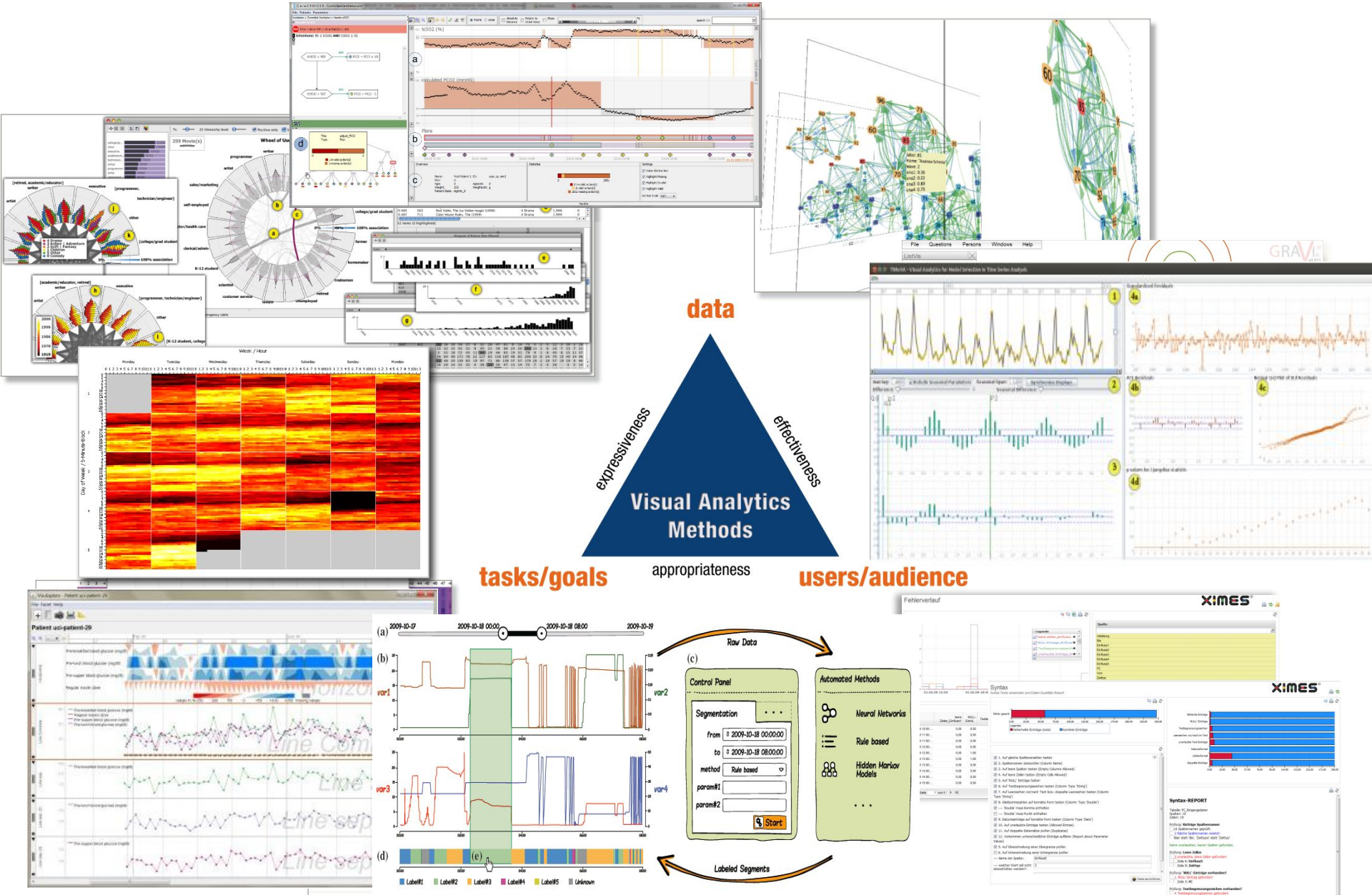
TU WIEN Informatics

CVAST


data
expressiveness
effectiveness
Visual Analytics Methods
tasks/goals
appropriateness
users/audience

Visual Analytics of Time-Oriented Data



Seminars, Projects, Theses...

SE 3.0 Wissenschaftliches Arbeiten

SE 3.0 Seminar aus Medizinischer Informatik

PR 6.0 Projekt aus Media and Human Centered Computing, Informationsvis., Visual Analytics und Informationsdesign 1 & 2

SE 3.0 Seminar Media and Human Centered Computing, Informationsvis., Visual Analytics und Informationsdesign

PR 12.0 Projekt Medizinische Informatik

PR 10.0 Bachelorarbeit für Informatik und Wirtschaftsinformatik

PR 9.0 Praktikum aus Visual Computing

PR 6.0 Praktikum aus Visual Computing 1 & 2

PR 15.0 Vertiefendes Forschungspraktikum aus Angewandter Inf.

Diplom-/Masterarbeiten

Seminars, Projects, Theses...

Topics

Information Visualization, Visual Analytics, Medizinische Informatik

Topics see https://www.cvast.tuwien.ac.at/topics

Your own ideas are welcome!

Common coordination of different seminars and projects

see TISS and TUWEL

Introduction lecture will be on

21st of October, 10am in FAV Hörsaal 2 (see TUWEL course)

Aim of course

At the end of the semester, you should:

know what **"Information Visualization", "Visual Analytics**, and their main characteristics are;

to gain knowledge about methods, concepts, and techniques of information visualization (InfoVis) and Visual Analytics (VA).

be able to assess the quality of visual representations and gain skills for problem analysis, the design, and implementation, as well as the evaluation of visualization systems.

understand the main principles of human visual **perception** and visualization;

be able to organize and present data using **text, tables, and graphical representations** in order to communicate information clearly and succinctly;

be able to assess the **quality of visual representations** including the identification of flaws and manipulative designs of visual representations;

have an overview of a variety of visual representation **methods**, know about their main characteristics, and in which contexts they can be applied;

understand **human-centered design** and **evaluation** methods for visualizations;

have knowledge about **reference models and taxonomies** for visualization and understand the role of interactivity.

VO – Contents

1. Introduction
2. Perception & Cognition + Visual Encoding Principles
3. Geospatial, Text & Document Data Visualization
4. Time-Oriented Data Visualization
5. Hierarchy & Network Data Visualization
6. Multivariate Data Visualization
7. Interaction, Distortion & Multiple-View Methods
8. Human-Centered Visualization Design & Evaluation
9. Visual Analytics
10. Johanna Schmidt: Invited Talk (16.12.2024 – 11-13h)

VO – Material

TUWEL will be used to provide slides and other relevant material for each lecture.

Changes of dates, procedures, etc. will be announced via TUWEL – information within TUWEL is binding and may set aside information within these slides.

Mandatory material that you HAVE TO study

Additional material for those who are interested to learn more

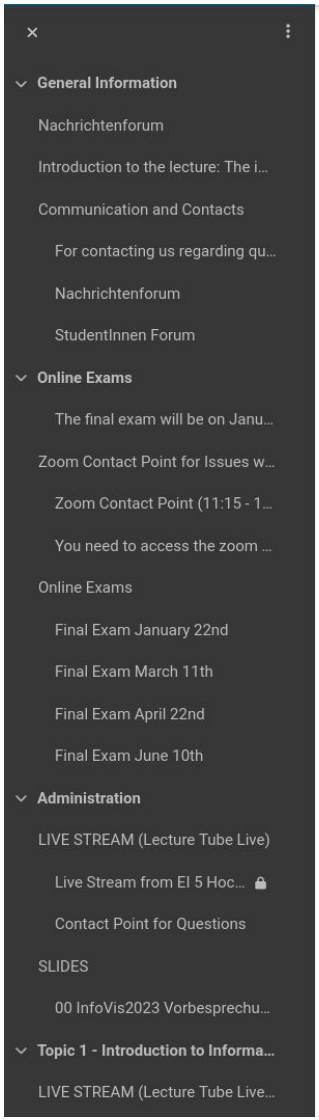
Material and Self Study Period

For each topic

- Material provided via TUWEL on a weekly basis
- Self study period of one week to prepare for live session
- Content for self-studying in form of mandatory material:
  - annotated Slides, notes, videos, readings, audio, podcasts, weblinks
- On-site lecture to discuss specific aspects in each topic

Communication

- Primary communication channel is TUWEL
- Use forum in TUWEL for questions and discussion
- Prepare for the lecture for questions and discussion on the weekly topic in the self study period using the provided material



188.305 Informationsvisualisierung (VO 2,0) 2024W

Zum TISS

Kurs | Einstellungen | Teilnehmer/innen | Bewertungen | Berichte | Mehr

General Information

Alles einklappen

Nachrichtenforum

Introduction to the lecture:

The introduction of the lecture will be held at EI 5 Hochenegg HS on **October 7th** at **11:15.** The organizational introduction will last approximately 20 minutes. Then we will cover the first content lecture about the Introduction to Information Visualization.

For all lectures in the Winterterm 2024:
The course will take place **on-site**. The lectures take place on **Mondays** from **11:15-13:45** at EI 5 Hochenegg HS, with self-study material provided roughly 1 week before the lecture, where the topic is discussed. See the material and content provided by the lecturers in each section below. Please look through this material **before** the lecture.
Feel free to use the forum for questions and discussion.

Communication and Contacts

For contacting us regarding questions and concerns you can use the forum linked below or you can directly contact the following persons:

Tutor: Maximilian Jellen
Lecturer: Markus Bögl and Silvia Miksch

Nachrichtenforum

Nachrichten und Ankündigungen

StudentInnen Forum

Forum für Fragen, Anregungen, Diskussionen

Registration and Course Dates

Register in TISS to get access to TUWEL.

Registration for the final Exam in TISS mandatory!
Registration until about 1 week before the exam.

Course Dates
Mo 11h-13h -- in classroom (EI 5 Hochenegg HS)

More see TUWEL ...
... Always explore TUWEL for the most recent changes

SUBSCRIBE TO TUWEL NACHRICHTEN FORUM!

VO – Examination Modalities

Online multiple choice test at the end of the semester

- About the content of the whole semester
- Relevant content for the test:
  - All weekly topics (except for the invited talk)
  - Slides + Slides annotations and notes
  - All mandatory material provided in TUWEL
    - videos, readings, audio, podcasts, weblinks.

VO – Grading

VO: 135 points

9 lectures: 9 * 5 questions (each question 3 points)

Upper	Lower	Grade
100,00 %	90,00 %	S1
89,99 %	80,00 %	U2
79,99 %	70,00 %	B3
69,99 %	60,00 %	G4
59,99 %	00,00 %	N5

UE – Aim of course

…practical course of the lecture information visualization

UE – Material

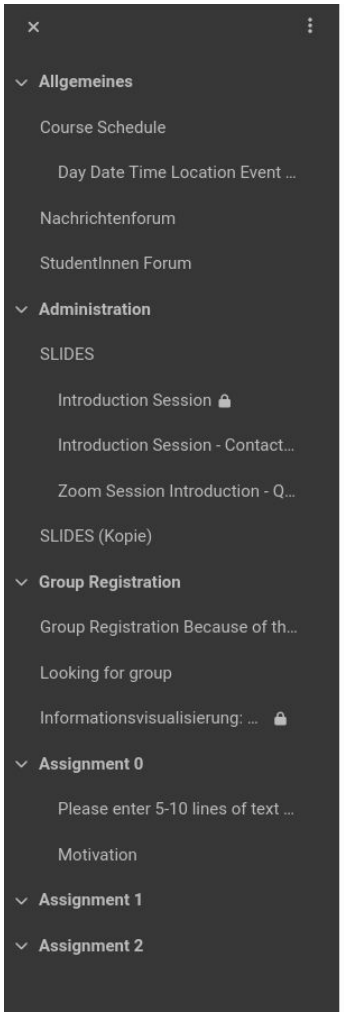
TUWEL will be used to provide descriptions of the assignments, information, dates, etc.

The assignments have to be carried out in English handed in via TUWEL!

Results will be published via TUWEL

Depending on the number of students, there will be either either single submissions or group of 2.

TUWEL UE



188.308 Informationsvisualisierung (UE 1,0) 2024W

Zum TISS

Kurs | Teilnehmer/innen | Bewertungen | Download Center

Allgemeines — Alles einklappen

Course Schedule

Day	Date	Time	Location	Event
Monday	07.10.2024	11:15 - 12:00	EI5 Hochenegg HS	Lecture Introduction
Sunday	13.10.2024	23:55	TUWEL	Assignment 0 due
Monday	14.10.2024	09:00	TUWEL	Start Group Registration
Thursday	24.10.2024	23:55	TUWEL	End Group Registration
Monday	28.10.2024	13:15 - 14:30	On-Site (TBA)	Get to know your group
Monday	28.10.2024	12:00	TUWEL	Assignment 1 available
Thursday	21.11.2024	23:55	TUWEL	Assignment 1 due
Monday	25.11.2024	13:15 - 14:45	On-Site (TBA)	Discussion Assignment 1
Monday	02.12.2024	12:00	TUWEL	Assignment 2 available
Thursday	16.01.2025	23:55	TUWEL	Assignment 2 due
Monday	20.01.2025	13:15 - 14:45	On-Site (TBA)	Discussion Assignment 2

ANWESENHEITSPFLICHT bei den Diskussionsterminen und dem get-to-know-your-group event

UE – Examination Modalities

2 (+1) Assignments handed in via TUWEL:

Assignment 0: Letter of motivation (5-10 lines)

Assignment 1: Visualization design

Assignment 2: Creating interactive visualizations

Mo 28.10.2024 - 13-15 o'clock: Introduction to the Assignments and Dataset + get-to-know-your-group event

In-classroom presentation and discussion

Attendance required for get-to-know-your-group event and discussion dates (Anwesenheitspflicht)

Assignment 0: Motivation

Please enter 5-10 lines of text about your main interest / motivation / prior knowledge in the area of Information Visualization / Visual Analytics.

Assignment 1: Visualization Design

Your task is to design a concept for an interactive visualization and provide explanatory text describing your design.

In a first phase you will **characterize the data** as well as the **user** with their **tasks** and **goals**.

Based on this you will **design a concept** for an interactive visualization that you believe effectively communicates the data well according to the users and tasks.

A central element in this context are **interaction methods to query, explore, and analyze** the data visually.

Assignment 2: Creating Interactive Visualizations

The goal with this assignment is not only for you to **gain hands-on experience implementing a visualization technique**, but also for you to think about the effectiveness of the specific visualization techniques you re-implement in the context of the data domain you work with.

You should **use a visualization software toolkit** and **use the visualization techniques provided** by the toolkit. Explore the different examples and demos and adapt them for your purposes. ***Therefore, it is not necessary to implement a visualization technique from scratch.***

UE – Registration and Course Dates

Registration in TISS mandatory!
- Start: 12.09.2024 12:00
- End: 11.10.2024 23:55

Deregistration
- End: 14.10.2024 23:55

Course Dates
- Assignment 0: Motivation
  - Due date: Su, 13.10.2024, 23:55h
- Presentation Dataset+Assignments, Get-to-know-your-group event
  - Mo, 28.10.2024, 13:00-15:00
- Assignment 1: Visualization design
  - Due Date: Do, 21.11.2024, 23:55h
  - Discussion: Mo, 25.11.2024, 13:00-15:00
- Assignment 2: Creating interactive visualizations
  - Due Date: Do, 16.01.2025, 23:55h
  - Discussion: Mo, 20.01.2025, 13:00-15:00

More see TUWEL ...

UE – Grading

UE: 100 points

Assignment 0: Letter of motivation (5-10 lines): 2 point

Assignment 1: Visualization design: 30 points

Assignment 2: Creating interactive visualizations: 48 points

Discussion Session (2 times): 2x max. 10 points = 20 points

Late submission: -20% (rounded) of the points / day

UE – Grading Key

UE: 100 points

Upper	Lower	Grade
100,00 %	90,00 %	S1
89,99 %	80,00 %	U2
79,99 %	70,00 %	B3
69,99 %	60,00 %	G4
59,99 %	00,00 %	N5

"Solving a problem simply means representing it so that the solution is obvious."

[Simon, 1996]

Questions...