Visualization

Winter

(in German: Visualization)

Module-ID: FIN-INF-102812

Abbreviation	Credit Points	Semester	Term	Duration	Language	Level
VIS	6	Winter	starting at 1.	1 Semester	english	Master

Link:	LSF
Limited accessability:	true
Responsibility:	Bernhard Preim
Lecturer:	Bernhard Preim
Classes:	• Lecture *Visualization* • Exercise class *Visualization*
Applicability in curriculum:	- M.Sc. DKE: Applied Data Science - M.Sc. DE: Methoden der Informatik - M.Sc. DE: Informatik Wahlpflicht (SPO 2027) - M.Sc. VC: Visual Computing - M.Sc. VC: Visual Computing (SPO 2027)

Intended learning outcomes:
Students ...

- understand how physiological perception affects visualization effectiveness
- know basic visualization techniques
- can generate appropriate visualizations for business and statistical data
- obtain a dataset with at least 100 observations and 5 attributes, formulate two analytical questions, and create data visualizations to answer these questions.

Content:

- Visualization goals and quality criteria
- Understanding of fundamentals of visual perception
- Overview of data structures in visualization
- Basic algorithms (Isolines, color scales, diagram techniques),
- Direct and indirect visualization of volume data
- map-based visualization
- dashboard design
- Information visualization

Workload:
56h contact time + 124h self study, students have to solve a comprehensive additional task where they analyze and visualize a multi-dimensional dataset

Pre-examination requirements:	Type of examination:	Teaching method / lecture hours per week (SWS):
	Written exam, 2 hours	• 2 SWS Lectures • 2 SWS Exercise classes

Prerequisites according to examination regulations:	Recommended prerequisites:
none	• Module Computer Graphics I • Modules Mathematics I, II and III

Media:	Literature:
• Powerpoint presentation • Sketches • Videos	• P. and M. Keller (1994): Visual Cues, IEEE Computer Society PressT. Munzner (2015). • Visualization Analysis and Design: Principles, Techniques, and Practice, A K Peters • W. Schroeder, K. Martin, B. Lorensen (2001): The Visualization Toolkit: An object-oriented approach to 3d graphics, 3. Aufl. Springer, Heidelberg • A. Telea (2014): Data Visualization: Principles and Practice, Second Edition, AK Peters (2. Auflage) • M. Ward, D. Keim, G. Grinstein (2015): Interactive Data Visualization: Foundations, Techniques, and Applications, Second Edition

Comments:

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