HAW Kiel
Hochschule für Angewandte Wissenschaften Kiel
Kiel University of Applied Sciences

MADS-DVVA - Data Visualization and Visual Analytics

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General information	
Module Code	MADS-DVVA
Unique Identifier	DataVisVisAn-01-MA-M
Module Leader(s)	Prof. Dr. Schwörer, Tillmann (tillmann.schwoerer@haw-kiel.de)
Lecturer(s)	Prof. Dr. Schwörer, Tillmann (tillmann.schwoerer@haw-kiel.de)
Offered in Semester	Wintersemester 2026/27
Module duration	1 Semester
Occurrence frequency	Regular
Module occurrence	In der Regel jedes Semester
Language	Englisch
Recommended for international students	Yes
Can be attended with different study programme	No

Curricular relevance (according to examination regulations)

Study Subject: M.Sc. - DS - Data Science
Module type: Pflichtmodul
Semester: 1

Qualification outcome

Areas of Competence: Knowledge and Understanding; Use, application and generation of knowledge; Communication and cooperation; Scientific self-understanding / professionalism.

Students know
- available visualization techniques and understand for which purpose they are most suitable,
- tools and best practices to closely integrate visual analysis, documentation, and presentation,
- programming frameworks for data visualization

Students are able to
- use visualizations as a means to detect patterns in complex data,
- design and develop expressive visualizations tailored to the specific purpose and recipient using programming languages

Students are able to
- concisely present their approach and results in technical and functional terms
- work successfully in teams on joint projects, leveraging and integrating the skills of all team members.

Students are able to
- reflect on the strengths and weaknesses of visualization techniques,
- give and receive constructive critique and advice

and they adhere to principles for scientific communication.

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Content information	
Content	Foundations of Data Visualization - Perception and Visualization Design - Interactive Dashboards - Visual storytelling Python for Data Visualization - Plotly - Matplotlib - Geopandas - Streamlit Applications - Comparing categories - Relationships - Time series - Geographic data - Interactive visualization
Literature	- Lecture Slides - Cole Nussbaumer Knaflic, Storytelling with Data: A Data Viszualization Guide for Business Professionals, 2015 - Jonathan Schwabish, Better Data Visualizations: A Guide for Scholars, Researchers, and Wonks, 2021 - Claus O. Wilke, Fundamentals of Data Visualization: A Primer on Making Informative and Compelling Figures. O'Reilly, first edition, 2019, online available: https://serialmentor.com/dataviz.

Teaching formats of the courses	
Teaching format	**SWS**
Lehrvortrag + Übung	4

Workload	
Number of SWS	4 SWS
Credits	5,00 Credits
Contact hours	48 Hours
Self study	102 Hours

Module Examination	
Examination prerequisites according to exam regulations	None
MADS-DVVA - Portfolioprüfung	Method of Examination: Portfolioprüfung Weighting: 100% wird angerechnet gem. § 11 Absatz 2 PVO: No Graded: Yes

Miscellaneous	
Recommended Prerequisites	Basic knowledge of Python.