


Data:	DAP MA / Examination number: -	Version: 03.07.2025 	Start Year: WiSe 2025
Module Name:	Data Analysis Project		
(English):	Data Analysis Project		
Responsible:	Tolosana-Delgado, Raimon / PD Dr. Sprungk, Björn / Prof. Dr.		
Lecturer(s):	Tolosana-Delgado, Raimon / PD Dr.		
Institute(s):	Institute of Geophysics and Geoinformatics Faculty of Mathematics and Computer Science		
Duration:	1 Semester(s)		
Competencies:	Students are able to analyse a real dataset autonomously: (a) choose the appropriate method to answer the posed question, (b) adapt and reprogramme it to the requirements or specificities of the data, as well as (c) interpret results and present them in different formats and to different audiences. In particular, students can deal with the specific aspects of data analysis relevant to the georesources industries, such as data with uncommon scales, irregularities and error dependence structures.		
Contents:	<ul style="list-style-type: none"> • data acquisition techniques, error structures, censoring, outliers and robustness • accounting for statistical scales, sample space, data representation, reference probability distributions and loss functions • tools to deal with lack of independence between observations • analysis, development, interpretation and presentation of results for a complex real data set with an actual scientific question 		
Literature:	<ul style="list-style-type: none"> • Efron, Hastie (2016) Computer Age Statistical Inference. Cambridge University Press. ISBN 9781107149892; 475 pages • Goodfellow, Bengio, Courville (2016) Deep Learning. MIT Press. ISBN 9780262337373, 775 pages • Borradaile (2013) Statistics of Earth Science Data. Springer. ISBN 9783662052235, 351 pages 		
Types of Teaching:	S1 (WS): Seminar (1 SWS) S1 (WS): project (1 SWS)		
Pre-requisites:	Recommendations: Any statistics and data analysis lecture of previous semesters		
Frequency:	yearly in the winter semester		
Requirements for Credit Points:	For the award of credit points it is necessary to pass the module exam. The module exam contains: AP: Data analysis project documentation including oral presentation		
Credit Points:	4		
Grade:	The Grade is generated from the examination result(s) with the following weights (w): AP: Data analysis project documentation including oral presentation [w: 1]		
Workload:	The workload is 120h. It is the result of 30h attendance and 90h self-studies.		