Module "Advanced Data Analysis"				
Code	**Workload**	**Credits**	**Turnus**	**Duration**
MGE-GES-02	180 h	6.0 LP	Summer semester	1 semester

Module coordinator

Prof. Dr. techn. W.-D. Schuh

Module lecturers

Prof. Dr. techn. W.-D. Schuh; Prof. Dr.-Ing. J. Kusche; MSc J. Köhler

Providing teaching unit(s)

Institute of Geodesy and Geoinformation

Course programme usability

Programme of study	Mode	Semester
Geodetic Engineering (MSc)	mandatory module (major profile GES)	2nd regular semester

Learning objectives

Acquisition of detailed comprehensive knowledge of state-of-the-art in physical geodesy and geostatistics with a special focus on a variety of deterministic and stochastic approaches; Specialized conceptual skills to be able to apply the most relevant data analysis methods to problems of physical geodesy.

Key competences

After successful completion of the course, the students have acquired basic skills to approximate spatial data and are able to assess the pros and cons of the different strategies. They are able to apply geostatistical concepts to practical applications.

Learning content

Fundamental of potential theory, boundary value problems, physical geodesy, geoid determination; Basic concepts of geostatistics, deterministic approximation (polynoms, finite elements, splines), stochastic approximation (stochastic processes, stationary, covariance functions, Wiener-Kolmogorov-filtering, kriging, collocation)

Prerequisites for admission to the module

none

Courses

Teaching method	Topic	Group size	Time of contact	Workload
3L+2Es	Advanced Data Analysis	12	75 h	180 h

Coursework

Type of coursework	un/marked
Oral and/or written coursework	unmarked

Examination

Type of examination (Duration in minutes)	un/marked	Weight
Oral examination (25 min)	marked	100 %

Further information

References:

Koch, K.R. (1999): Parameter Estimation and Hypothesis Testing in Linear Models. Springer

Gilbert Strang, Kai Borre(1997): Linear Algebra, Geodesy, and GPS. Wellesley-Cambridge Press, ISBN 0-9614088-6-3

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