

82006000 / Ma-DS-7

Analysing Networks

Analysing Networks

Module coordinator: Prof. Dr. rer. nat. Peter Niemeyer

Full-time teaching staff of this module: Prof. Dr. rer. nat. Peter Niemeyer

Courses offered in the module: 1 lecture (2 contact hours)

This module is assigned to the following fields: Masterprogramm Management & Entrepreneurship (M.A./M.Sc.): Major Management & Data Science (2. Semester)

Content: Students learn the basics of graph theory and network analysis. Furthermore, the following topics will be treated in-depth: network metrics, generative models, community detection, social influence in networks. Tools for the generation, the representation and the analysis of networks will be discussed (e.g. Pajek, UCInet, Rsienna).

Professional competence: Specialized Knowledge:
· graph theoretical foundations
· network metrics
· models of random graphs (Erdős-Renyi, Preferential Attachment, Watts-Strogatz, Exponential Random, Graph Models)
· clustering methods

Professional Competences:
· analysis of networks with appropriate software tools (e.g. R, UCInet, Pajek)
· tests of network hypothesis
· visualization of networks

Personal competence: Students, as teamwork, can develop project goals and time those realistically. Furthermore, they can reflect on their working results and evaluate them.

Teaching and learning formats: not specified

Options of examinations: Klausur (90 Minuten) ODER Kombinierte wissenschaftliche Arbeit

Information on coursework and examinations: 1 written examination (90 min.) or 1 combined examination

Number of teaching/ learning hours: Hours of attendance of course(s) of module: 28 Hours
Preparation and follow-up of course(s): 66 Hours
Performing coursework, if required: 0 Hours
Examination: preparation and examination(s): 56 Hours
Entire workload: 150 Hours

Credit points: 5

82003000 / Ma-DS-4

Data Economy

Data Economy

Module coordinator:	Prof. Dr. Paul Drews
Full-time teaching staff of this module:	Prof. Dr. Paul Drews
Courses offered in the module:	1 lecture (2 contact hours)
This module is assigned to the following fields:	Masterprogramm Management & Entrepreneurship (M.A./M.Sc.): Major Management & Data Science (1. Semester)
Content:	The module deals with basics in data economy. The topics comprise: data repositories, data valuation by different stakeholder groups, data quality management, e-business and digital business models, open data initiatives as well as knowledge co-creation. A crucial topic is utilizing data by algorithms and technologies of data science in enterprises and the accompanying transformation of enterprises, business models and branches.
Professional competence:	The students acquire a good knowledge in the implementation of methods and technologies of data sciences in different business contexts and branches as well as methods to evaluate und manage business data. They learn how to analyse business models in a systematic way and how to further develop those by using data science methods and technologies.
Personal competence:	The students are able to gather the economic and social dimensions of data-driven business models and to reflect them in multiple perspectives. They deepen their team working skills in producing results, writing them down and presenting them cooperatively.
Teaching and learning formats:	not specified
Options of examinations:	Klausur (90 Minuten) ODER Kombinierte wissenschaftliche Arbeit
Information on coursework and examinations:	1 written examination (90 min.) or 1 combined examination
Number of teaching/ learning hours:	Hours of attendance of course(s) of module: 28 Hours Preparation and follow-up of course(s): 28 Hours Performing coursework, if required: 0 Hours Examination: preparation and examination(s): 94 Hours Entire workload: 150 Hours
Credit points:	5
Duration and frequency of offer:	Duration: 1 semester Frequency: once a year, in the winter term

Recommended prior
knowledge: not specified

Other: not specified

82008000 / Ma-DS-9

Data Privacy and Ethics

Data Privacy and Ethics

Module coordinator:	Prof. Dr. rer. nat., Diplom-Informatiker Helmut Faasch
Full-time teaching staff of this module:	Prof. Dr. rer. nat., Diplom-Informatiker Helmut Faasch, Prof. Dr. Jörg Philipp Terhechte, Prof. Dr. Andreas Möller, Professor Andreas Reindl
Courses offered in the module:	2 Lectures (2 SWS each)
This module is assigned to the following fields:	Masterprogramm Management & Entrepreneurship (M.A./M.Sc.): Major Management & Data Science (3. Semester)
Content:	<p>Within the last 20 years, the data-centered field of computer sciences has been massively improved: data bases, search engines, data mining, distributed storage and distributed processing, virtualization, real-time simulation, sensors, etc. These technologies represent the basis for the subject field of "Big Data", a buzz word which is in itself rather unspecific. The idea behind the term is to combine and evaluate all the available data, whether it comes from wind sensors or personal smart phones. This approach results in interesting questions regarding data privacy up to questions regarding public safety and the public good.</p> <p>For more details read the content of the two lectures.</p>
Professional competence:	<p>While combining huge quantities of data from different sources in order to deduce further economic, social or even political relevant information, ethical questions arise. These questions are strongly connected with the term "responsibility". The topic "Big Data" prompts ethical questions of how to deal scientifically and economically with heterogeneous data, which can be collected worldwide and is thus subject to different legal conditions.</p> <p>The students learn how to deal with questions like:</p> <ul style="list-style-type: none">- What are previous and new, specific challenges of this topic area?- What are the challenges in generating new information out of extensive heterogeneous databases?- To whom belong the data, which data should or may I not use? Which data should / must not be used or combined in order to derive further information? Are there agreements - out of ethical reasons - that should be retained even if there might be a big economic benefit otherwise?- Which technical possibilities can support complying with these boundaries? <p>In addition to the purely mathematic-technical perspective, strategies and tools in the context of data security are also taught. Thus, the students gain an insight into ethical aspects of scientific and economic values in terms of "What should possibly not be done even if it could be done?"</p>
Personal competence:	The students build up ethical perspectives in order to deal with public and private data in a responsible way within the IT-oriented civil society.
Teaching and learning formats:	Seminar with assignments of texts, presentations, discussions, analysis of exemplary case studies
Options of examinations:	Klausur (90 Minuten) ODER Kombinierte wissenschaftliche Arbeit
Information on coursework and examinations:	1 written examination (90 min.) or 1 combined examination

Number of teaching/ learning hours:	Hours of attendance of course(s) of module: 56 Hours Preparation and follow-up of course(s): 56 Hours Performing coursework, if required: 0 Hours Examination: preparation and examination(s): 38 Hours Entire workload: 150 Hours
Credit points:	5
Duration and frequency of offer:	Duration: 1 semester Frequency: once a year, in the winter term
Recommended prior knowledge:	not specified
Other:	The course consists of two separate threads (see content and objectives above). Both threads will be taught in parallel (each 90 minutes every week) with a total of 4 SWS.

82010000 / Ma-DS-11a

Data Science Seminar

Data Science Seminar

Module coordinator:	Prof. Dr. Paul Drews
Full-time teaching staff of this module:	Prof. Dr. rer. nat. Jürgen Jacobs, Prof. Dr. Lin Xie, Prof. Dr. rer. nat. Dieter Riebesehl, Prof. Dr. rer. nat. Peter Niemeyer, Prof. Dr. Mathias Groß, Prof. Dr. rer. nat. Burkhardt Funk, Prof. Dr. rer. nat., Diplom-Informatiker Helmut Faasch, Prof. Dr. Paul Drews
Courses offered in the module:	1 seminar (2 contact hours)
This module is assigned to the following fields:	Masterprogramm Management & Entrepreneurship (M.A./M.Sc.): Major Management & Data Science (3. Semester)
Content:	In this module up-to-date topics in the field of data science are deepened. The students work independently on certain topics of this subject field. The topics may focus on a methodical, content-related or reflective approach. The main topics will be described in the course announcements.
Professional competence:	Depends on the thematic focus of this module. The students obtain the competence to become acquainted with challenging areas within the field of data science.
Personal competence:	The students broaden their skills to search and evaluate international scientific references in a systematic way. Moreover, they extend their skills in presenting and documenting their own scientific results corresponding to requirements of the international research community.
Teaching and learning formats:	not specified
Options of examinations:	Kombinierte wissenschaftliche Arbeit
Information on coursework and examinations:	1 combined examination
Number of teaching/ learning hours:	Hours of attendance of course(s) of module: 28 Hours Preparation and follow-up of course(s): 28 Hours Performing coursework, if required: 0 Hours Examination: preparation and examination(s): 94 Hours Entire workload: 150 Hours
Credit points:	5
Duration and frequency of offer:	Duration: 1 semester Frequency: once a year, in the winter term
Recommended prior knowledge:	not specified

Other: not specified

82007000 / Ma-DS-8

Forecasting and Simulation

Forecasting and Simulation

Module coordinator:	Prof. Dr. rer. nat. Jürgen Jacobs
Full-time teaching staff of this module:	Prof. Dr. rer. nat. Jürgen Jacobs
Courses offered in the module:	1 lecture (2 contact hours) and 1 exercise (2 contact hours)
This module is assigned to the following fields:	Masterprogramm Management & Entrepreneurship (M.A./M.Sc.): Major Management & Data Science (2. Semester)
Content:	<p>The module provides a survey of the theory and application of data-based computational techniques to forecast and simulate data with temporal dependencies. Selected statistical and/or machine learning approaches dealing with the special role of time in modeling will be discussed in detail. Topics of interest include:</p> <ul style="list-style-type: none">- stationary and non-stationary time series (ARIMA models)- conditional heteroscedastic time series (ARCH and GARCH models)- multivariate time series (VAR and VARMA models)- state space models (Kalman Filter)- neural network models (e.g. recurrent neural networks)
Professional competence:	On successful completion of the module, students will have gained knowledge in selected methods of forecasting and simulating data with temporal dependencies and will be able to use these methods in various applications.
Personal competence:	Students can critically reflect on results of forecasting and simulations.
Teaching and learning formats:	Classical and interactive lectures with embedded exercises, self-study assignments.
Options of examinations:	Klausur (90 Minuten) ODER Kombinierte wissenschaftliche Arbeit
Information on coursework and examinations:	1 written examination (90 min.) or 1 combined examination
Number of teaching/ learning hours:	Hours of attendance of course(s) of module: 56 Hours Preparation and follow-up of course(s): 94 Hours Performing coursework, if required: 0 Hours Examination: preparation and examination(s): 0 Hours Entire workload: 150 Hours
Credit points:	5
Duration and frequency of offer:	Duration: 1 semester Frequency: once a year, in the summer term

Recommended prior
knowledge: not specified

Other: not specified

82001000 / Ma-DS-2

Learning from Data

Learning from Data

Module coordinator:	Prof. Dr. rer. nat. Burkhardt Funk
Full-time teaching staff of this module:	Prof. Dr. rer. nat. Burkhardt Funk
Courses offered in the module:	1 lecture (2 contact hours) and 1 exercise (2 contact hours)
This module is assigned to the following fields:	Masterprogramm Management & Entrepreneurship (M.A./M.Sc.): Major Management & Data Science (1. Semester)
Content:	This module provides theoretical foundations and frameworks of statistical learning. These include linear models (regression, classification) and concepts like regularization, model selection and evaluation. Besides a broad variety of methods, practical implementations will be looked at.
Professional competence:	not specified
Personal competence:	not specified
Teaching and learning formats:	not specified
Options of examinations:	Klausur (90 Minuten)
Information on coursework and examinations:	1 written examination (90 min.)
Number of teaching/ learning hours:	Hours of attendance of course(s) of module: 56 Hours Preparation and follow-up of course(s): 66 Hours Performing coursework, if required: 0 Hours Examination: preparation and examination(s): 28 Hours Entire workload: 150 Hours
Credit points:	5
Duration and frequency of offer:	Duration: 1 semester Frequency: once a year, in the winter term
Recommended prior knowledge:	not specified
Other:	not specified

8000 / Ma-DS13

Master's Thesis

Master's Thesis

Module coordinator:	Prof. Dr. rer. nat. Peter Niemeyer
Full-time teaching staff of this module:	Prof. Dr. rer. nat. Burkhardt Funk, Prof. Dr. rer. nat. Peter Niemeyer, Prof. Dr. rer. nat. Jürgen Jacobs, Prof. Dr. rer. nat., Diplom-Informatiker Helmut Faasch, Prof. Dr. Lin Xie, Prof. Dr. rer. nat. Dieter Riebesehl, Prof. Dr. Mathias Groß, Prof. Dr. Paul Drews, Prof. Dr. Henrik von Wehrden
Courses offered in the module:	No course/lecture
This module is assigned to the following fields:	Masterprogramm Management & Entrepreneurship (M.A./M.Sc.): Major Management & Data Science (4. Semester)
Content:	<p>The students show that, within 5 months, they are able to apply relevant scientific methods and/or theories to a specific research question.</p> <p>Qualification objectives: The students are able to pose a research question within the specialist field of their major on a Master's level. They are able to class the research question in a wide-ranging economic research context and to examine this with regard to their respective discipline.</p>
Professional competence:	<p>The students deepen their professional skills in a selected subject field within their major. They widen their knowledge by classing a specific question with a wide-ranging economic context and strengthen their skills to reflect on and refine their specialist knowledge.</p> <p>Methodological competence: The students conceive the methods of scientific work and those that are necessary to deal with the specific research question. They practice to choose, establish and structure theoretical approaches, methodical access and empirical subject areas in a problem-centered and adequate way.</p>
Personal competence:	The students strengthen their competence to work autonomously and write a scientific sophisticated thesis effectively while pushed for time and performance. They are able to organize themselves in a productive way and motivate themselves to solve constructively unexpected problems.
Teaching and learning formats:	Learning forms: The students work on the exercise independently. They choose the methods and implement the studies by themselves.
Options of examinations:	Mündliche Prüfung (30 Minuten)
Information on coursework and examinations:	1 Master's Thesis // 1 oral examination (30 min.)
Number of teaching/ learning hours:	Hours of attendance of course(s) of module: 0 Hours Preparation and follow-up of course(s): 0 Hours Performing coursework, if required: 0 Hours Examination: preparation and examination(s): 750 Hours Entire workload: 750 Hours

Credit points: 25

Duration and frequency
of offer: Duration: 5 months
Frequency: each semester

Recommended prior
knowledge: The Master's Thesis is usually written in the fourth semester after finishing all modules.

Other: not specified

82012000 / Ma-DS-12
Masterforum
Masterforum

Module coordinator:	Prof. Dr. rer. nat. Peter Niemeyer
Full-time teaching staff of this module:	Prof. Dr. rer. nat. Burkhardt Funk, Prof. Dr. rer. nat. Peter Niemeyer, Prof. Dr. rer. nat. Jürgen Jacobs, Prof. Dr. Paul Drews, Prof. Dr. Lin Xie, Prof. Dr. Mathias Groß, Prof. Dr. rer. nat. Dieter Riebeschl, Prof. Dr. rer. nat., Diplom-Informatiker Helmut Faasch, Prof. Dr. Henrik von Wehrden
Courses offered in the module:	1 colloquium (1 contact hour)
This module is assigned to the following fields:	Masterprogramm Management & Entrepreneurship (M.A./M.Sc.): Major Management & Data Science (4. Semester)
Content:	<p>Within the Masterforum, the students present their current status of their Master's Thesis in form of a presentation and discuss open questions. The Masterforum allows for the exchange between students as well as students and supervisor.</p> <p>Qualification objectives: The students gain fundamental knowledge and skills to develop, draft, present and discuss their own scientific work on a Master's level.</p>
Professional competence:	<p>The students can work on, present and discuss analytical sophisticated research questions with the help of disciplinary methods and technics.</p> <p>Methodological competence: The students master methods of scientific work, i.e. disciplinary methods necessary to deal with the research question. They are able to present both the status of their work and research questions in a structured way and to discuss it goal-oriented.</p>
Personal competence:	The students are able to discuss scientifically ambitious questions constructively. They can frame and represent a scientific point of view and argue problem solving. They are prepared to discuss questions of their fellow students. The competence to articulate suggestions, criticism and objections is further enhanced by a critical reflection on the presented research projects.
Teaching and learning formats:	Presentation, position paper, discussion, moderation, evaluation, protocol, independent study (research, lecture, disambiguation)
Options of examinations:	Schriftliche wissenschaftliche Arbeit
Information on coursework and examinations:	1 term paper (passed / failed)
Number of teaching/ learning hours:	Hours of attendance of course(s) of module: 14 Hours Preparation and follow-up of course(s): 136 Hours Performing coursework, if required: 0 Hours Examination: preparation and examination(s): 0 Hours Entire workload: 150 Hours

Credit points:	5
Duration and frequency of offer:	Duration: 1 semester Frequency: once a year, in the summer term
Recommended prior knowledge:	not specified
Other:	not specified

82000000 / Ma-DS-1

Mathematical Foundation

Mathematical Foundation

Module coordinator: Prof. Dr. rer. nat. Peter Niemeyer

Full-time teaching staff of this module: Prof. Dr. rer. nat. Peter Niemeyer

Courses offered in the module: 1 lecture (2 contact hours) and 1 exercise (2 contact hours)

This module is assigned to the following fields: Masterprogramm Management & Entrepreneurship (M.A./M.Sc.): Major Management & Data Science (1. Semester)

Content: This module provides mathematical foundations in the following areas:

- probability theory and statistics
 - concept of probability (W-room, dependency, random variables, conditional probability)
 - random variables
 - distributions
 - descriptive statistics
 - parameter estimation
 - statistical tests
- linear algebra
 - vector spaces and subspaces
 - orthogonality
 - eigenvalues and -vectors
- stochastic processes (markov chains)
- analysis
 - differentiation of real-valued functions with several variables (partial derivative, gradients)
 - integration of real-valued functions with several variables

Professional competence: Specialized Knowledge:

- discrete and constant random variables
- popular distributions (PMF/PDF, CDF, variance, expected value)
- parameter estimation
- testing procedure
- regression analysis
- vector spaces (scalar products)
- eigenvalues
- (finite) Markov-chains (irreducibility, stationary distribution, application examples)

Professional Competences:
The participants of the seminar are able to

- reflect statistical statements critically
- calculate with vectors
- apply finite Markov-chains

Personal competence: The students can reflect on their working results and evaluate them.

Teaching and learning formats:	not specified
Options of examinations:	Klausur (90 Minuten)
Information on coursework and examinations:	1 written examination (90 min.)
Number of teaching/ learning hours:	Hours of attendance of course(s) of module: 56 Hours Preparation and follow-up of course(s): 56 Hours Performing coursework, if required: 0 Hours Examination: preparation and examination(s): 38 Hours Entire workload: 150 Hours
Credit points:	5
Duration and frequency of offer:	Duration: 1 semester Frequency: once a year, in the winter term
Recommended prior knowledge:	Basics in statistics and linear algebra
Other:	not specified

82005000 / Ma-DS-6

Probabilistic Modelling

Probabilistic Modelling

Module coordinator:	Prof. Dr. rer. nat. Burkhardt Funk
Full-time teaching staff of this module:	Prof. Dr. rer. nat. Burkhardt Funk
Courses offered in the module:	1 lecture (2 contact hours)
This module is assigned to the following fields:	Masterprogramm Management & Entrepreneurship (M.A./M.Sc.): Major Management & Data Science (2. Semester)
Content:	The module deals with advanced concepts of modelling and focusses on the basics and implementation of probabilistic modelling (Bayesian Statistics). The topics are: graphical models, Belief Networks, Monte Carlo approach and specific application packages (e.g. JAGS, Stan). The implementation will be demonstrated by multi-level regression- and classification methods.
Professional competence:	not specified
Personal competence:	not specified
Teaching and learning formats:	not specified
Options of examinations:	Klausur (90 Minuten) ODER Kombinierte wissenschaftliche Arbeit
Information on coursework and examinations:	1 written examination (90 min.) or 1 combined examination
Number of teaching/ learning hours:	Hours of attendance of course(s) of module: 28 Hours Preparation and follow-up of course(s): 66 Hours Performing coursework, if required: 0 Hours Examination: preparation and examination(s): 56 Hours Entire workload: 150 Hours
Credit points:	5
Duration and frequency of offer:	Duration: 1 semester Frequency: once a year, in the summer term
Recommended prior knowledge:	not specified
Other:	not specified

82009000 / Ma-DS-10

Research Project

Research Project

Module coordinator:	Prof. Dr. Ulf Brefeld
Full-time teaching staff of this module:	Prof. Dr. rer. nat. Jürgen Jacobs, Prof. Dr. rer. nat. Burkhardt Funk, Prof. Dr. Henrik von Wehrden, Prof. Dr. rer. nat., Diplom-Informatiker Helmut Faasch, Prof. Dr. rer. nat. Peter Niemeyer, Prof. Dr. rer. nat. Dieter Riebesehl, Prof. Dr. Paul Drews, Prof. Dr. Ulf Brefeld
Courses offered in the module:	1 seminar (2 contact hours)
This module is assigned to the following fields:	Masterprogramm Management & Entrepreneurship (M.A./M.Sc.): Major Management & Data Science (3. Semester)
Content:	Under guided instruction, students will elaborate on a research question or a question from the field of practice.
Professional competence:	<p>Depending on the subject of the Research Project.</p> <p>The students learn how to deal analytically with the subject of a specific research project and to understand the scientific basics of their subject area. The focus is set on the critical analysis of the subject. Hence, the students gain competence to transfer knowledge to new research questions and to transfer scientific results from the field of practice to other research questions.</p> <p>Methodological competence:</p> <p>Research ability, planning and project management competence, consultation expertise, methodological skills, structure of scientific publications. The students train effective progress planning and the respective techniques. They are able to collect relevant information, evaluate and interpret these, deduce decisions from it and create further learning processes. Moreover, students present their intermediate and final results with the help of audiovisual systems.</p>
Personal competence:	<p>Ability to work in a team, to deal with conflicts, to lead a group and manage projects, to moderate meetings.</p> <p>The students learn how to advocate their own objectives and to follow an agenda without ignoring the interests of others. They take over responsibility in their project team. Hence, they train to formulate and defend argumentatively their point of view or their problem-solving approach.</p>
Teaching and learning formats:	not specified
Options of examinations:	Kombinierte wissenschaftliche Arbeit
Information on coursework and examinations:	1 combined examination
Number of teaching/ learning hours:	Hours of attendance of course(s) of module: 28 Hours Preparation and follow-up of course(s): 0 Hours Performing coursework, if required: 0 Hours Examination: preparation and examination(s): 122 Hours Entire workload: 150 Hours

Credit points:	5
Duration and frequency of offer:	Duration: 1 semester Frequency: once a year, in the winter term
Recommended prior knowledge:	not specified
Other:	not specified

82002000 / Ma-DS-3

Software for Analysing Data

Software for Analysing Data

Module coordinator:	Prof. Dr. Henrik von Wehrden
Full-time teaching staff of this module:	Prof. Dr. Henrik von Wehrden
Courses offered in the module:	1 lecture (2 contact hours) and 1 exercise (2 contact hours)
This module is assigned to the following fields:	Masterprogramm Management & Entrepreneurship (M.A./M.Sc.): Major Management & Data Science (1. Semester)
Content:	The module introduces available software tools with regard to the topic "Big Data". The focus is set on R. After introducing the programming language R, the students learn how to create loops and functions as well as data management instructions. The course closes with data instructions for data mining and visualization.
Professional competence:	Basics in Big Data software, especially R. Learning relevant instructions in R and knowledge of Big Data analysis in R. Methodological competence Fundamentals in data editing and analysis.
Personal competence:	Learning how to create own instructions (e.g. functions) and research in R regarding new analysis steps.
Teaching and learning formats:	Lecture and exercise
Options of examinations:	Klausur (90 Minuten) ODER Kombinierte wissenschaftliche Arbeit
Information on coursework and examinations:	1 written examination (90 min.) or 1 combined examination
Number of teaching/ learning hours:	Hours of attendance of course(s) of module: 56 Hours Preparation and follow-up of course(s): 38 Hours Performing coursework, if required: 0 Hours Examination: preparation and examination(s): 56 Hours Entire workload: 150 Hours
Credit points:	5
Duration and frequency of offer:	Duration: 1 semester Frequency: once a year, in the winter term
Recommended prior knowledge:	Skills in R, basics in statistics

Other: not specified

82011000 / Ma-DS-11b

Special Topics in Data Science

Special Topics in Data Science

Module coordinator:	Prof. Dr. Lin Xie
Full-time teaching staff of this module:	Prof. Dr. rer. nat. Burkhardt Funk, Prof. Dr. rer. nat. Jürgen Jacobs, Prof. Dr. rer. nat., Diplom-Informatiker Helmut Faasch, Prof. Dr. Lin Xie, Prof. Dr. rer. nat. Dieter Riebesehl, Prof. Dr. Paul Drews, Prof. Dr. rer. nat. Peter Niemeyer, Prof. Dr. Mathias Groß
Courses offered in the module:	1 lecture (2 contact hours)
This module is assigned to the following fields:	Masterprogramm Management & Entrepreneurship (M.A./M.Sc.): Major Management & Data Science (3. Semester)
Content:	This module deals with methods of data science in a specific application context (e.g. Geo Information, Semantic Web, Social Media Platforms, Recommender Systems, Online Marketing, e-health).
Professional competence:	Depending on the respective topic and context of application. The students learn to adapt data science technologies and methods to questions allocated in the respective context of application. In the course of this process, the critical reflection is focus on. Students learn how to apply data science technologies and methods to new research questions and how to transfer research results to further questions within the field of practice.
Personal competence:	The students are able to collect relevant information, evaluate and interpret these, deduce decisions from it and create further learning processes. Moreover, students present their intermediate and final results with the help of audiovisual systems.
Teaching and learning formats:	not specified
Options of examinations:	Kombinierte wissenschaftliche Arbeit
Information on coursework and examinations:	1 combined examination
Number of teaching/ learning hours:	Hours of attendance of course(s) of module: 28 Hours Preparation and follow-up of course(s): 28 Hours Performing coursework, if required: 0 Hours Examination: preparation and examination(s): 94 Hours Entire workload: 150 Hours
Credit points:	5
Duration and frequency of offer:	Duration: 1 semester Frequency: once a year, in the winter term

Recommended prior
knowledge: not specified

Other: not specified

82004000 / Ma-DS-5

Storage and Mining of Massive Datasets

Storage and Mining of Massive Datasets

Module coordinator:	Prof. Dr. rer. nat. Dieter Riebesehl
Full-time teaching staff of this module:	Prof. Dr. rer. nat. Dieter Riebesehl
Courses offered in the module:	1 lecture (2 contact hours) and 1 exercise (2 contact hours)
This module is assigned to the following fields:	Masterprogramm Management & Entrepreneurship (M.A./M.Sc.): Major Management & Data Science (2. Semester)
Content:	This module deals with data base concepts RDBMS and NoSQL, and their practical implementations; preprocessing, reduction, analysis and mining of massive datasets; theory of MapReduce, typical applications and algorithms for diverse applications, e.g. link analysis, analysis of item sets, mining of data streams.
Professional competence:	Professional knowledge: Knowledge of different database concepts and of how to handle and analyse huge amounts of data. Professional skills: Evaluation of appropriate software tools and techniques, practical experiences in dealing with databases.
Personal competence:	The students evaluate current developments in the field of analysis and storage of big data regarding their potentials, applications and risks. They are able to present and argue for their results.
Teaching and learning formats:	not specified
Options of examinations:	Klausur (90 Minuten) ODER Kombinierte wissenschaftliche Arbeit
Information on coursework and examinations:	1 written examination (90 min.) or 1 combined examination
Number of teaching/ learning hours:	Hours of attendance of course(s) of module: 56 Hours Preparation and follow-up of course(s): 94 Hours Performing coursework, if required: 0 Hours Examination: preparation and examination(s): 0 Hours Entire workload: 150 Hours
Credit points:	5
Duration and frequency of offer:	Duration: 1 semester Frequency: once a year, in the summer term

Recommended prior
knowledge: not specified

Other: not specified