

Module Description/Syllabus

BE IM HM CfPS



Module	Big Data			Module-Number	
Course Title				Overall grade weighting (in %)	2,4
Recommended alternative modules or courses					
Course of Studies	Data Science Management				
Examination No. (SuP)	100695	valid SER	28.04.2022		
Mode of Study	<input checked="" type="checkbox"/> full-time <input type="checkbox"/> part-time				
Study Cycle	EQF-Level	<input checked="" type="radio"/> Bachelor <input type="radio"/> Master			
Frequency	<input checked="" type="radio"/> winter term <input type="radio"/> summer term <input type="radio"/> each semester				
Language Competence Level and Course code SAP	<input type="checkbox"/>				
Responsible for the module	Prof. Dr. Stefan Faußer				
Lecturer/s					
Typ of course	<input checked="" type="radio"/> compulsory <input type="radio"/> optional				
Mode of delivery	Blended Learning				
Language of instruction	<input checked="" type="radio"/> English <input type="radio"/> German		Level of course	5th semester	
Teaching Methods	Lecture		Duration	1 semester	
	Practical exercises				
	Group Work				
Work parameters	contact hours in lecture form	exercises (hours)	self-studies (hours)	total (hours)	
	60		60	120	
	eLearning (hours)	examination preparation (hours)	Transfer (hours)	Units ("UE")	
				160	
Number of participants min./max.	10 / 40	ECTS-Points	05	Volume (hours per semester week)	04
Use for other studies	The module is included in the Data Science Management (DSM) degree programme at HNU. It can be chosen as an elective subject in the study programme Digital Enterprise Management. The module can generally be used for computer science and interdisciplinary degree programmes with computer science components (e.g. Business Informatics, Information Management Automotive).				

Module Description/Syllabus

<p>Prerequisites/ Required competencies</p>	<p>Successful participation in the course "Design and Use of Databases" is required, as well as the willingness to learn new contents and to work together on tasks. In general, it is advisable to have completed the course "Project on object-oriented programming".</p>
<p>Learning Outcome</p> <p>1) Knowledge 2) Skills 3) Responsibility and autonomy</p> <div data-bbox="193 1084 529 1155" style="border: 1px solid black; padding: 5px; margin-top: 10px;"> <p>Description eight EQF Levels and Learning Outcome (1-3)</p> </div>	<p>After successful participation in the module courses, students will be able to,</p> <p>1) Professional-methodical competences:</p> <ul style="list-style-type: none"> - Name, categorically classify and understand terms from the field of Big Data, - create non-relational data models from requirements and implement them in a suitable NoSQL database, - query NoSQL databases, - To know and understand the possibilities and limitations of Big Data, - Understand new scientific articles in the field of databases, especially NoSQL and Big Data, and apply the knowledge they contain, - To select a suitable database for practical questions. <p>2) Personal competences:</p> <ul style="list-style-type: none"> - to learn in a self-directed way, - to assess one's own abilities and learning progress when working out solutions, - to ask specific technical questions and to reflect on the answers, - to work in teams, to support each other and to present one's own results, - practising time management.
<p>Content</p>	<p>Big data includes large unstructured amounts of data, such as those generated from social media postings, intelligent coffee machines as well as images, audio and video recordings. In order to be able to use the valuable data profitably in companies, it must be stored in a data-appropriate manner for later efficient evaluation. The lecture deals with the following topics by means of practical exercises:</p> <p>1) Non-relational data models</p> <p>2) NoSQL databases</p> <ul style="list-style-type: none"> - Use of NoSQL databases - Data Lakes, document-oriented, key values, in-memory - Comparison with relational DBMS - Processing unstructured data <p>3) Real-time processing of streaming data</p> <p>4) Cloud-based Big Data applications</p>

Module Description/Syllabus

Particular admission requirements (if applicable)	
Curriculum semester, in which the student has to be mandatorily registered for the first attempt of examination	9th semester
Assessment method(s)	Portfolio examination, see course catalogue
Assessment criteria	
Required reading resources	Andreas Meier and Michael Kaufmann: SQL & NoSQL Databases, 1st edition, Springer (2019)
	Shannon Bradshaw, Eoin Brazil and Kristina Chodorow: MongoDB: The Definitive Guide: Powerful and Scalable Data, 3th edition, O'Reilly (2019)
	Avi Silberschatz, Henry F. Korth and S. Sudarshan: Database System Concepts, 7h edition, McGraw-Hill (2019)
	Dan Sullivan: NoSQL for Mere Mortals, 1st edition, O'Reilly (2015)
Additional (module) information	
Document Version	1
Document date	14.04.2023
Document was created by	Prof. Faußer, translated by Alina Gefler
Valid from	14.04.2023
Updated	<input type="text"/> by <input type="text"/>
	<input type="button" value="save"/> <input type="button" value="send"/>