Hochschule der Medien Stuttgart, UAS

Course Catalog
Business Analytics
(Feb 2021, valid for Winter Semester 2021/22)

Course Title	Big Data Scenarios
	Bachelor Level Course (Typically taken during 2nd or 3rd year)
Course No	335103
Lecturers name	Prof. Dr. Hendrik Meth
Teaching language	English
Credits (ECTS)	10
Teaching/learning methodology	Interactive lecture and project with group work
Total workload	45 hours teaching time + project work, preparation and follow-up work: 135 hours + preparation time term paper: approx. 120 hours = 300 hours
Contact hours per week	3 hours
Type of exam	Group Project
Learning outcomes	Completing the course, you will be able to - describe the foundations and most important concepts of Big Data and Big Data Analytics - select suitable Big Data algorithms and architectures - work with state-of-the-art tools and technology for Big Data scenarios - run a project in the context of Big Data
Abstract	The module "Big Data Scenarios" introduces students to the analysis of large volumes of text data in different formats (structured, semi-structured, unstructured). The module consists of four elements: • The lecture introduces Big Data architectures, methods and concepts. To get an in-depth understanding of the introduced methods, they are applied in two types of labs: • technology-based labs, using state-of-the-art data science tools or programming languages • method-based labs without any specific data science technology support. Students work in teams to implement a full big data analytics solution, applying the methods and technology, which they got to know in the labs. The module is addressed to bachelor students in their final semesters. Good analytic and programming skills, a high motivation and an interest to develop models are required.
Contents/ Indicative syllabus	Please note: Detailed syllabi are not a standard in German universities; students should expect to be informed of assignments verbally and/or via an online learning platform, i.e. Moodle.
Reading Materials	EMC Education Services. Data Science and Big Data Analytics: Discovering, Analyzing, Visualizing and Presenting Data. John Wiley & Sons, 2015 Manning, Christopher D., and Hinrich Schütze. Foundations of statistical natural language processing. MIT press, 1999. D. Jurafsky, J. H. Martin. Speech and Language Processing: An Introduction to Natural Language Processing, Speech Recognition, and Computational Linguistics (2nd ed.), Prentice-Hall, 2009.
Weblinks	

Course Title	Project: Building A Digital Unicorn - How To Get Started
	Bachelor Level Course (Typically taken during 2nd or 3rd year)
Course No	338010
Lecturers name	Prof. Dr. David Klotz
Teaching language	English
Credits (ECTS)	5
Teaching/learning methodology	Hands-on project work; with focus on agile and iterative methodology and the "try-fail-repeat" learning cycle
Total workload	1 kick-off day (8 hours) + 45 hours with a mix between workshop and instruction mode + 92 hours project work and preparation time for presentation + 5 hours final presentations at the end of the semester 150 hours
Contact hours per week	3 hours
Type of exam	Combination of the deliverable (the product development organisation) and an optional project reports with reflections on personal learnings
Learning outcomes	Students will learn about the technical and organisational challenges when building a digital product (e.g. an app). Example questions that will be discussed in the course include: • Which skills and roles are needed to build the product? • Which methodologies and tools are best suited? • Which aspects of the building process are most relevant? • Which architecture provides most flexibility and scalability? • Which technology building blocks are required? • Which cloud services might be helpful? • Which deployment and operations approach might be helpful? • Which quality measures might be helpful?
Abstract	In this course, we aim to dream big: Unicorns are startups that have managed to achieve a market value of 1 billion US-Dollars before going public. Well-known unicorns are for example Uber, Snapchat, or Pinterest and there are also a few German unicorns, for example Zalando or Rocket Internet. Most founders dream of building a unicorn when they start their business. However, as reality shows, the goal is far from easy to achieve, and there are numerous challenges to overcome. Therefore, it might be helpful for students to understand the implications of technical or organizational decisions they face during the first days of building a digital product. In this project, we will put ourselves in the shoes of a startup that is centered around an innovative digital product, and we will imagine it is day 1. Students are encouraged to bring their own ideas for an innovative digital product with them ("make it yours!"), but it is not a fix requirement. Throughout the course of this project, students will work in groups in order to discover and learn how to build a digital product that has the potential to grow, and possibly become a unicorn one day. Thereby, the focus is on "building" the product, i.e. technical and organizational aspects.
Contents/ Indicative syllabus	Please note: Detailed syllabi are not a standard in German universities; students should expect to be informed of assignments verbally and/or via an online learning platform, i.e. Moodle.
Reading Materials	The project design is very open, with a strong emphasis on the "try-fail-repeat" learning cycle. Consequently, students must be willing to deep-dive into specific subject areas independently, reflect on the success of their actions and course-correct, if needed
Weblinks	

Course Title	Industry Project
	Bachelor Level Course (Typically taken during 2nd or 3rd year)
Course No	338011
Lecturers name	Prof. Dr. David Klotz
Teaching language	English
Credits (ECTS)	5
Teaching/learning methodology	Problem-based learning with case study method
Total workload	20 hours teaching and instruction time + preparation and follow-up work: 60 hours + project work, preparation of presentations, research, essay etc.: approx. 70 hours = 150 hours
Contact hours per week	1,5 hours
Type of exam	**Project deliverables, presentation and project report (optional)**
Learning outcomes	Students will learn about • Problem solving • Analytical tools • Decision making in complex situations • Communication and consulting skills • Group dynamics • Coping with ambiguities (esp. customers' requirements)
Abstract	The project covers solving a real-world problem from an industry partner (e.g. from the automotive industry) that is centred around data. This includes problem-solving methods such as data mining, data science, data engineering, data visualisation, and data story telling. A member of the participating company will guide students through the practical context of the problem. Throughout the course, students receive a detailed introduction into applicable problem-solving techniques, considering situation-specific challenges of the project. Students will work in self-organized teams. The course instructor will guide and coach the teams and provide feedback on a regular basis.
Contents/ Indicative syllabus	Please note: Detailed syllabi are not a standard in German universities; students should expect to be informed of assignments verbally and/or via an online learning platform, i.e. Moodle.
Reading Materials	
Weblinks	

Business Analytics
(Feb 2021, valid for Winter Semester 2021/22)

Course Title	Project: Data Warehouse Implementation
	Bachelor Level Course (Typically taken during 2nd or 3rd year)
Course No	733510
Lecturers name	Prof. Dr. Peter Lehmann
Teaching language	English
Credits (ECTS)	6
Teaching/learning methodology	Interactive lecture and project with group work
Total workload	60 hours teaching time + preparation and follow-up work: 60 hours + project work, preparation of presentations, research, essay etc.: approx. 60 hours = 180 hours
Contact hours per week	3 hours
Type of exam	Essay
Learning outcomes	In this lecture you will learn how to build up a data warehouse with Microsoft SQLServer and Microsoft BI tools. Following semantic and logical modelling aspects are covered: • Building a Staging Area • Building a Data Mart • Building a Data Store • Implementing Slowly Changing Dimensions (Time-Dependency) • Implementing Currency Conversion • Implementing Full and Incremental Data Loads Implementing BI Applications

Abstract	The goal of the subject-specific project is to build a data warehouse from scratch. Basic knowledge about relational databases and Business Intelligence is required.
	Architectural variants, ETL concepts and the use of analytical applications are taught.
	We will use the following IT infrastructure:
	• MSSQL Relational Database Engine => Data Warehouse Platform
	• MSSQL Analysis Services => Multidimensional Database for Data Marts
	• MSSQL Integration Services => ETL-Tool
	• MS Office Excel PowerPivot => OLAP Tool
	• MS PowerBI for
	   o Data Preparation
	   o Data Modelling
	   o Data Visualization
	Enterprise Data Warehouse B6 Case Hierarchical Modeling B7 Case Slowly Changing Dimensions.

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Reading Materials	Hagen, Freyburger: SAP BW on HANA – Step by Step. Kindle Edition. 2017
Weblinks	http://bwhanabook.de/