

# Hochschule der Medien Stuttgart, UAS

## Course Catalogue

### Data-Driven Consulting

(Winter Semester 2024/25)

<b>Course Title</b>	<b>Tools for Business Analytics</b>
	Bachelor Level Course (Typically taken during 2 <sup>nd</sup> or 3 <sup>rd</sup> year)
Course No	733512
Lecturers name	Prof. Dr. Hendrik Meth
Teaching language	English
Credits (ECTS)	2
Teaching/learning methodology	Hands-On practical labs in guided and self-learning fashion and coaching sessions
Total workload	24 hours teaching time (bi-weekly + 2 intensive seminar days) + 36 hours of practice time = 60 hours
Contact hours per week	2 intensive days + coaching
Type of exam	Ungraded course, passing or failing the course is based on course attendance
Learning outcomes	Completing the course, you will be able to <ul style="list-style-type: none"> <li>- work with reporting tools like Microsoft Power BI or Tableau</li> <li>- apply Python in an analytics context</li> </ul>
Abstract	The course "Tools for Business Analytics" introduces students to typical technology for data analysis, including product software (Microsoft Power BI or Tableau) and programming languages such as Python and its data science libraries. It is structured into two intensive seminar days at the beginning of the semester, coaching sessions during the semester and practice time to work with the tools in individual lab sessions.
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	Class materials will be provided via the learning platform Moodle
Weblinks	Links to tool documentation will be provided

<b>Course Title</b>	<b>Specialist Project - Management 1: Business Consulting Project</b>
	Bachelor Level Course (Typically taken during 2 <sup>nd</sup> or 3 <sup>rd</sup> year)
Course No	338057
Lecturers name	Prof. Dr. Susanne Stingel
Teaching language	English
Credits (ECTS)	6
Teaching/learning methodology	Project with team work
Total workload	30 hours teaching time + 150 hours project work, preparation and follow-up work = 180 hours
Contact hours per week	2,5 hours
Type of exam	Group project
Learning outcomes	After the project, students will be able to: <ul style="list-style-type: none"> <li>• Apply relevant business tools and concepts</li> <li>• Conduct a small business consulting project</li> <li>• Self-organize in a project team</li> </ul> Communicate effectively within project team and with target audiences
Abstract	In this module students will experience a typical business consulting project –based on a real life case study or a business simulation. We will follow the classical business management process: <ul style="list-style-type: none"> <li>• Phase 1: Problem definition &amp; target alignment</li> <li>• Phase 2: Research &amp; analysis</li> <li>• Phase 3: Development proposed solution</li> </ul> During the project, students will practice to work in teams and improve their communication and presentation skills.
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	

## Course Catalogue – Data-Driven Consulting

<b>Course Title</b>	<b>Specialist Project - Information Technology 1: Introduction to Data Science</b>
	Bachelor Level Course (Typically taken during 2 <sup>nd</sup> or 3 <sup>rd</sup> year)
Course No	338064
Lecturers name	Prof. Dr. Hendrik Meth
Teaching language	English
Credits (ECTS)	6
Teaching/learning methodology	Interactive lecture and project with team work
Total workload	30 hours teaching time + 150 hours project work, preparation and follow-up work = 180 hours
Contact hours per week	2,5 hours
Type of exam	Group Project
Learning outcomes	Completing the course, you will be able to <ul style="list-style-type: none"> <li>- describe the foundations and most important concepts of Data Science</li> <li>- select and apply suitable data science methods and algorithms</li> <li>- work with state-of-the-art tools and technology</li> <li>- run a data science project</li> </ul>
Abstract	<p>The course "Data Science Project" introduces students to the analysis of structured data using Data Science algorithms. The module consists of three elements:</p> <ul style="list-style-type: none"> <li>• lecture: introduces data science methods, algorithms and concepts.</li> <li>• technology-based labs, using state-of-the-art data science tools or programming languages</li> <li>• a project to apply everything learned in a broader context</li> </ul> <p>The module is addressed to bachelor students in their second or third year. The target group are management students interested in Data Science and IT in general as well as computer science and business information system students aiming to improve their data analysis skills. Programming skills are not required as a crash course teaching basic Python skills is included in the overall minor program.</p>
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	McKinney, W. (2022). Python for data analysis: Data wrangling with Pandas, NumPy, and Python. " O'Reilly Media, Inc."
Weblinks	

## Course Catalogue – Data-Driven Consulting

<b>Course Title</b>	<b>Specialist Project - Information Technology 2: Business Intelligence Applications</b>
	Bachelor Level Course (Typically taken during 2 <sup>nd</sup> or 3 <sup>rd</sup> year)
Course No	338065
Lecturers name	Prof. Dr. Peter Lehmann
Teaching language	English
Credits (ECTS)	6
Teaching/learning methodology	Hands-On practical lab; weekly assignments and coaching
Total workload	kick-off day (8 hours) + 30 hours with a mix between workshop and instruction mode + 140 hours project work and preparation time for presentation + 2 hours final presentations at the end of the semester = 180 hours
Contact hours per week	2,5 hours
Type of exam	Oral exam / Interview
Learning outcomes	After the project, participants will have the following competencies: <ul style="list-style-type: none"> <li>- Know different variants of data warehouse architectures.</li> <li>- Know and apply different methods for semantic modeling of data marts</li> <li>- Know and apply advanced methods for relational modeling of data marts</li> <li>- Know and apply different methods for multidimensional modeling of data marts</li> <li>- Know advanced extraction, transformation, loading of data with an ETL tool</li> <li>- Know the differences between data cubes and tabular models</li> <li>- understand components for enterprise self-service business intelligence platforms</li> <li>- be able to integrate data science techniques into a business intelligence environment</li> <li>- Understand BI-based planning and build a planning model</li> </ul>
Abstract	<p>The aim of the event is to teach the participants some applications of Business Intelligence (BI). For this purpose, we will open a bike store in a small team within the framework of a exciting serious business game.</p> <p>Then we will learn about some applications of BI that will help us to make better decisions and ultimately achieve very good sales and turnover from our bikes.</p> <p>The project is based on a serious business game. Products from Microsoft and Tableau are used as BI tools.</p> <ul style="list-style-type: none"> <li>- SQL Server Database</li> <li>- SQL Server Analysis Services</li> <li>- SQL Server Integration Services</li> <li>- SQL Server Management Studio</li> <li>- Microsoft Power BI</li> <li>- Microsoft Excel PowerPivot</li> <li>- Dimensional Fact Modeller</li> </ul> <p>Programming skills are not required.</p> <p>The elective is suitable for all students who have basic knowledge of: relational databases and data literacy. Willingness to work in a team must be present. Assignments are primarily technical building blocks that must be created step-by-step.</p>
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	A text book and a content wiki in different languages will be available

## Course Catalogue – Data-Driven Consulting

<b>Course Title</b>	<b>Specialist Project - Information Technology 3: Real-world Consulting Project</b>
	Bachelor Level Course (Typically taken during 2 <sup>nd</sup> or 3 <sup>rd</sup> year)
Course No	338066
Lecturers name	Prof. Dr. David Klotz
Teaching language	English
Credits (ECTS)	6
Teaching/learning methodology	Project-based learning
Total workload	30 hours teaching time + 150 hours of project work (including client meetings, workshops, coaching, and results presentation) = 180 hours
Contact hours per week	2,5 hours
Type of exam	Presentation of project results and a personal project report
Learning outcomes	<ul style="list-style-type: none"> <li>• <b>Demonstrate proficiency in managing and executing consulting projects</b>, from initial scoping to final delivery, ensuring alignment with client objectives and expectations.</li> <li>• <b>Exhibit advanced data collection and analysis skills, employing various tools and techniques</b> to navigate complex data sets and extract valuable insights.</li> <li>• <b>Apply critical thinking and analytical skills</b> to inform strategic decision-making and problem-solving in diverse business scenarios.</li> <li>• <b>Communicate effectively with stakeholders</b>, translating complex data findings into clear, actionable recommendations through compelling presentations and reports.</li> <li>• <b>Navigate ethical considerations</b> in business analytics, upholding the highest standards of integrity and professionalism in consulting practices.</li> </ul>
Abstract	This module allows participating students to apply their previous learnings in a real-world consulting project in cooperation with a partnering enterprise, e.g., from the automotive or financial industry. Students will go through a full-cycle project with typical phases. With the help of coaches from university and industry experts, they will analyze a given problem, compare different solution alternatives and work out a final result.
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	