Zurich University
of Applied Sciences

School of
Management and Law

Valid for 2024.FS

Module Name: Data Management		
Module Code	w.BA.XX.3DM-WIN.XX	
Module Description	In this module, students learn how to manage data using various data models, technologies, and methods to harness data. We draw on example cases of prototyping information systems and gaining insights from data to motivate the application of the technologies.As a result, students will understand the significance of data management. They become familiar with different data models and forms of data representation and are able to describe data using these models and forms of representation. They know different data management technologies and use cases which they can use to render data valuable. Based on all this knowledge, they will be able to create data-centric application prototypes and make data available for data science tasks.	
Program and Specialization	§ Business Information Technology - Specialization in Business Information Systems § Business Information Technology - Specialization in Data Science	
Legal Framework	Academic Regulations BSc dated 29.01.2009, for the degree programs in Business Administration, International Management, Business Information Technology, Business Law, Business Law and Applied Law, first adopted on 12.05.2009	
Module Category	**Module Type:** Compulsory	**Program Phase:** Main Study Period
ECTS	6	
Organizational Unit	W Institut für Wirtschaftsinformatik	
Module Coordinator	Alexandre de Spindler (desa)	
Deputy Module Coordinator	-	
Prerequisite Knowledge	Software Engineering: • Modeling with UML • Algorithms and Data Structures • Procedural Programming (Variables, Conditionals, Loops, Procedures) • Object-Oriented Programming (Classes, Objects, Constructors, Methods, Relationships, Inheritance) • Software Engineering Design, Methods, and Tools Requirements Engineering • Conceptual Data Modelling (Entity Relationship Diagrams, ER) • Specification of Requirements (Use Case, Activity, State Diagrams)	
Contribution to Program Learning Goals (Affected by Module)	§ Professional Competence § Methodological Competence	
Contribution to Program Learning Objectives	Professional Competence § Knowing and Understanding Content of Theoretical and Practical Relevance § Apply, Analyze, and Synthesize Content of Theoretical and Practical Relevance § Evaluate Content of Theoretical and Practical Relevance Methodological Competence § Problem-Solving & Critical Thinking § Scientific Methodology § Work Methods, Techniques, and Procedures § Information Literacy	
Module Learning Objectives	Students... § Are able to identify, understand, and specify needs for data management § Have knowledge of, an understanding of, and the ability to apply different data models: semi-structured (e.g., XML, JSON, graph data) and structured (relational, object-oriented) data models § Have knowledge of, an understanding of, and the ability to make use of different forms of data representation: XML, JSON, graph data, relational, and object-oriented § Understand and are able to make use of data modelling for model-driven development and data engineering § Have knowledge of and are able to apply different tools for data management: XSLT/HTML/CSS, document databases, graph databases, relational databases, and the Spring framework § Are able to a) design and build data-centric information system prototypes as well as b) prepare data for data science tasks such as providing training data	

Module Content	§ Front-End Prototyping using XML, XSLT, HTML and CSS (Bootstrap) § Managing Data using Document Databases (e.g. MongoDB) § Managing Data using Graph Databases (e.g. Neo4j) § Managing Data using Relational Databases (e.g. MySQL) § Back-End Prototyping using Spring Boot
Links to other modules	The content of this module is linked to the following modules: w.BA.XX.3ITPM-WIN.XX
	w.BA.XX.3KIA-WIN.XX
	w.BA.XX.3Pt-WIN.XX
	w.BA.XX.3RE-WIN.XX
	w.BA.XX.3SE1-WIN.XX
	w.BA.XX.3SE2-WIN.XX

Methods of Instruction	§ Lecture § Interactive Instruction § Case Studies § Exercises § Problem-Oriented Teaching § Project Work § Explorative Learning § Literature Review	**Social Settings Used:** § Individual Work § Group Work
Digital Resources	§ Teaching Videos § Teaching Materials § Practice and Application Exercises (with Key) § Case Studies (with Key)	

Type of Instruction	**Classroom Instruction**	**Guided Self-Study**	**Autonomous Self-Study**
Large Class	28 h	-	
Small Class	28 h	28 h	
Group Instruction	-	-	
Practical Work	-	-	
Seminar	-	-	
Total	**56 h**	**28 h**	**96 h**

Performance Assessment

End-of-module exam	**Form**	**Length (min.)**	**Weighting**
-	-	-	-
Permitted Resources	-		

Others	**Assessment**	**Length (min.)**	**Weighting**
Multiple Project Assignments	Pass/Fail	-	-
Final Project (Hackathon)	Grade	-	100,00 %

Classroom Attendance Requirement	Mandatory Attendance: Other Attendance recommendations will be communicated separately.
Language of Instruction/Examination	English
Compulsory Reading	-
Recommended Reading	-
Comments	-