

Valid from 2026.FS

Module description: KI-Anwendungen			
Module Code	w.BA.XX.3KIA-WIN.24HS		
ECTS Credits	3		
Language of Instruction/Examination	English		
Module Description	This module consists of three blocks: 1) Creating a machine learning model for numeric data. 2) Using retrieval-augmented generation and transformer models for text data. 3) Solving computer vision tasks using LLMs or other models.		
Organizational Unit	Institut für Wirtschaftsinformatik		
Module Coordinator	Benjamin Kühnis		
Deputy Module Coordinator	Alexandre de Spindler		
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	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 60%;">Module Type Compulsory</td> <td style="width: 40%;">Program Phase Main Study Period</td> </tr> </table>	Module Type Compulsory	Program Phase Main Study Period
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Prerequisite Knowledge	Data Management, Prototyping, Software Engineering 2, Data Analytics		
Contribution to Learning Objectives (by the concerned Module)	<ul style="list-style-type: none"> • Professional Competence • Methodological Competence • Social Competence • Self-Competence 		
Contribution to Learning Objectives	<p>Professional Competence</p> <ul style="list-style-type: none"> • 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 <p>Methodological Competence</p> <ul style="list-style-type: none"> • Problem-Solving & Critical Thinking • Scientific Methodology • Work Methods, Techniques, and Procedures • Information Literacy • Creativity & Innovation <p>Social Competence</p> <ul style="list-style-type: none"> • Written Communication • Oral Communication • Intercultural Insight & Ability to Change Perspective <p>Self-Competence</p> <ul style="list-style-type: none"> • Self-Management & Self-Reflection • Ethical & Social Responsibility • Learning & Change 		

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Module Learning Objectives	Students... <ul style="list-style-type: none"> • know how and are able to train and validate a model applied to numeric, text, image, and motion picture data. • know how and are able to deploy a model. • know how and are able to integrate a model with an application. • know how to build and evaluate retrieval-augmented generation applications using LMs, vector stores, embeddings, and semantic similarity. • know how and are able to fine-tune and use a transformer model. • know how and are able to train models to classify numeric, text, image, and motion picture data. 																														
Module Content	<ul style="list-style-type: none"> • Machine learning end-to-end process: Using a dataset, training a machine learning model, and deploying it. • Natural language processing (NLP): Conversational interactions, building and evaluating retrieval augmented generation applications with LMs and vector stores, and embeddings and semantic similarity. • Fine-tuning transformer models for specific tasks such as domain-specific question answering. The fine-tuning dataset is created using common NLP. • Using pre-trained models and training models to solve different computer vision tasks. 																														
Links to other modules	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="padding: 5px;"> w.BA.XX.3DA-WIN.XX / Data Analytics w.BA.XX.3DM-WIN.XX / Data Management w.BA.XX.3Pt-WIN.XX / Prototyping w.BA.XX.3SE1-WIN.XX / Software Engineering 1 w.BA.XX.3SE2-WIN.XX / Software Engineering 2 </td> </tr> </table>			w.BA.XX.3DA-WIN.XX / Data Analytics w.BA.XX.3DM-WIN.XX / Data Management w.BA.XX.3Pt-WIN.XX / Prototyping w.BA.XX.3SE1-WIN.XX / Software Engineering 1 w.BA.XX.3SE2-WIN.XX / Software Engineering 2																											
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Digital Learning Resources	<ul style="list-style-type: none"> • Reader • Teaching Materials • Practice and Application Exercises (with Key) 																														
Methods of Instruction	<ul style="list-style-type: none"> • Application Tasks • Lecture • Exercises • Project Work • Interactive Instruction 	Social Settings Used: <ul style="list-style-type: none"> • Individual Work 																													
Type of Instruction	<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 20%;"></th> <th style="width: 20%;">Classroom Instruction</th> <th style="width: 20%;">Guided Self-Study</th> <th style="width: 20%;">Autonomous Self-Study</th> </tr> </thead> <tbody> <tr> <td>Large Class</td> <td>28 h</td> <td>24 h</td> <td></td> </tr> <tr> <td>Small Class</td> <td>-</td> <td>-</td> <td></td> </tr> <tr> <td>Group Instruction</td> <td>-</td> <td>-</td> <td></td> </tr> <tr> <td>Practical Work</td> <td>-</td> <td>-</td> <td></td> </tr> <tr> <td>Seminar</td> <td>-</td> <td>-</td> <td></td> </tr> <tr> <td>Total</td> <td>28 h</td> <td>24 h</td> <td>38 h</td> </tr> </tbody> </table>				Classroom Instruction	Guided Self-Study	Autonomous Self-Study	Large Class	28 h	24 h		Small Class	-	-		Group Instruction	-	-		Practical Work	-	-		Seminar	-	-		Total	28 h	24 h	38 h
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Performance Assessment	End-of-module exam	Form	Length (min.)	Weighting	
	-				
	Permitted Resources				
		Assessment	Format	Length (min.)	Weighting
	Project and Q&A	Grade	Individual work	0	100.00%
	One exercise per block <i>Each failed exercise reduces the Project and Q&A grades by 0.5</i>	Pass/Fail	Individual work	0	0.00%
Classroom Attendance Requirement	Other Will be communicated separately by the lecturers.				
Recommended Reading	<ul style="list-style-type: none"> Aurelien, G. Hands-On Machine Learning with Scikit-Learn and TensorFlow. O'Reilly Media.. ISBN 9781491962299. 				