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	**Module Type** Compulsory **Program Phase** Main Study Period
Prerequisite Knowledge	Data Management, Prototyping, Software Engineering 2, Data Analytics
Contribution to Learning Objectives (by the concerned Module)	• Professional Competence • Methodological Competence • Social Competence • Self-Competence
Contribution to 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 • Creativity & Innovation **Social Competence** • Written Communication • Oral Communication • Intercultural Insight & Ability to Change Perspective **Self-Competence** • Self-Management & Self-Reflection • Ethical & Social Responsibility • Learning & Change

Module description: KI-Anwendungen

Module Learning Objectives

Students...
- 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

- 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 similiarity.
- 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 trianing models to solve different computer vision tasks.

Links to other modules

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

Digital Learning Resources

- Reader
- Teaching Materials
- Practice and Application Exercises (with Key)

Methods of Instruction

- Application Tasks
- Lecture
- Exercises
- Project Work
- Interactive Instruction

Social Settings Used:
- Individual Work

Type of Instruction

	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**

Module description: KI-Anwendungen

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 *Each failed exercise reduces the Project and Q&A grades by 0.5*	Pass/Fail	Individual work	0	0.00%

Classroom Attendance Requirement

Other

Will be communicated separately by the lecturers.

Recommended Reading

- Aurelien, G. Hands-On Machine Learning with Scikit-Learn and TensorFlow. O'Reilly Media.. ISBN 9781491962299.