Course H8.1 XXX181 AI for Business Applications

This course is a Compulsory in module H8

Person responsible for the course	Prof. Dr. Florian Kauffeldt/ Prof. Dr. Michael Ruf
Semester	4
Frequency	Winter and summer semester
Type of Course	Lecture with integrated exercise
Language of instruction	English
Credit points (ECTS)	2.5
Contact hours per week	2.0
Workload - contact hours	30
Workload - self-study	32.5
Detailed remarks on the workload	Preparation, follow-up and exam preparation,
Type of examination	PK (Module-specific time-constraint assignment)
Exam duration	120 minutes
Type of course unit	Compulsory
Requirements for participation	Knowledge of elementary algebra and statistics
Teaching/learning methods	Lecture with joint exercises
Professional competence: In-depth knowledge and comprehension	After successfully completing the course, students have basic knowledge of machine learning algorithms and are able to • Train algorithms • Assess the quality of algorithms using quality metrics • Process business use cases with the help of algorithms
Professional competence : conative skills, analysis and synthesis of knowledge	After successfully completing the course, students will be able to operate the Python programme at a moderate level and, in particular, use it to process data and perform machine learning. create learning algorithms. They apply the knowledge gained in the field of artificial intelligence and can transfer it to new problems.
Personal competence: Social competence	Students discuss alternative solutions to problems in a factual and professional manner and recognise the potential for conflict when working with other group members. Through constructive, conceptual behaviour, they ensure the implementation of solution processes appropriate to the situation and conduct sector-specific and cross-sector discussions.
Personal competence: Independence / autonomy	• Independent analysis and assessment of use cases in relation to the implementation of AI solutions • Independent automation of work processes using machine learning algorithms with the Python programme • Independent analysis and evaluation of solutions and results
Competence level according to GQF	6

Contents	• Python basics • Supervised learning I: Classification • Supervised learning II: Regression • Unsupervised learning: cluster analysis and anomaly detection
Recommended optional programme components	none
Additional specifics	none
Literature/learning sources	• Essa, A. and S. Mojarad (2022). Practical AI for business leaders, product managers, and entrepreneurs. Berlin / Boston : De Gruyter. • Johansson, R. (2019). Numerical Python : Scientific Computing and Data Science Applications with Numpy, SciPy and Matplotlib. New York : Apress. • Li, H. (2024). Machine Learning Methods. Singapore: Springer.
Scheduled	Regular
Combined assessment	Not applicable