



**Institut für
Arbeitswissenschaft**

**RUHR
UNIVERSITÄT
BOCHUM**

RUB

Modulbeschreibung
für den Master of Arts Weiterbildungsstudiengang
Organizational Management

| Designing Explainable AI (Date: tba, probably end of September) | | | | | |
|---|----------------|-----------------|------------------------------|----------------------------|---|
| Module-No./- Shortcut | Credits | Workload | Semester | Rotation | Duration |
| | 6 CP | 180 h | 3-6. Sem. | Summer term | 1 Semester |
| Courses Seminar (Fachwissenschaftliches Vertiefungsseminar), M.S. Applied Computer Science | | | Contact time 4 SWS | Self-study 120 h | Group size limited to max. 12 persons |
| Language: English | | | | | |
| Participation requirements: <ul style="list-style-type: none"> • Basic knowledge in the topic of Artificial Intelligence/Machine Learning • Interest in the scientific development and evaluation of IT-artifacts, which goes hand in hand with literature work • Willingness to deal with qualitative and quantitative evaluation methods • Interest in prototyping Recommended prior knowledge: <ul style="list-style-type: none"> • Basic knowledge of artificial intelligence and/or relevant programming skills (e.g., Python) • Familiarity with (graphics) software for the design of prototypical information systems (e.g., their user interfaces) | | | | | |
| Learning outcomes The course is aimed at students of the M.Sc. Applied Computer Science with an interest in the topic of Explainable Artificial Intelligence. More specifically, the focus is on the topic of explainability and transparency of modern approaches to artificial intelligence. This set of topics addresses scientific issues around real-world challenges that are highly relevant to both practice and research. In order to address these problems and issues, a design-oriented research approach is taught and used. The design-oriented research approach enables the derivation, design and evaluation of innovative solution approaches as well as generalizable design knowledge. In this process of deriving, designing and evaluating solutions, different scientific methods can be applied, such as prototyping, systematic literature searches, qualitative interviews or quantitative surveys. | | | | | |
| After successful completion of the module <ul style="list-style-type: none"> • You have become acquainted with the research field of Explainable Artificial Intelligence and understood which consequences can result from the blackbox problem • You have become acquainted with different methods and techniques from the field of Explainable Artificial Intelligence as well as their characteristics • You have learned the core research process of Design Science Research and successfully applied the procedure in the context of a seminar paper • You have worked on a scientific problem with practical relevance using scientific methods | | | | | |
| Content The course combines theoretical and scientific foundations from the field of Explainable Artificial | | | | | |

Intelligence with the development of solution approaches for real-world problems. This includes:

- Communicating the status quo on the topic of Explainable Artificial Intelligence as well as relevant use cases, stakeholders and research opportunities
- In-depth application of Design Science Research as a design-oriented research approach
- Instantiation of possible solutions in prototypical IT-artifacts
- Use of qualitative and/or quantitative research methods for the development of generalizable design knowledge as well as the evaluation of possible solutions
- Working on interdisciplinary questions with high relevance for research and practice

Teaching forms

This module will be held as a 2,5 week long block course (with an introduction some weeks before) and in cooperation with students of the University of Oldenburg (Prof. Dr.-Ing. Daniel Sonntag, German Research Center for Artificial Intelligence). After introductory lectures on the topics of Explainable Artificial Intelligence and Design Science Research by the lecturers, the students work independently on their scientific projects (in groups). Exchange among the groups through constructive discussions and feedback rounds is encouraged. The lecturers provide assistance with the work and give continuous feedback on the project and the associated seminar papers.
The XAI block seminar is held entirely via online sessions to enable collaboration with students at the University of Oldenburg.

Forms of examination

The examination consists of two parts and can therefore only be passed if both performances are at least passed:

- Two graded presentations
- Graded seminar paper

Prerequisites for the award of credit points

- *Regular participation*
- *Successful presentation of the intermediate and final results*
- *Successful processing and submission of the seminar paper*

Use of the module

Value of the grade for the final grade

Module representative and full-time lecturer

Prof. Dr. Christian Meske

Other information