LMU LUDWIG-MAXIMILIANS-UNIVERSITÄT MÜNCHEN

LMU MUNICH SCHOOL OF MANAGEMENT

Information Systems & Digital Business

Advanced AI in Businesses and Organizations

Winter Semester (annual rotation)

Institute:	Institute of AI in Management
Lecturer:	Prof. Dr. Stefan Feuerriegel
Assistant:	Assistants are annually changing
Weekly hours:	Coaching sessions by individual arrangement.
Credits	6
Examination:	Seminar paper and video presentation.
Prerequisites:	Please note that we expect solid scripting skills (e.g. in R or Python), as well as solid knowledge of machine learning. As such, this course is intended as a follow-up elective after successful completion of “AI for Managers” (MMT and MBR) or "Digital Technologies, Business Analytics and Management" (M.Sc. BWL).
Course Material:	All course materials will be shared via Moodle. Students are required to self-enrol to the course through Moodle. The self-enrolment key can be accessed via LSF.

Course Description & Main Objectives

In this seminar, students will implement an advanced machine learning project. We consider this an advanced course for specialization. In this online course, students will implement an advanced machine learning project. The machine learning project should be of value to the decision-making in businesses, organizations, and society.

This is a hands-on course where students are asked to implement machine learning in a self-determined way and eventually present the results to a scientific audience (video presentation). As such, the focus is almost exclusively on methodological aspects that arise from the underlying mathematics.

During the project, students will need to engage in the following tasks related to practical implementations:

- Pre-process data to transform it into relational structures

- Apply statistical software (e.g., "R" and/or Python) to perform business analytics in practice
- Evaluate the results to choose the best-performing method

Lectures Overview / Course Outline

Final dates and times will be shared via Moodle. Coaching sessions by individual arrangement.

Literature

- James, Witten, Hastie & Tibshirani (2013): An Introduction to Statistical Learning: With Applications in R. *Springer*. https://www.r-bloggers.com/in-depth-introduction-to-machine-learning-in-15-hours-of-expert-videos/
- Wickham: R for Data Science. *O'Reilly*. https://r4ds.had.co.nz/
- Kuhn & Johnson. Applied Predictive Modeling. *Springer*.
- Hastie, Tibshirani & Friedman. The Elements of Statistical Learning: Data Mining, Inference, and Prediction. *Springer*.
- Goodfellow, Bengio, Courville (2016): Deep learning. *MIT Press*
- *Blog: https://www.r-bloggers.com/ features regularly worked examples (with R)*