Big Data Analytics - Methods and Applications

Code 8807974147

ECTS credits 7

Attendance time 4

Language of instruction German

Duration 1

Cycle each Summer Semester

Coordinator Mr. Prof. Dr. Klier; Institute of Technology and Process Management

Instructor(s) Mr. Prof. Dr. Klier; Institute of Technology and Process Management


Recommended prerequisites -

Learning objectives Nowadays, huge and steadily growing volumes of data are available to companies – for example in social media and the WWW (e.g., online social networks, wikis, discussion panels, rating and review platforms) or traditional databases (e.g., data warehouse, customer databases). The target-oriented and well-founded analysis of these data enables improved decision support and bears great potential in various fields of application (e.g., innovation management, product development, marketing, customer relationship management, internal knowledge management). The module “Big Data Analytics – Methoden und Anwendungen” focuses on the relevant foundations and methods needed in this context. Students who graduated this module know the theoretical foundations, potential use cases, and risks of Big Data Analytics and are able to explain. They are familiar with different methods to analyze large amounts of structured and unstructured data (e.g., community and topic detection, collaborative and content-based filtering, routing) and are able to assess and apply them. Moreover, they are able to apply these methods to solve
practical problems (e.g., the analysis of real-world data using software tools), to interpret the results, and to derive recommendations.

### Syllabus

The following contents are addressed in this module:

- **Introduction and foundations** – Big Data Analytics as a highly relevant topic
  - Characteristics, opportunities, and risks of Big Data
  - Use cases and (economic) potential of Big Data Analytics
- **Big Data Analytics** – selected fields of application and methods
  - Social networks (e.g., community detection, topic detection, information diffusion)
  - Recommender systems (e.g., collaborative filtering, content-based filtering, link analysis)
  - Smart cities (e.g., routing, crowd diffusion)
- **Big Data Analytics** – practical applications
  - Analysis of real-world data using software tools
  - Solving practical problems, interpreting the results, and deriving recommendations

### Literature


### Teaching and learning methods

Lecture (2 SWS) and exercises (2 SWS)

### Workload

In-class: 80 h

Self-study: 130 h

**In sum: 210 h**

### Assessment

The grade of the module will be the grade of the written exam. No prerequisites are necessary for exam registration.

### Grading procedure

The grade of the module will be the grade of the exam.
Basis for

Schwerpunktfächer Technologie- und Prozessmanagement sowie Unternehmensführung und Controlling, sowie Rechnungswesen und Wirtschaftsprüfung, Wahlpflicht BWL