



# PRINCIPLES OF DATA ANALYSIS

## COURSE OUTLINE AND READING LIST

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**TIME** Research Area | Institute of Technology and Innovation Management  
(TIM)

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## 1 COURSE OVERVIEW

Course Name:	<b>Principles of Data Analysis (8120551)</b>
Degree Programmes:	(1) Master BWL (IEM) (2) Master Wirtschaftsingenieurwesen (IEM) (3) Master Wirtschaftswissenschaften (IEM, General Management)
Lecturer:	Prof. Dr. David Antons, Nicole Hartwich
Contact:	Nicole Hartwich (hartwich@time.rwth-aachen.de) <b>www.time.rwth-aachen.de/tim</b>
Location and Time:	<u>Zoom Sessions:</u>  Course Recap: 12.4., 19.4., 3.5., 10.5., 31.5., 7.6. (2pm to 3pm) Course Exercise: 12.4., 19.4., 3.5., 10.5., 31.5. (3pm to 5pm) and 14.6. (2pm to 4pm)
Content Description:	This course provides students the opportunity to learn various methods of statistical data analysis. Statistical methods are the foundation of empirical management research. In addition, they are increasingly used in business practice to make evidence-based decisions. The course focuses on the practical application rather than on the theoretical depth of the methods. The module is based on a typology of typical questions that scientists and managers face when they receive data sets of companies. The module provides a decision tree which assigns statistical methods to typical questions. Equipped with this decision tree, the practical application of the various methods is explained in the course and demonstrated in the statistics program Stata. This is followed by practical exercises to deepen the understanding of the contents and to practice working with the statistics program. It will be the task of the students to first complete the exercises independently but accompanied by the lecturer. In addition, the students will transfer the learned methods to their own analyses. For this purpose, the chair provides a suitable data set.
Qualification Objectives:	By participating in this course, students will <ol style="list-style-type: none"> <li>(1) gain in-depth theoretical insights into empirical social research (research designs, research methodology),</li> <li>(2) develop methodological competence by gaining initial experience in statistical analysis and handling of the Stata program,</li> <li>(3) gain insights into the process of empirical research projects in the field of business administration,</li> </ol>
Course Examination:	The final grade can be composed as follows: <ol style="list-style-type: none"> <li>(1) Option A: Colloquium and presentation (50%, graded) and written examination (50%, graded, 60min.)</li> <li>(2) Option B: Colloquium and presentation (20%, graded) and paper (80%, graded)</li> </ol>

	(3) Option C: Paper (50%, graded) and written examination (50%, graded, 60min.) (4) Option D: Written examination (100%, graded, 60min.) or oral examination (100%, graded, 15-45min.)  The exact form of examination (A, B, C or D) will be announced at the start of the course. Unless announced differently, option D applies.
Group Size:	Due to the interactive teaching format and space constraints in the computer lab, the number of participants is limited to 18.
Workload:	32 hours of lecturing, lab sessions, and presenting and 118 hours of individual working
Type of Teaching Event:	Research-Oriented Session with weekly lab sessions
Language:	German/English
Credits:	5

## 2 COURSE ORGANISATION

The students are first introduced to the topic and the concept of the module. The theoretical and methodological basics of statistical analysis will be presented and discussed. The introduction to the methodology will take place in a flipped classroom approach with video lectures. Following an introduction to the statistics program Stata, students are given the opportunity to specify their own analyses accompanied by the lecturer.

### Zoom Sessions

- **Course Recap:** 12.4., 19.4., 3.5., 10.5., 31.5., 7.6. (2pm to 3pm)
- **Course Exercise:** 12.4., 19.4., 3.5., 10.5., 31.5. (3pm to 5pm) and 14.6. (2pm to 4pm)

**We hope you will enjoy the course and look forward to working with you!**