# **Advanced Data Analytics**

	Module Number	Study Programme TBB/TAB	Semester 6	Offered in WS X SS	<b>Duration</b> 1 Semester	Module Type Selective	Workload (h) 128	ECTS Points 5 ECTS
2	Courses		Teaching and Learning Forms		Contact Time		Self-Study Time	Language
					(SWS)	(h)	(h)	
	Advanced Data Analytics		Lecture					english
	Project		Project					

#### 3 Learning Outcomes and Competences

Once the module has been successfully completed, the students...

#### **Knowledge and Understanding**

- ...will have a basic understanding of advanced data analytics.
- ...acquire the ability to translate business problems into analytical solutions.
- ...Understand up-to-date topics such as Big Data, Smart Data, Data Mining, etc.
- ...Know the CRISP and the Market Research Process.
- ...Learn the key issues of professional questionnaire design.
- ...They know the basic theoretical background of several important uni-, bi-, and multivariate methods.

#### Use, Application and Generation of Knowledge

- ...are able to program an online questionnaire with a specific tool (e.g. Questback Unipark).
- ...are able to analyze data with IBM SPSS Statistics and/ or IBM SPSS Modeler.
- ...are able to apply statistical methods on data from different sources (e.g. data generated with questionnaires or data already stored in a database).
- ...are able to read and interpret SPSS Outputs.
- ...are able to derive data-driven recommendations for actions.

## **Communication and Cooperation**

- ....can communicate, discuss and present data analyses in English.
- ...can translate business problems into analytical solutions.
- Can discuss up-to-date topics such as Big Data, Smart Data, Data Mining, etc.

#### Scientific Self-Conception/ Professionalism

• The course wants to ensure, that students not only know the theoretical background of the various methods but also are able to apply them on real data. Therefore the course also includes a practical training for data analytics with IBM SPSS Statistics and/or IBM SPSS Modeler.

## **Advanced Data Analytics**

#### Contents

The aim of this course is to give students a basic understanding of advanced data analytics so that they are able to translate business problems into analytical solutions. They know several of the most important uni-, bi-, and multivariate methods and are able to apply them on data from different sources (e.g. data generated with questionnaires or data already stored in a database) with IBM SPSS Statistics or IBM SPSS Modeler. After this course they are able to understand and discuss up-to-date topics such as Big Data and Smart Data.

#### General topics:

- Importance of advanced data analytics
- Difference between market research, big data, smart data, data mining, etc.
- Key issues in questionnaire design
- Important use cases in practice

#### Methods in focus:

- Measures of Location, Measures of Shape, Measures of Variation
- Cross tabs, Chi<sup>2</sup>, Pearson and Spearman correlations
- Parametric and Non Parametric tests
- Linear Regression
- Variance analysis
- Cluster analysis
- Factor Analysis

### 5 Participation Requirements

recommended: Basics in Statistics and Maths, Interest in Data Analytics,

Data Mining and quantitative Market Research

#### 6 Examination Forms and Prerequisites for Awarding ECTS Points

Written Examination of 90 Minutes and Presentation non graded

## 7 Further use of Module

## 8 Module Manager and Full-Time Lecturer

Prof. Dr. Dorothee Brauner

## Literature

9

- Hair, J.: Multivariate Data Analysis, 7th Edition, Pearson, 2010
- Bühl, A.: SPSS 22: Einführung in die moderne Datenanalyse (Pearson Studium Scientific Tools) Gebundene Ausgabe 1.
  Januar 2014
- Wendler, T. & Gröttrup S.: Data Mining with SPSS Modeler. Theory, Exercises and Solutions, Springer International Publishing, 2016
- Lecture Notes

#### 10 Last Updated

04.03.2020