Karlsruhe Institute of Technology

IISM
INSTITUTE OF INFORMATION SYSTEMS AND MARKETING

"Marketing & Sales" Research Group
Prof. Dr. Martin Klarmann
https://marketing.iism.kit.edu

Syllabus
Doctoral Course: Advanced Empirical Methods

Course Description

This course prepares doctoral students to use primary data collection methods for researching the behavior of consumer, users, employees, executives, and firms. It covers methods that are widely used in the fields of marketing and information systems research, two research domains that tend to follow each other closely in what is done empirically. In particular, this class prepares students for collecting data through experiments or surveys, although many insights will generalize well to other types of data collection.

The teaching approach is a mix of lecture-style sessions and applied sessions. In the mornings, students will get a thorough introduction to the R environment for analyzing data. Then they will be introduced to different research methods. In the afternoons, they will apply the research methods presented to real datasets.

Course Objectives

The course intends to introduce PhD students to advanced empirical methods. After attending this course, students should be able to:

- Confidently employ null-hypothesis testing while recognizing its inherent strengths and weaknesses
- Use the statistical software "R" to analyze small and medium-sized datasets
- Understand issues surrounding replicability and reproducibility of empirical research
- Design and analyze lab experiments for testing causal hypotheses about consumer and user behavior
- Recognize measurement issues in primary research data and address them using factor analysis
- Analyze hypothesized dependencies between variables using OLS regression, logistic regression, and structural equation modeling while understanding the core assumptions of these methods
- Design research activities so that causal statement become possible

Course Requirements

The course is offered by the Institute of Information Systems and Marketing (IISM) at the Department of Economics and Management of KIT. It is primarily designed for doctoral students in the IS and marketing field. However, doctoral students from other disciplines (e.g. finance, management, computer science) are also welcome.

It is worth noting that the content of this course is partially also offered in the M.Sc. program of the Department of Economics and Management of the KIT. Interested students who participated in the classes "Market Research" and "Marketing Analytics" offered by Martin Klarmann should inquire in advance with Martin Klarmann (martin.klarmann@kit.edu) which sessions to attend.

Grading

Grading will be based on class participation.

Registration and Organization

Please register via sending an email to Sabine Schneider (office-issd@iism.kit.edu). For specific dates and location of the lecture, please check the Website or ILIAS portal. All questions regarding content, organization, and certificates are answered by the lecturer Martin Klarmann (martin.klarmann@kit.edu).

Course Materials

Course material is provided in the form of a presentation slide deck and a list of reference papers and books.

Course Outline

	Day 1	Day 2	Day 3	
	Experiments	**Regression**	**Latent Variable Models**	
9:00-10:30	Gentle Introduction into Programming with R and RStudio by Dominik Jung	Data Handling with R by Dominik Jung	Data Design and Visualizations with R by Dominik Jung	*Basic R*
10:45-12:15	Refresher: Null Hypothesis Significance Testing by Martin Klarmann	OLS Regression and Logistic Regression by Martin Klarmann	Survey Design and Measurement by Martin Klarmann	
13:00-14:30	Experimental Research and Design by Sven Feurer	Regression Assumptions by Martin Klarmann	Exploratory and Confirmatory Factor Analysis by Martin Klarmann	*Empirical Methods*
14:45-16:15	Analysis of Variance (ANOVA) by Sven Feurer	Causality by Martin Klarmann	Structural Equation Models (SEM) by Martin Klarmann	
16:30-18:00	Analyzing Experimental Data with R: Tests and ANOVA by Dominik Jung	Analyzing User and Consumer Behavior with Regression by Dominik Jung	Analyzing User and Consumer Behavior with SEM by Dominik Jung	*Hands-on Data Analysis*
19:00		**Social Event**		