JOHANNES KEPLER
UNIVERSITY LINZ | JKU

Master Seminar Quantitative Research Methods

266.018, SS 2015
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Seminar Description

This seminar will follow a modern data science approach. You will learn how to apply statistical methods to practical research questions in management. You will understand the importance of reproducible research, use the programming language R hands-on, and create reproducible reports and presentations.

Entry Requirements

- 18 ECTS credits in Strategic Management, Marketing, Organization, Human Resources & Change Management, Financial and Managerial Accounting.
- Basic understanding of quantitative research methods is highly recommended but not required.

Contents

- Introduction to the programming language R, reproducible research
- Research designs for collecting primary and secondary data, with a special focus on the internet as a data source
- Exploratory data analysis, statistical inference
- Regression models, principal component analysis
- Student project presentations

Classes, Additional Work

Being a Master Seminar the course is on an advanced level. However, students who do not have much previous knowledge in quantitative methods have the opportunity to acquire the basics in the first month of the course through self-study. For this, the first two lectures of the seminar gives an overview as a guidance for self study (see the suggestions of text books). The block and the research project in the second half of the seminar will be on an advanced level.

Grading

- Class Assignments: 60%
- Team research project: 40%
- Class participation 20% (in total a minimum of 70% of attendance is required, but 100% attendance on 14. and 15.11, exam (16.12.), and presentation (20.1.) is mandatory)

Resources

1. Textbooks on basics:

   David Diez, Cristopher Barr, and Mine Çetinkaya-Rundel (2014). *Introductory Statistics with Randomization and Simulation. First Edition.* CreateSpace Independent Publishing Platform. ISBN: 9781494422516. A free PDF version is available at www.openintro.org.

   Nina Zumel and John Mount (2014). *Practical Data Science with R.* Manning Publications Company. ISBN: 9781617291562.

   Pervez N. Ghauri and Kjell Grønhaug (2010). *Research Methods in Business Studies.* 4th. Financial Times Prentice Hall. ISBN: 9780273712046. Some copies are available in the JKU library.

   Alternatively, for German speakers: Johannes M. Lehner and Alois Farthofer (2012). *Evidenzbasiertes Management. Methoden und Kompetenzen der Organisationsanalyse. Mit einführenden Beispielen zu R, Mathematica und SPSS.* Wien: Linde Verlag. ISBN: 9783714302271.

2. A PC (MacOS or Windows) to install R and RStudio (both are available for free). We will use RStudio extensively throughout the course.

Schedule for Summer Semester 2015

(see KUSSS for possible changes)

Date	Time	Room	Topic
20.4.	08:30–11:45	TBD	Seminar overview, introduction to programming language R
27.4.	08:30–11:45	TBD	Reproducible research, knitr
4.5.	08:30–11:45	TBD	Questionnaires, data collection
11.5.	08:30–11:45	TBD	Descriptive data analysis, ggplot
18.5.	08:30–11:45	TBD	Statistical inference
25.5.	08:30–11:45	TBD	Regression models
15.6.	08:30–11:45	TBD	Team Presentations