Anhang B: Übersicht über mögliche Wahlpflichtkurse

Advanced Course I – Network Analysis (6 ECTS)

- Handling network data
- Basic network characteristics (groups, cliques, centralization measures, betweenness measures, problem of social influence/endogeneity)
- Analyzing networks
- Visualizing networks

Advanced Course II – Text Analysis (6 ECTS)

- Basic text functions (grep, gsub, etc.) and corpora
- Dictionaries and sentiment analysis
- Topic modelling
- Word2vec/fastText (focus on skipgram/cbow)
- Basic NLP techniques (Stanford Core NLP/ SpacyR)

Advanced Course III – Registry and admin data (6 ECTS)

- Public APIs
- Data-linkage
- Sampling / Bias issues
- Analyzing large data

Advanced Course IV – Server handling and Databases (6 ECTS)

- UNIX, Bash-programming, automation with scheduled tasks (cron-jobs)
- High performance computing
- Basic SQL and MongoDB
- Integration with *R* and *Python*

Advanced Course V – Application development (6 ECTS)

- One semester workshop
- Programming an own, standalone application including client UI and serverside database and algorithms

Advanced Course VI – Digital citizenship (6 ECTS)

- Mobilization
- Right to be forgotten
- Microtargeting

Advanced Course VII – Fragmentation in a digital society (6 ECTS)

- Theoretical concept
- Measuring fragmentation on the structural side (e.g. webscraping)
- Measuring fragmentation on the user side (e.g. webtracking)
- Own project: e.g. analyzing existing data or collecting own data

Advanced Course VIII – Variable topic (block-seminar) (6 ECTS)

- One (external) block-seminar per year
- Expert in advanced computational technique / topic

Advanced Course IX – Quantitative Methoden der BWL am PC (4.5 ECTS)

- Components of decision support systems
- Introduction to programming in VBA for Microsoft Excel
- Student project: conception, development and implementation of a decision- support-system for a decision problem in finance, marketing, or management

Advanced Course X – Quantitative Methoden der BWL II (6 ECTS)

- Non-linear optimization
- Optimization in graphs and networks
- Applications in finance, marketing, management, and data analysis

Advanced Course XI – Business Intelligence (4.5 ECTS)

- Concepts of business intelligence, data warehousing and data architectures
- Data modeling techniques
- Process, analyze and visualize data using BI-related tools
- Working with the tool Tableau

Advanced Course XII – Wissensmanagementsysteme (4.5 ECTS)

- Concepts and effects of knowledge management
- Creation, identification and presentation of knowledge
- Design and usage of knowledge management systems

Advanced Course XIII – Econometrics (4.5 ECTS)

Advanced Course XIV – Time Series (4.5 CTS)

Advanced Course XV – Solving Economic Models with Python (6 ECTS)

Advanced Course XVI – Machine learning in economics (6 ECTS)