

General Information:

Module number:	
Title (dt.):	Data Analytics
Title (en.):	Data Analytics
Module level:	MSc
Abbreviation:	
Subtitle:	
Duration:	One semester
Occurrence - summer/winter:	Winter
Occurrence - regular/irregular:	Regular
Language:	English
Credits:	4
Specialization:	
Date:	
Location:	Augsburg (University)
FIM-exclusivity:	Yes

Workload:

Contact hours:	30
Self-study hours:	90
Total hours:	120

Achievment and assessment methods:

Description of achievment and assessment methods:	The modul examination is a written exam. The exam will cover the issues related to general modelling theory and to modelling results for a described data set. By answering the general questions the students have to prove they understanding of the ideas and objectives of different modelling techniques for multivariate data and to explain and to justify the corresponding advantages and limitations. Particularly this refers to modelling linear/nonlinear relationships, to modelling of binary, nominal and count data and to forecasting and measuring the goodness of forecasts. By answering the second part of the questions, the students have to assess and to interpret the modelling results, check the correctness and appropriateness of the applied procedures. Furthermore, the modelling results have to be addressed critically and alternative or more suitable modelling methods have to designed and
Type of assessment:	Written
Duration of assessment (min):	90 min
Assessment retake:	Next semester

Description:

(Recommended) prerequisites	Econometrics
Content:	Multiple linear regression (multicollinearity, outliers, parameter constancy); nonlinear regression; nonparametric regression; regularisation techniques; spline regression; neural networks; time series decomposition; goodness and comparison of forecasts; forecasting with exponential smoothing; forecast combinations; factor analysis; principal components analysis; cluster analysis.
Intended learning outcomes:	After successful participation in the course the students are familiar with typical problems and issues arising while fitting linear regressions and with methods and tools to overcome these problems. Furthermore, the students are able to fit and interpret such nonlinear modelling models as nonlinear and nonparametric regressions, neural networks and spline regression. The students are able to decompose a time series and use exponential smoothing for time series forecasting. The participants know how to compare and to combine forecasts from different models. Finally the students know special methods used for

Teaching and learning methods:

Lectures with beamer presentations and additional explanations, proofs on the whiteboard. Discussions of real data applications with a detailed analysis of modelling framework and interpretation of results. Additional data sets for individual voluntary analysis. Small groups, which stimulate intensive interaction between the lecturer and the students. Use of different software (SPSS and R) to make the students familiar with common statistical packages.

Media:

Course media collection, lecture slides, white board, data collection

Reading list:

James, Witten, Hastie, Tibshirani, Introduction to statistical learning, Springer 2013

Makridakis, Wheelwright, Hyndman, Forecasting: Methods and Applications, Wiley 1998

Clarke, Fokoue, Zhang, Principles and Theory for Data Mining and Machine Learning, Springer 2009

Tutz,

Regression for categorical Data, Cambridge 2012

Responsible for module:

First name:

Yarema, Prof. Dr.

Name:

Okhrin

Email:

yarema.okhrin@wiwi.uni-augsburg.de

Lecturer:

1. Lecturer:

First name:

Yarema, Prof. Dr.

Name:

Okhrin

Email:

yarema.okhrin@wiwi.uni-augsburg.de

Courses:

1. Course:

Type:

Lecture

Name:

Data Analytics

Weekly hours per semester:

2

2. Course:

Type:

Name:

Weekly hours per semester:

(Recommended) audience:

1. Program:

Name:

MSc Finance & Information Management (FIM)

2. Program:

Name:

3. Program:

Name:

4. Program:

Name:

5. Program:

Name: