Module Description

General Information:

Module number:	
Title (dt.):	Quantitative Methoden der Finanzwirtschaft
Title (en.):	Quantitative Methods in Finance
Module level:	MSc
Abbreviation:	
Subtitle:	
Duration:	One semester
Occurrence - summer/winter:	Summer/winter
Occurrence - regular/irregular:	Irregular
Language:	English
Credits:	4
Specialization:	
Date:	
Location:	Augsburg (University)
FIM-exclusivity:	No

Workload:

Contact hours:	60
Self-study hours:	60
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 their understanding of the ideas and objectives of different modelling techniques for financial data and to explain and to justify the corresponding advantages and limitations. Particularly this refers to modelling distributions of asset returns, modelling usind nonparametric regression, linear and nonlinear time series models and copula models . 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 be designed and discussed.
Type of assessment:	Written
Duration of assessment (min):	60 min
Assessment retake:	

Description:

(Recommended) prerequisites	Econometrics
Content:	Modelling the density of returns (assumption of Gaussian asset returns, examination of symmetry and tails, goodness-of-fit tests, histogram and kernel density estimators); modelling expected returns (nonparametric regression and basic linear time series models); modelling the variance of returns (ARCH and GARCH processes); multivariate distributions (Copula models)

Intended learning outcomes:	After successful participation in the course the students are familiar with typical problems and issues arising while modelling financial data and with methods and tools to overcome these problems. Furthermore, the students are able to modell and interpret such data with nonparametric regressions, basic and advanced linear and nonlinear time series models. The participants know how to compare the quality of different models and how to apply copula-based models to multivariate data. Finally, the students are able to implement the discussed techniques with the statistical programming language R.
Teaching and learning methods:	Lectures with beamer presentations and additional explanations, proofs on the blackboard. Discussions of real data applications with a detailed analysis of modelling framework and interpretation of results. Additional techniques and data sets are analyzed in the offered exercise classes. There the students receive further support to apply independently the discussed methods with the software R.
Media:	Course media collection, lecture slides, white board, data collection
Reading list:	Franke, J.,Härdle, W. und Ch. Hafner, 2004, Einührung in die Statistik der Finanzmärkte, Springer McNeil, A., Frey, R. und P. Emrechts, Quantitative Risk Management: Concepts, Techniques and Tools, Princeton University Press Campbell, J., A. Lo und A. MacKinley, 1996, The econometrics of nancial markets, Princeton University Press Tsay, R., 2005, Analysis of Financial Time Series, John Wiley & Sons

Responsible for module:

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Lecturer:

1. Lecturer:

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Courses:

1. Course:

Type:	Lecture
Name:	Quantitative Methods in Finance
Weekly hours per semester:	2

2. Course:

Type:	Exercise
Name:	Introduction to R
Weekly hours per semester:	2

(Recommended) audience:

1. Program:

Name:	MSc Finance & Information Management (FIM)

2. Program:

Name:	

3. Program:

Name:	

4. Program:
Name:

5. Program:
Name: