Valid from 2026.FS

Module description: Applied Econometrics with R

Module Code	w.MA.XX.AOR-M9.21HS
ECTS Credits	6
Language of Instruction/Examination	German
Module Description	The module provides the methodological foundations to enable students to deal with empirical questions (in economics). Econometrics helps us to quantify relationships between variables, answer cause-and-effect questions, and make forecasts. Regression analysis, which is the focus of the module, serves this purpose in particular.
Organizational Unit	Institut für Financial Management (IFI)
Module Coordinator	Armin Bänziger-Aiba
Deputy Module Coordinator	Oliver Bachmann
Program and Specialization	• Accounting and Controlling
Legal Framework	Academic Regulations MSc in Accounting and Controlling dated 10.12.2015, Appendix to the Academic Regulations for the degree program in Accounting and Controlling, first adopted on 26.01.2016
Module Category	**Module Type** Compulsory
Prerequisite Knowledge	w.MA.XX.ASR-M4.21HS (Applied Statistics with R)
Contribution to Program Learning Objectives (by the concerned Module)	• Professional Competence • Methodological Competence • Social Competence • Self-Competence
Contribution to Program Learning Objectives	**Professional Competence** • Knowing and Understanding Content of Theoretical and Practical Relevance • Apply, Analyze, and Synthesize Content of Theoretical and Practical Relevance • Evaluate Content of Theoretical and Practical Relevance **Methodological Competence** • Problem-Solving & Critical Thinking • Scientific Methodology • Work Methods, Techniques, and Procedures • Information Literacy • Creativity & Innovation **Social Competence** • Written Communication • Oral Communication • Teamwork & Conflict Management • Intercultural Insight & Ability to Change Perspective **Self-Competence** • Self-Management & Self-Reflection • Ethical & Social Responsibility • Learning & Change

Module description: Applied Econometrics with R

Module Learning Objectives

Students...
- understand why different types of data have to be analyzed differently.
- understand the linear regression model and its assumptions and can estimate and interpret regression equations with several regressors in R.
- test and evaluate hypotheses and estimate confidence intervals regarding regression parameters in R.
- analyze regression residuals (diagnosis) and find adequate solutions to violations of regression assumptions.
- recognize the special characteristics of working with time-series data.
- use dummy variables to include qualitative variables in their regression analysis.
- understand the problem of endogenous regressors and know solution strategies.
- question empirical results and their methodological foundations.
- use regression analysis for financial applications.

Module Content

- The linear regression model and its assumptions
- Testing hypotheses and confidence intervals
- Violations of the assumptions of the classical regression model and solution alternatives
- Basic time series analysis
- Applications in the financial sector (CAPM, investment fund performance)
- Estimation of the models in the programming environment R

Links to other modules

This module is linked to the following modules:
- w.MA.XX.MTAC-M13.16HS
- w.MA.XX.POF-M11.16HS
- w.MA.XX.ASR-M4.21HS

Digital Learning Resources

- Teaching Videos
- Practice and Application Exercises (with Key)
- Multiple Choice Tests
- Teaching materials (pdf), R environment, R scripts

Methods of Instruction

- Application Tasks
- Interactive Instruction
- Literature Review
- Exercises
- Q&A, discussion

Social Settings Used:

Type of Instruction

	Classroom Instruction	Guided Self-Study	Autonomous Self-Study
Lecture	-	34 h	
Excercise	42 h	60 h	
Project Work	-	-	
Seminar	-	-	
Total	**42 h**	**94 h**	**44 h**

Performance Assessment

End-of-module exam	Form	Length (min.)	Weighting
Written exam	Specified documentation	60	100.00
Permitted Resources	Spec. calculator acc. to leaflet "Utilities"	With dictionary	

Others	Assessment	Format	Length (min.)	Weighting
-	-	-	-	-

Classroom Attendance Requirement

None

Module description: Applied Econometrics with R

Compulsory Reading	• Auer, B. & Rottmann, H. (2020). Statistik und Ökonometrie für Wirtschaftswissenschaftler: Eine anwendungsorientierte Einführung. 4th edition. Wiesbaden: Springer Gabler. ISBN 978-3-658-30136-1. Students can also use the 3rd edition of 2015.
Recommended Reading	
Comments	The textbook by Auer and Rottmann is available as an e-book (PDF) from the ZHAW library.