Title of course	**Econometrics and Financial Data Analysis**
Responsible instructor	Prof Diego d'Andria, PhD
Learning objectives	▪ Develop the fundamental skills to design and run a multivariate regression model to analyse relations among data ▪ Learn about the Ordinary Least Squares (OLS) model and its assumptions. Learn how to employ the OLS model in a nonlinear context ▪ Learn how to compute and interpret confidence intervals and goodness-of-fit measures ▪ Learn about different regression models and their applications ▪ Learn about Logit and Probit models used to deal with binary dependent variables ▪ Learn about models used to deal with count data as response variable, i.e. Poisson and Negative Binomial ▪ Learn about models used to deal with ordinal and categorical response variables ▪ Learn how to diagnose a regression model, to check for the robustness of obtained results and about the most common pitfalls met in actual applications ▪ Be introduced to the analysis of time series and panel data. Learn about the proper modelling strategies to deal with a "time" dimension and the additional challenges this brings ▪ Learn about the concept of causality and about econometric methods to address it ▪ Gain proficiency in understanding and manipulating financial data. Learn how to apply econometric techniques to study relationships between financial data ▪ Gain practical insight on existing financial data sources and types, on widespread practices met in industry and policy analysis and on common challenges and best-practices used to overcome them.
Course contents	1. Introduction to econometrics 2. Probability and frequencies a. Random variables and their distribution b. Moments of a distribution c. Some notable distributions d. Sampling from a population 3. Multiple linear regression with cross-sectional data a. Ordinary Least Squares (OLS) b. Confidence intervals and goodness of fit c. Diagnosing OLS d. Using OLS with nonlinear relationships 4. Beyond OLS a. Binary dependent variables b. Count data c. Categorical and ordinal dependent variables 5. Time series and panel data a. Autocorrelation, dynamic effects and stationarity b. "Within" and "Between" effects c. Mundlak's "within-between" model 6. Causality a. The Instrumental Variable (IV) method b. Granger causality c. Quasi-experiments and Diff-in-Diff methods

	7. Financial data analysis a. Company group data b. Business cycles and seasonal adjustments c. Company surveys and stratification d. Structural breaks: the case of M&A operations e. Linked employer-employee data f. Linking Web data to companies
Teaching methods	▪ Lectures ▪ Exercises ▪ In-class coding ▪ Discussion ▪ Self-study
Prerequisites	There are no formal requirements.
Suggested reading	▪ Stock J.H. and Watson M.W. (2003), *Introduction to Econometrics*, Pearson Education. ▪ Greene W.H. (2003), *Econometric Analysis: International Edition*, Prentice Hall International. ▪ Handouts and further references will be given during the classes.
Applicability	This course is in particular applicable to the following Master programmes: International Business and Economics (M.A.; "IBE"), Finance (M.Sc.). This course is also applicable to other business-oriented Master programmes offered by Schmalkalden University of Applied Sciences.
Workload	Total workload: 240 hours, of them: ▪ Lecture: 60 ▪ Self-study: 180, of them: ▪ Course preparation (in particular reading): 45 ▪ Follow-up: 45 ▪ Readings and exam preparation (including mid-term): 90
ECTS credit points and weighting factor	8 ECTS credit points; weighting factor: 8/120 (IBE) or 8/90 (Finance), respectively
Basis of student evaluation	▪ Comprehensive written examination, 90 minutes (80%) ▪ Mid-term exam, 60 minutes (20%)
Time	First academic year
Frequency	Each academic year
Duration	One semester
Course type	Elective course
Remarks	Teaching language is English.