

Financial Econometrics (ECON I)

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Course Description:

This course covers basic elements of regression and time series analysis. The idea is to cover a rather wide range of topics with a focus on understanding and applying key principles. Econometric theory is covered on a level, which is sufficient to understand empirical financial research and to appropriately use selected econometric techniques. Topics will be presented as far as possible in the context of financial theory and research. The course can also serve as a starting point for a more advanced course in econometrics.

Topics covered:

- Regression analysis (least squares, implications, interpretations)
- Finite and large sample properties of least squares estimates
- Maximum likelihood estimation; LM, LR and Wald tests
- Specifications and model selection
- Generalized least squares
- Endogeneity and instrumental variable estimation
- Generalized method of moments
- Financial time series analysis, ARMA models, nonstationary models, diffusion models in discrete time and GARCH models
- Vector time series models (VAR models and cointegration)
- State space modeling and the Kalman filter

Time Schedule:

Mon,	May 07,	14.00-17.30, WU/UZA 4; A 618
Wed,	May 09,	14.00-17.30, WU/UZA 4; A 618
Tue,	May 15,	14.00-17.30, WU/UZA 4; A 618
Wed,	May 23,	14.00-17.30, WU/UZA 4; A 618
Wed,	May 30,	14.00-17.30, WU/UZA 4; A 618
Tue,	Jun 05,	14.00-17.30, WU/UZA 4; A 618
Mon,	Jun 11,	14.00-17.30, WU/UZA 4; A 618
Wed,	Jun 13,	14.00-17.30, WU/UZA 4; A 618
Tue,	Jun 19,	14.00-17.30, WU/UZA 4; A 618
Wed,	Jun 20,	14.00-17.30, WU/UZA 4; A 618
Mon,	Jun 25,	14.00-17.30, WU/UZA 4; A 618
Tue,	Jun 26,	14.00-17.30, WU/UZA 4; A 618
Mon,	Jul 02	14.00-17.30, WU/UZA 4; A 618

Location:

Wirtschaftsuniversität Wien UZA 4
1090, Nordbergstrasse 15
Kern (section) A (red); 6th floor, room A 618

Examination:

Monday, July 9, 10:00-12:00 WU/UZA4; A618

Course Prerequisites:

Mathematics (e.g. matrix algebra, polynomials, derivatives, etc.), statistics (e.g. probability theory, sampling distributions, hypothesis testing, etc.) and basic finance. Computing skills required: Excel

and EViews. EViews is very easy to learn and use (mainly from watching me during class or using my [EViews support](#))

Course Preparation:

Participants are expected to have read the appropriate sections (announced at the end of each lecture) from the lecture notes (see below). Make sure you are well acquainted with the contents of the reviews. These will not be repeated during the course.

Assignments:

Participants have to do assignments based on the exercises specified in the lecture notes. The purpose of the assignments is to practice, to repeat the theory, and to obtain a collection of empirical evidence on financial data.

Send your assignment *at least one day before* the next lecture to alouis.geyer@wu-wien.ac.at. You are expected to send your assignment in time even if you cannot attend.

Participants will be randomly selected to present the results of their assignments. This is a very informal presentation. However, be prepared for questions asked during the presentation of your own or other participants' assignments.

Grading:

Grading will be based on assignments, questions asked during presentations, and *mainly* on the basis of the final exam.

Course materials:

[Lecture notes](#) (current version 2007-07-06). Some typos and formulas in previous versions have been corrected.

[Data files](#)

Links:

- [EViews support](#) (interactive slide-shows and other EViews related links)
- [EViews tutorial](#) (PDF-file by [Joseph Hirschberg](#))
- John Cochrane's unpublished lecture notes "Time Series for Macroeconomics and Finance" (1997) available from [Cochrane's web site](#) in [PDF](#) or [PS](#) format.
- Rydberg, T.H. (1999), Realistic Statistical Modelling of Financial Data ([PDF](#))([PS](#)) (published in *International Statistical Review*).
- Teaching materials provided by [Marcia Schafgans](#)
- Teaching materials provided by [Kevin Sheppard](#)
- Lecture notes (several [PDF](#) files) by [Joseph Hirschberg](#)
- [Data](#) prepared by the [Federal Reserve](#)
- [FRED: Federal Reserve Economic Data](#) (over 3000 US economic time series)
- Companion website of [Econometric Analysis](#) by [William Greene](#)
- [Data](#) prepared by [Robert Shiller](#)
- [Data](#) prepared by [Kenneth French](#)
- [Data](#) used in the 2nd edition of the book "Analysis of Financial Time Series" by [Ruey Tsay](#)
- [Data](#) used in the book "The Econometric Modelling of Financial Time Series" by [Terence Mills](#)
- [Data](#) used in the book "A Guide to Modern Econometrics" by [Marno Verbeek](#)
- [Data sources](#) collected by [D.J.C.Smant](#)
- [Yahoo Financial Statistics](#) (retrieve historical market data from finance.yahoo.com using a [spreadsheet](#) written by [Michael Kishinevsky](#))
- Historical Exchange Rates: [O&A UBC](#)
- [Futures data](#) created by Justin Chan, Jason C. Hsu, and [Pedro Santa-Clara](#)
- [Econometric Benchmark Datasets](#)
- [John Y. Campbell](#)
- [Campbell R. Harvey](#)
- [Research in Finance](#) (link collection)
- [Resources in Econometrics and Finance](#) (link collection)
- [Statistics - Econometrics - Forecasting](#) (link collection)