Exchange programme Vrije Universiteit Amsterdam

Vrije Universiteit Amsterdam - Exchange programme Vrije Universiteit Amsterdam - 2024-2025

Exchange

Vrije Universiteit Amsterdam offers many English-taught courses in a variety of subjects, ranging from arts & culture and social sciences, neurosciences and computer science, to economics and business administration.

The International Office is responsible for course approval and course registration for exchange students. For details about course registration, requirements, credits, semesters and so on, please visit the exchange programmes webpages.

Fundamentals of Time Series Econometrics

Course Code	E_MFAE_FTSE
Credits	6
Period	P1
Course Level	300
Language Of Tuition	English
Faculty	School of Business and Economics
Course Coordinator	Q. Wiersma
Examiner	Q. Wiersma
Teaching Staff	Q. Wiersma
Teaching method(s)	Computer lab, Study Group, Lecture

Course Objective

This course introduces students to time series analysis and dynamic econometric models for economics, business and finance.

Course Content

This course covers both theoretical and practical aspects of time series econometrics including the analysis of stationary and non-stationary stochastic processes in economics, business and finance. The students are introduced to well-known univariate time series models, such as autoregressive moving average (ARMA) models and error correction models (ECM), and learn how to judge their appropriateness for modelling real-life data sets. Moreover, the course provides both theoretical and practical insights into parameter estimation for time-series models and the use of these models for tasks that are crucial for many practitioners: e.g., forecasting, testing for Granger causality, and performing policy analysis using impulse response functions. Finally, students become familiar with the fundamental problem of spurious regression in time-series analysis. We find a solution to this problem by taking a journey into the theory and practice behind unit-root tests, cointegration tests and error-correction representation theorems. In this way, students will be able to disentangle possible short-term and long-term dynamics in time series data.

Additional Information Teaching Methods

Lectures (4h per week) and tutorials (2h per week). The latter are used to discuss theoretical and practical exercises.

Method of Assessment

Final written exam (85%) and practical assignment (15%)

Literature

All relevant material can be found in the lecture notes and slides and other study material provided by the teacher.

Recommended optional reading material:

- J. Stock and M. Watson, 2011, Introduction to Econometrics. Prentice Hall. (all editions)
- P. Brockwell and R. Davis, 2010, Introduction to Time Series and Forecasting. Springer.
- C. Brooks, 2014, Introductory Econometrics for Finance. Cambridge University Press.

Additional Information Target Audience

The course is part of the **regular track** of the SBE faculty minor "Applied Econometrics: A Big Data Experience for All". It is targeted at students who are currently not enrolled in the Bachelor in Econometrics or a similar study program.

Additional Information

Participation in this course is a worthwhile preparation for the remaining courses of the Minor "Applied Econometrics: A Big Data Experience for All".

Explanation Canvas

All materials (slides, theory exercises, practice exams, etc.) are provided on Canvas.

Recommended background knowledge

This course builds on the foundations laid either in the sequence of courses in 'Quantitative Research Methods' (in the Economics programme) or in that of 'Business Statistics' and 'Business Mathematics' (in the Business Administration programme). It assumes familiarity with probability and statistics, such as discrete and continuous random variables, conditional expectations, hypothesis testing and central limit theorems. This material corresponds more or less to Part I (Chapters 1-3) in Stock and Watson (2011), and students are recommended to refresh their memory on this prior to the first lecture (see also Probability and Statistics: A Concise Review atlink).