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](#).

Time Series and Dynamic Econometrics

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

Course Objective

This course introduces students to time series analysis and dynamic econometric models.

Course Content

This course focuses on the econometric analysis of data that contains a temporal component. To that end, the concept of a time series will be rigorously defined and the most important tools to analyse them are discussed. The students are introduced to well-known regression models for time-series data, including autoregressive moving average (ARMA) models, as well as autoregressive distributed lag (ADL) and error correction models (ECM). The course provides both theoretical and practical insights into parameter estimation for time series models and the use of these models for 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 therefore consider the theory and practice behind unit-root tests, cointegration tests, as well as error-correction representation theorems.

Additional Information Teaching Methods

Lectures and practical classes. In the practical classes there will be room for asking questions about the homework and the assignment.

Method of Assessment

Final exam (written) and group assignments.

Literature

The relevant literature consists of the lecture slides and other material provided by the teacher.

Additional Information Target Audience

The course is part of the **technical track** of the SBE faculty minor "Applied Econometrics: A Big Data Experience for All". It is targeted at students who are currently enrolled in the Bachelor in Econometrics or a similar study program.

Recommended background knowledge

This course assumes familiarity with the basics of probability calculus and mathematical statistics, which will be used heavily throughout the course. Students are strongly recommended to review this material before the start of the course; a concise review of probability and statistics can be found in [these notes](#). Some familiarity with limits (analysis) and matrices (linear algebra) is also assumed, hence courses in Analysis and Linear Algebra are also recommended background knowledge. Basic experience with programming is recommended, as the group assignment is made in a programming language of choice (Python / R / Matlab / Ox / other). A brief introduction to

Python can be found [here](#).

Because this course is part of the technical track of the minor Applied Econometrics, it assumes background knowledge at the level of students who completed the first two years of a Bachelor in Econometrics.