GHENT UNIVERSITY

Course Specifications

Valid as from the academic year 2025-2026

Financial Econometrics (FOOO723)

Course size *(nominal values; actual values may depend on programme)*

Credits 4.0 **Study time 120 h**

Course offerings and teaching methods in academic year 2025-2026

A (semester 1)	English	Gent	group work
			lecture
			seminar

Lecturers in academic year 2025-2026

Everaert, Gerdie	EB21	lecturer-in-charge

Offered in the following programmes in 2025-2026	crdts	offering
Master of Science in Teaching in Science and Technology(main subject Mathematics)	4	A
Master of Science in Business Engineering(main subject Finance)	4	A
Master of Science in Mathematics	4	A
Master of Science in Banking and Finance	4	A

Teaching languages

English

Keywords

Time series analysis, ARMA models, stationarity, non-stationarity, unit root tests, cointegration, VAR models, local projections, simulation methods, volatility modeling

Position of the course

This course builds on basic econometric knowledge and skills, with a focus on the specific features of time series analysis, simulation methods, and volatility modeling. The acquired insights are applied in practice through the group-based analysis of several case studies.

Contents

- Univariate time series analysis: ARMA models
- Stationarity versus non-stationarity: unit root tests
- Regression analysis with non-stationary series: cointegration analysis
- Multivariate time series analysis: VAR models and local projections
- Simulation methods: Monte Carlo and bootstrap
- Volatility modeling: ARCH and GARCH models

Initial competences

For this course, students are expected to:

- have a solid understanding of the classical linear regression model, including its assumptions and potential violations (such as heteroskedasticity, autocorrelation, and endogeneity);
- be able to translate economic questions into econometric models and formulate and test relevant hypotheses;
- critically assess estimation methods based on their statistical properties;
- implement regression models (e.g. in R) and correctly interpret the output.

Final competences

1 Identify problems in financial economics.

2 Select and implement the appropriate econometric methodology to solve these problems and know its statistical properties and limitations given the theoretical

framework and properties of the data.
3 Use advanced software (R) to implement
4 Adjust econometric methods to solve real financial economic problems.

Conditions for credit contract

Access to this course unit via a credit contract is determined after successful competences assessment

Conditions for exam contract

This course unit cannot be taken via an exam contract

Teaching methods

Group work, Seminar, Lecture

Extra information on the teaching methods

Ex cathedra theoretical lectures.
During the group assignment and the tutorials students have to apply the theory to real problems.
Lectures and tutorials are in English.

Study material

Type: Slides

Name: Slides financial econometrics
Indicative price: Free or paid by faculty
Optional: no
Language : English
Available on Ufora : Yes

References

- Brooks, Introductory Econometrics for Finance, Cambridge University Press, 2002
- Enders, Applied Econometric Time Series, John Wiley & Sons, 1995
- Greene, Econometric Analysis (fifth edition), Prentice Hall, 2003
- Hamilton, Time Series Analysis, Princeton University Press, 1994
- Harris, Cointegration Analysis in Econometric Modelling, Prentice Hall, 1995
- Johnston and Dinardo, Econometric Methods (fourth edition), McGraw-Hill, 1997
- Verbeek, A Guide to Modern Econometrics, John Wiley & Sons, 2000

Course content-related study coaching

Students can contact the course instructor and teaching assistants for content-related support.
All course materials (slides, assignments, exercises, solutions, etc.) are made available via the Ufora platform.

Assessment moments

end-of-term assessment

Examination methods in case of periodic assessment during the first examination period

Oral assessment, Written assessment

Examination methods in case of periodic assessment during the second examination period

Oral assessment, Written assessment

Examination methods in case of permanent assessment

Possibilities of retake in case of permanent assessment

not applicable

Extra information on the examination methods

The evaluation consists of a written exam and an oral exam with written preparation.

- The written exam assesses students' understanding of the techniques covered in the time series analysis part of the course and their ability to apply them to practical financial-economic problems.
- The oral exam covers the components on simulation methods (Monte Carlo and bootstrap) and volatility modeling (ARCH/GARCH).

In preparation for the exam, students complete a group assignment in which they apply their knowledge to a concrete case study. A substantial part of the written exam tests the interpretation of their own solution (R output) to this case. The case itself is not graded separately.

Calculation of the examination mark

Written exam (15), oral exam (5)