GHENT UNIVERSITY

Course Specifications

Valid in the academic year 2025-2026

Econometrics (FOOO533)

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

Credits 5.0 **Study time 150 h**

Course offerings and teaching methods in academic year 2025-2026

A (semester 2)	English	Gent	seminar
			group work
			lecture

Lecturers in academic year 2025-2026

Everaert, Gerdie	EB21	lecturer-in-charge

Offered in the following programmes in 2025-2026	crdts	offering
Bachelor of Science in Business Engineering	5	A
Bachelor of Science in Economics	5	A
Bachelor of Science in Economics (Double Degree)	5	A
Master of Science in Complementary Studies in Economics	6	A
Exchange programme in Economics and Business Administration	5	A
Linking Course Master of Science in Economics	5	A
Preparatory Course Master of Science in Business Engineering	5	A
Preparatory Course Master of Science in Economics	5	A

Teaching languages

English

Keywords

Classical linear regression model, ordinary least squares, statistical properties, hypothesis testing, dummy variables, multicollinearity, heteroskedasticity, autocorrelation, specification tests, endogeneity

Position of the course

Knowledge:
Thorough knowledge and understanding of the classical linear regression model, including its underlying assumptions, statistical properties, and potential violations.
Skills:
Ability to translate an economic research question or theory into an econometric model with corresponding hypotheses; to estimate the specified model using an appropriate method; to assess the reliability and properties of the estimation results based on the validity of the underlying assumptions; and to derive economic implications through hypothesis testing.
Application:
Ability to apply the acquired knowledge and skills to a practical case using real-world data.

Contents

This course focuses on all aspects of the classical linear regression model. Starting from the simple regression model (with two variables), the regression line and the method of ordinary least squares are introduced. The main properties of this method are then discussed, including unbiasedness, efficiency, and the distribution of the estimators. The course then extends to the multiple regression model (with more than two variables), with attention to model specification, economic interpretation of the results, hypothesis testing, and forecasting.
Departures from the classical assumptions—such as multicollinearity,

autocorrelation, heteroskedasticity, and endogeneity—are examined, tested, and where possible, corrected. The material is illustrated using a range of real-world economic applications and datasets.
Students taking this course for 6 ECTS credits are required to study Chapter 16 (Panel Data) and Chapter 17 (Dynamic Models) from the textbook by Gujarati and Porter (2009) independently.

Initial competences

Students are expected to have a basic knowledge of:

- **Mathematics**: linear algebra, basic differential calculus (partial derivatives, maxima/minima), functions and graphs.
- **Statistics**: probability theory and distributions (including the normal and t-distribution), sampling theory, point estimation, confidence intervals, and hypothesis testing.
- **Economics**: basic concepts from microeconomics and macroeconomics, and the interpretation of relationships between economic variables.
- **Data analysis**: understanding of datasets (observations and variables), interpretation of descriptive statistics. Basic familiarity with statistical software (such as R) is an asset, but not required.

Final competences

1 1. Thorough understanding of all aspects of the classical linear regression model and of potential violations of its assumptions (including stochastic regressors, non-normally distributed errors, heteroskedasticity, autocorrelation, specification errors, and endogeneity).
2 2. Ability to apply the linear regression model to solve practical economic problems in a scientifically sound manner.
3 3. Ability to reflect independently and critically on the statistical properties of applied methods, and to translate this reflection into the selection of an appropriate estimation technique.
4 4. Ability to implement the econometric methods in statistical software (R).
5 5. Ability to correctly interpret and provide economic meaning to the estimation results.

Conditions for credit contract

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

Conditions for exam contract

Access to this course unit via an exam contract is unrestricted

Teaching methods

Group work, Seminar, Lecture

Extra information on the teaching methods

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

Study material

Type: Slides

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

References

- Gujarati and Porter, Basic Econometrics (fifth edition), McGraw-Hill, 2009
- Verbeek, A Guide to Modern Econometrics, John Wiley & Sons, 2000.
- Johnston and Dinardo, Econometric Methods (fourth edition), McGraw-Hill, 1997.
- Greene, Econometric Analysis (fifth edition), Prentice Hall, 2003.

Course content-related study coaching

Students can contact the course instructor and teaching assistants for academic support.
All course materials (slides, exercises, solutions, etc.) are made available through

the Ufora platform.

Assessment moments

end-of-term assessment

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

Written assessment

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

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

Evaluation is based on a written exam that assesses the student's understanding of the econometric techniques covered in the course and their ability to apply these techniques to practical economic problems.
In preparation for the exam, students complete a group assignment in which they apply the acquired knowledge and skills to a real-world case study. A substantial part of the written exam tests the student's ability to correctly interpret their own solution (R output) from this case study. The case study itself is not graded separately.
Students taking this course for 6 ECTS credits will receive one additional exam question.

Calculation of the examination mark