

EC226-30 Econometrics 1

26/27

Department

Economics

Level

Undergraduate Level 2

Module leader

Jeremy Smith

Credit value

30

Module duration

20 weeks

Assessment

Multiple

Study location

University of Warwick main campus, Coventry

Description

Introductory description

This module provides students with a thorough understanding basic principles of econometrics. You will be exposed to a range of different econometric tools. You will gain an understanding of simple OLS, the limitations of the application of OLS, potential alternative estimators for the different type of data one might encounter including: cross-sectional data sets, time series data set and panel data sets.. You will gain skills and techniques to analyse problems from an intuitive, graphical and statistical perspective applying your knowledge to real world data.

[Module web page](#)

Module aims

The course aims to provide students with important skills, which are of both academic and vocational value, being an essential part of the intellectual training of an economist and also useful for a career. In particular the course aims to equip students with the following competencies: 1. An awareness of the empirical approach to economics; 2. Experience in the analysis and use of empirical data in economics; 3. Understanding the nature of uncertainty and methods of dealing with it; 4. The use of econometric software packages as tools of quantitative and statistical analysis.

Outline syllabus

This is an indicative module outline only to give an indication of the sort of topics that may be covered. Actual sessions held may differ.

The module will typically cover the following topics: Linear regression model. Least squares estimation. Dummy variables. Linear Restrictions. Classical Linear Regression Model Assumptions. Breakdown of CLRM assumptions. Errors in variables. Heteroscedasticity and implications for OLS. Structural change. Incorrect functional form and implications for OLS. Instrumental variable estimation. Limited dependent variable models. Panel data models. Model evaluation and prediction. Basics of supervised learning. Dynamic models with lagged dependent variable. Serial Correlation and implications for OLS. Types of autocorrelation. Nonstationarity and Cointegration.

Learning outcomes

By the end of the module, students should be able to:

- Acquired the tools of quantitative and data science methods necessary to study optional second and third year modules offered in economics , including regression, regularisation, prediction, and model evaluation .
- Developed their understanding of statistical (econometric) software and economics databases.
- Further developed their communication skills in presenting and analysing data.
- Developed further their techniques of statistical and data-driven methods; generated a thorough understanding of the econometrics and basic machine learning techniques, including a critical appreciation of their assumptions, limitations, and appropriate use.

Indicative reading list

[Reading lists can be found in Talis](#)

[Specific reading list for the module](#)

Subject specific skills

Applied Economics

Economic information

Economic principles

Research and debate

Abstraction

Analysis of incentives

Analytical reasoning

Analytical thinking and communication

Creative thinking

Critical thinking

Policy evaluation
Problem solving

Transferable skills

Data-based skills
IT skills
Numeracy and quantitative skills
Research skills
Information technology
Math, Statistical, data-based research skills
Oral communication
Team work skills
Written communication
Coding Skills (Stata, R and Latex)

Study

Study time

Type	Required
Lectures	57 sessions of 1 hour (19%)
Seminars	18 sessions of 1 hour (6%)
Private study	225 hours (75%)
Total	300 hours

Private study description

Private study will be required in order to prepare for seminars/classes, to review lecture notes, to prepare for forthcoming assessments, tests, and exams, and to undertake wider reading around the subject.

Costs

No further costs have been identified for this module.

Assessment

You do not need to pass all assessment components to pass the module.

Students can register for this module without taking any assessment.

Assessment group D8

	Weighting	Study time	Eligible for self-certification
Test In class 45 minute test	10%		No
Group Project Group Research Project	15%		No
8 x online multiple choice question tests 8 x online multiple choice question tests (1% each) over the two terms. One aggregate mark awarded for all 5 components.	10%		No
Participation	5%		Yes (waive)
Centrally-timetabled examination (On-campus) A paper which examines the course content and ensures learning outcomes are achieved.	60%		No

- Economics dept. statistical tables (yellow/ red)
- Answerbook Green (8 page)
- Students may use a calculator

Assessment group R4

	Weighting	Study time	Eligible for self-certification
In-person Examination - Resit A paper which examines the course content and ensures learning outcomes are achieved.	100%		No

- Economics dept. statistical tables (yellow/ red)
- Students may use a calculator

Feedback on assessment

The Department of Economics is committed to providing high quality and timely feedback to students on their assessed work, to enable them to review and continuously improve their work. We are dedicated to ensuring feedback is returned to students within 20 University working days of their assessment deadline. Feedback for assignments is returned either on a standardised assessment feedback cover sheet which gives information both by tick boxes and by free

comments or via free text comments on tabula, together with the annotated assignment. For tests and problem sets, students receive solutions as an important form of feedback and their marked assignment, with a breakdown of marks and comments by question and sub-question. Students are informed how to access their feedback, either by collecting from the Undergraduate Office or via tabula. Module leaders often provide generic feedback for the cohort outlining what was done well, less well, and what was expected on the assignment and any other common themes. This feedback also includes a cumulative distribution function with summary statistics so students can review their performance in relation to the cohort. This feedback is in addition to the individual-specific feedback on assessment performance.

[Past exam papers for EC226](#)

Availability

Pre-requisites

Any of:

EC139-15 Mathematical Techniques A AND EC124-15 Statistical Techniques B OR

EC140-15 Mathematical Techniques B AND EC124-15 Statistical Techniques B OR

IB122-15 Business Analytics (for WBS students) OR

EC106-30 Introduction to Economics OR EC107-30 Economics 1 for GL11, MORSE and other students from the Mathematics/Statistics Department

To take this module, you must have passed:

- Any of
 - All of
 - [EC140-15 Mathematical Techniques B](#)
 - [EC124-15 Statistical Techniques B](#)
 - [IB122-15 Business Analytics](#)
 - Any of
 - [EC106-24 Introduction to Economics](#)
 - [EC107-30 Economics 1](#)
 - All of
 - [EC139-15 Mathematical Techniques A](#)
 - [EC124-15 Statistical Techniques B](#)

Post-requisite modules

If you pass this module, you can take:

- EC347-15 Topics Explored in Economics and Management

- EC310-15 Topics in Development Economics 3
- EC310-15 Topics in Development Economics 3
- EC244-15 Introduction to Applied Data Science for Economists
- EC348-15 Research in Policy Evaluation
- EC349-15 Data Science for Economists
- EC306-15 Econometrics 2: Time Series
- EC343-15 Topics in Applied Economics (3b)
- EC343-15 Topics in Applied Economics (3b)
- EC356-15 City, Regions and Economic Policy
- EC356-15 City, Regions and Economic Policy
- EC346-15 Research Methods in Economics
- EC346-15 Research Methods in Economics
- EC331-30 Research in Applied Economics
- EC331-30 Research in Applied Economics
- EC338-15 Econometrics 2: Microeconometrics
- EC318-15 Labour Economics
- EC318-15 Labour Economics
- EC313-15 The International Economy in the Twentieth Century

Anti-requisite modules

If you take this module, you cannot also take:

- EC203-30 Applied Econometrics

Courses

This module is Core for:

- TECA-L1PA Postgraduate Taught Economics (Diploma plus MSc)
 - Year 1 of L1PA Economics (Diploma plus MSc)
 - Year 1 of L1PA Economics (Diploma plus MSc)
- Year 2 of UECA-3 Undergraduate Economics 3 Year Variants
- Year 2 of UECA-L1N2 Undergraduate Economics and Management

This module is Core optional for:

- UECA-LM1D Undergraduate Economics, Politics and International Studies
 - Year 2 of LM1D Economics, Politics and International Studies
 - Year 2 of LM1D Economics, Politics and International Studies
- UPHA-L1CA Undergraduate Economics, Psychology and Philosophy
 - Year 2 of L1CC Economics, Psychology and Philosophy (Behavioural Economics Pathway)
 - Year 2 of L1CD Economics, Psychology and Philosophy (Economics with Philosophy Pathway)
- Year 2 of ULNA-R1L4 Undergraduate French and Economics (4-year)
- Year 2 of ULNA-R2L4 Undergraduate German and Economics (4-year)

- Year 2 of ULNA-R4L1 Undergraduate Hispanic Studies and Economics (4-year)
- Year 2 of ULNA-R3L4 Undergraduate Italian and Economics (4-year)
- Year 2 of UMAA-GL11 Undergraduate Mathematics and Economics
- Year 2 of UECA-GL12 Undergraduate Mathematics and Economics (with Intercalated Year)
- Year 2 of ULNA-R9L1 Undergraduate Modern Languages and Economics (4-year)
- UPHA-V7ML Undergraduate Philosophy, Politics and Economics
 - Year 2 of V7MR Philosophy, Politics and Economics (Bipartite with Economics Major)
 - Year 2 of V7MR Philosophy, Politics and Economics (Bipartite with Economics Major)
 - Year 2 of V7MR Philosophy, Politics and Economics (Bipartite with Economics Major)
 - Year 2 of V7MP Philosophy, Politics and Economics (Bipartite)
 - Year 2 of V7MP Philosophy, Politics and Economics (Bipartite)
 - Year 2 of V7MP Philosophy, Politics and Economics (Bipartite)
 - Year 2 of V7MP Philosophy, Politics and Economics (Bipartite)
 - Year 2 of V7MP Philosophy, Politics and Economics (Bipartite)
 - Year 2 of V7ML Philosophy, Politics and Economics (Tripartite)
 - Year 2 of V7ML Philosophy, Politics and Economics (Tripartite)
 - Year 2 of V7ML Philosophy, Politics and Economics (Tripartite)

This module is Optional for:

- Year 4 of UECA-GL12 Undergraduate Mathematics and Economics (with Intercalated Year)
- UPHA-V7ML Undergraduate Philosophy, Politics and Economics
 - Year 3 of V7MP Philosophy, Politics and Economics (Bipartite)
 - Year 3 of V7ML Philosophy, Politics and Economics (Tripartite)
 - Year 3 of V7ML Philosophy, Politics and Economics (Tripartite)
 - Year 3 of V7ML Philosophy, Politics and Economics (Tripartite)
- UPHA-V7MM Undergraduate Philosophy, Politics and Economics (with Intercalated year)
 - Year 4 of V7MM Philosophy, Politics and Economics (Tripartite) (with Intercalated year)
 - Year 4 of V7MM Philosophy, Politics and Economics (Tripartite) (with Intercalated year)