

Module Code	ECS3003
Module Title	Advanced Econometrics
Level	6
Credit	30
Owning Subject	Economics
Level Restrictions	

Aims

The aim of this module is to provide students with a set of tools to understand and analyse economic data and expose them to econometric strategies frequently used in applied microeconomics and applied macroeconomics research. Topics covered in the model include ARIMA processes; testing and model selection; vector autoregressive models; granger Causality; discrete choice model; Tobit and selection model and endogeneity problems in panel data models. Students should be able to recognise data problems, specify and estimate econometrics models for policy analysis and be able to undertake empirical research individually and independently.

Learning Outcomes

Knowledge

On completion of this module the successful student should be able to:

1. examine and address econometrics problems in time series and panel data;
2. judge and apply the econometric modelling of discrete and censored variables;
3. identify and handle problems in the estimation of policy relevant effects.

Skills

4. This module will call for the successful student to be able to:
5. estimate econometric models for policy analysis and forecasting;
6. undertake empirical studies using econometric software individually and independently;

estimate micro-econometrics models to provide policy recommendations using non-experimental data.

Syllabus

- Introduction to time series: ARIMA processes, serial correlation and unit root process
- Granger causality
- Vector Autoregressive Models

- Cointegration and Error Correction Model
- Model Selection and Forecasting
- Panel data analysis: pooled OLS, fixed effect and random effect models
- Instrumental variables in Panel data Models: instrumental variable-fixed effect model, system GMM estimator.
- Program Evaluation Methods: causality and randomised experiments, differences-in-differences strategies, estimating average treatment effect
- Discrete Choice Models: linear probability model, Probit and Logit models, multinomial response model and ordered response models
- Tobit and Selection Models

Learning, Teaching and Assessment Strategy

Each week students are required to attend:

1. One hour lecture. The lecture will provide a rigorous examination of econometric theory and a critical evaluation of the empirical literature employing econometric methods. The lectures will provide a framework to facilitate students' individual study by using a large selection of examples and case studies, next to formal theoretical issues. During lectures students will also be asked to solve some theoretical exercises to develop their understanding of econometric methods.

2. One hour computer laboratory for application of econometric techniques using data and econometric software. Computer labs will place strong emphasis on the application of econometric techniques and therefore develop computational skills and diagnostic testing. Real datasets will be used for all lab exercises.

Summative short quizzes of 15 minutes duration will be conducted at regular intervals throughout the year during lecture or seminar sessions. This will form part of the learning and teaching as students will get into the habit of revising their learning materials at bitesize whilst clearing up any doubts about the materials that has been covered with the immediate feedback given to them straight after the quizzes.

Assessment

Formative Assessment

Formative assessment and feedback will take place during lectures and computer labs. Students are expected to solve theoretical and practical exercises and to give short presentations during lecture and lab sessions. Lab sessions will give students the opportunity to apply the econometric models and techniques introduced during lectures to real world data and interpret the results. One-to-one consultation with lecturers is available during office feedback hours.

Summative assessment

1. Weeks 1-18: Quizzes once every three weeks, each worth 5%, to assess learning outcomes 1 to 6.

2. An empirical project, worth 20%, to be submitted in week 21, on application of panel data models or program evaluation methods or discrete choice models. This will address learning outcomes 1, 4 & 5.

3. An unseen examination, worth 50%, to assess students' overall understanding of the subject matter and their applications. The examination will assess the entire syllabus, addressing learning outcomes 1 to 6.

An overall grade of 40% or better is required to pass the module.

Assessment Weighting

Quizzes: 30%; Empirical Project: 20%; Examination: 50%

Exam Duration

Examination, 2 hours

Learning Materials

Your online reading lists can be accessed from the My Study area of UniHub. They highlight essential and recommended reading for all modules you are registered on.

MODULE RUNS

Module Leader	Future Academic Year	Term	Campus	Part of Term	Start/End Dates	Max Nr of Students
Gueorgui Kolev	2018/2019	Autumn	HEN-Hendon Campus	AY-Academic Year	12-OCT-18 / 03-MAY-19	199
Gueorgui Kolev	2019/2020	Autumn	HEN-Hendon Campus	AY-Academic Year	07-OCT-19 / 11-APR-20	199
Gueorgui Kolev	2020/2021	Autumn	HEN-Hendon Campus	AY-Academic Year	05-OCT-20 / 09-APR-21	199
Gueorgui Kolev	2021/2022	Autumn	HEN-Hendon Campus	AY-Academic Year	05-OCT-21 / 09-APR-22	199
Gueorgui Kolev	2022/2023	Autumn	HEN-Hendon Campus	AY-Academic Year	03-OCT-22 / 10-APR-23	199