

MODULE SPECIFICATION • ELECTIVE

Advanced Forecasting for Time Series

The course aims to develop students’ econometric skills and provide practical guidance on how to forecast. Economics needs to forecast a non-stationary and evolving world, using a forecasting model that differs from the economic mechanism. The resulting framework, its basic concepts and main implications are sketched. Many famous theorems of economic forecasting no longer hold — rather their converses often do. The course examines how standard macroeconomic models fail in many forecasting scenarios, which provides guidance in how to correct for such forecast failure, and looks at how the forecast theory developed can be applied to other disciplines. The course is practical: all empirical examples are worked through using the econometric software package OxMetrics.

10 CREDITS	15h CONTACT HOURS	85h PRIVATE STUDY	100h TOTAL STUDY
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COURSE CONVENOR

NAME Professor Jennifer Castle and Dr Jurgen A. Doornik

OFFICE By appointment — please email to arrange a convenient time

COURSE STRUCTURE

Econ 7904 is a 10-credit course and students are expected to input approximately 100 hours of study. The total number of contact hours is 15 hours, leaving 85 hours for private study. Delivery is by lectures — 15 hours across the first three weeks of term, comprising 10 hours of lectures and 5 hours of tutorials. Optional clinics run on the last day of the course.

During private study, balance the course material (the primary source) against the recommended textbooks: think critically about how these fit into the body of knowledge, perform the exercises, complete coursework and revise. You can expect to perform well only by working consistently through the year.

MODULE PROGRAMME

LECT.	TOPIC	SESSION CONTENT
01	Introduction to Economic Modelling and Forecasting	
02	Introduction to OxMetrics	
03	Selecting Forecasting Models	
04	Forecasting Problems	
05	Foundations of Unpredictability	
06	Robustifying Forecasts	
07	Robust Systems	
08	Forecasting Breaks	
09	Forecasting with Factors	
10	Conclusions and Discussion	

KEY SKILLS

By the end of this course, students should have some knowledge and understanding of:

- Use the model selection software, Autometrics, to select macroeconomic models used for forecasting
- Compute point and interval forecasts using standard and robust forecasting devices
- Evaluate forecasts of macroeconomic variables
- Develop an understanding of when forecasts may or may not perform well

DESIRED OUTCOMES

By the end of this course, students should be able to:

- Engage in abstract thinking by extracting the essential features of complex systems to facilitate problem solving and decision-making
- Communicate and present complex arguments in oral and written form with clarity and succinctness
- Present, interpret and analyse information in numerical form
- Utilise effectively statistical and other packages
- Apply basic statistical techniques to analyse economic and financial datasets
- Work effectively both individually and within a team environment

ASSESSMENT

WEIGHTING	100% coursework
ISSUED	End of week 6
DUE	End of week 10 — four weeks for completion
SUBMISSION	Electronically via the Moodle site for this course



FEEDBACK Returned within 4 weeks of the deadline, as marker's notes appended to the PDF of your coursework

Marking criteria and penalties are set out in the Economics Undergraduate Handbook and the general course information paper, available via the Current Student page of the university website under Academic Regulations.

COURSE TEXT & RECOMMENDED READING

Lecture slides are made available on the course web pages, together with additional material and course announcements.

- Castle, J. L., Clements, M. P. and Hendry, D. F. (2019). Forecasting: An Essential Introduction. Yale University Press