EC301-15 Mathematical Economics 2: Dynamics, Uncertainty & Asymmetrical Information

26/27

Department
Economics
Level
Undergraduate Level 3
Module leader
James Massey
Credit value
15
Module duration
10 weeks
Assessment
Multiple
Study location
University of Warwick main campus, Coventry

Description

Introductory description

EC301-15 Mathematical Economics 2: Dynamics, Uncertainty & Asymmetrical Information

Module web page

Module aims

The module aims to introduce advanced topics in mathematical economics, information economics and applied game theory. The treatment builds on the foundation established in previous modules covering game theory.

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:

The role of asymmetric information in competitive markets. Topics on games of incomplete information: Bayesian and Perfect Bayesian equilibrium - especially in signalling and agency games. Screening and moral hazard.

Learning outcomes

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

- Appreciate the use and limitations of formal mathematical approaches to economic theory and applications.
- Demonstrate a comprehensive understanding of the main results and open questions in the chosen areas.
- Demonstrate capacity of abstraction and problem solving.
- Demonstrate capacity of critical, creative and strategic thinking.
- Convey and interpret material to a critical audience.
- Demonstrate capacity of analytical thinking, reasoning and application.
- Show the ability to absorb and analyse peer-reviewed literature.
- Understand the applications of Game Theory.

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
Abstraction
Analysis of incentives
Analytical reasoning
Analytical thinking and communication
Critical thinking
Strategic thinking
Policy evaluation
Problem solving

Transferable skills

Math, Statistical, data-based research skills
Information technology
Written communication
Oral communication

Research skills
Numeracy and quantitative skills

Study

Study time

Type	Required
Lectures	20 sessions of 1 hour (13%)
Seminars	4 sessions of 1 hour (3%)
Private study	126 hours (84%)
Total	150 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 D5

	Weighting	Study time	Eligible for self-certification
In Class Test 1 hour 30 minutes, plus 15 minutes reading time	40%		No
Centrally-timetabled examination (On-campus) A paper which examines the course content and ensures learning outcomes are achieved.	60%		No

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	Weighting	Study time	Eligible for self-certification

- Answerbook Gold (24 page)
- Students may use a calculator

Assessment group R4

	Weighting	Study time	Eligible for self-certification
Examination - Resit	100%		No

- Students may use a calculator
- Answerbook Gold (24 page)

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 EC301

Availability

Pre-requisites

EC202-30 Microeconomics 2 OR
EC204-30 Economics 2 OR
EC220-15 Mathematical Economics 1A OR
EC238-15 Economics 2: Microeconomics OR
IB3J3-15 Mathematical Game Theory OR
ST234-10 Games and Decisions OR
CS409-15 Algorithmic Game Theory

Not available to non-final year students on Economics-based degrees.

To take this module, you must have passed:

- Any of
  - EC202-30 Microeconomics 2
  - EC204-30 Economics 2
  - EC238-15 Economics 2: Microeconomics
  - EC220-15 Mathematical Economics 1A
  - IB3J3-15 Mathematical Game Theory: Combinatorial and Search Games
  - ST234-10 Games and Decisions
  - CS409-15 Algorithmic Game Theory
  - CS409-15 Algorithmic Game Theory

Courses

This module is Optional for:

- TECA-L1PA Postgraduate Taught Economics (Diploma plus MSc)
  - Year 1 of L1PA Economics (Diploma plus MSc)
  - Year 2 of L1PA Economics (Diploma plus MSc)
- UECA-3 Undergraduate Economics 3 Year Variants
  - Year 3 of L100 Economics
  - Year 3 of L116 Economics and Industrial Organization
- UECA-4 Undergraduate Economics 4 Year Variants
  - Year 4 of LV16 Economics & Economic History with Study Abroad
  - Year 4 of L103 Economics with Study Abroad
  - Year 4 of LM1H Economics, Politics & International Studies with Study Abroad
- Year 3 of UECA-LM1D Undergraduate Economics, Politics and International Studies
- UPHA-L1CA Undergraduate Economics, Psychology and Philosophy
  - Year 3 of L1CA Economics, Psychology and Philosophy
  - Year 3 of L1CC Economics, Psychology and Philosophy (Behavioural Economics Pathway)
  - Year 3 of L1CD Economics, Psychology and Philosophy (Economics with Philosophy Pathway)
  - Year 3 of L1CE Economics, Psychology and Philosophy (Philosophy and Psychology Pathway)
  - Year 4 of L1CB Economics, Psychology and Philosophy (with Intercalated Year)
- UPHA-L1CB Undergraduate Economics, Psychology and Philosophy (with Intercalated Year)
  - Year 4 of L1CG Economics, Psychology and Philosophy (Behavioural Economics Pathway) (with Intercalated Year)
  - Year 4 of L1CH Economics, Psychology and Philosophy (Economics with Philosophy Pathway) (with Intercalated Year)
  - Year 4 of L1CJ Economics, Psychology and Philosophy (Philosophy and Psychology Pathway) (with Intercalated Year)
  - Year 4 of L1CB Economics, Psychology and Philosophy (with Intercalated Year)

- USTA-G300 Undergraduate Master of Mathematics,Operational Research,Statistics and Economics
    - Year 3 of G300 Mathematics, Operational Research, Statistics and Economics
    - Year 4 of G300 Mathematics, Operational Research, Statistics and Economics
- Year 3 of UMAA-GL11 Undergraduate Mathematics and Economics
- Year 4 of UECA-GL12 Undergraduate Mathematics and Economics (with Intercalated Year)
- Year 4 of UPHA-V7MM Undergraduate Philosophy, Politics and Economics (with Intercalated year)

This module is Option list A for:

- Year 3 of USTA-G300 Undergraduate Master of Mathematics,Operational Research,Statistics and Economics
- Year 3 of USTA-Y602 Undergraduate Mathematics,Operational Research,Statistics and Economics
- Year 4 of USTA-Y603 Undergraduate Mathematics,Operational Research,Statistics,Economics (with Intercalated Year)

This module is Option list B for:

- Year 5 of USTA-G301 Undergraduate Master of Mathematics,Operational Research,Statistics and Economics (with Intercalated
- Year 4 of USTA-G1G3 Undergraduate Mathematics and Statistics (BSc MMathStat)
- Year 3 of USTA-GG14 Undergraduate Mathematics and Statistics (BSc)
- Year 4 of USTA-GG17 Undergraduate Mathematics and Statistics (with Intercalated Year)

This module is Option list C for:

- Year 4 of USTA-G301 Undergraduate Master of Mathematics,Operational Research,Statistics and Economics (with Intercalated
- 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)
- UPHA-V7MM Undergraduate Philosophy, Politics and Economics (with Intercalated year)
    - Year 4 of V7MS Philosophy, Politics and Economics (Bipartite with Economics Major) (with Intercalated Year)
    - Year 4 of V7MQ Philosophy, Politics and Economics (Bipartite) with Intercalated Year
    - Year 4 of V7MM Philosophy, Politics and Economics (Tripartite) (with Intercalated year)

This module is Option list D for:

- Year 3 of USTA-G1G3 Undergraduate Mathematics and Statistics (BSc MMathStat)
- Year 3 of UPHA-V7ML Undergraduate Philosophy, Politics and Economics