Module Definition Form (MDF)

Module code: MOD010841	**Version:** 1 **Date Amended:** 14/Mar/2025

1. Module Title
Applied Economic Mathematics and Statistics

2a. Module Leader
William Davies

2b. School
School of Economics, Finance and Law

2c. Faculty
Faculty of Business and Law

3a. Level
4

3b. Module Type
Standard (fine graded)

4a. Credits
30

4b. Study Hours
300

5. Restrictions			
Type	**Module Code**	**Module Name**	**Condition**
Pre-requisites:	None		
Co-requisites:	None		
Exclusions:	None		
Courses to which this module is restricted:	BSc (Hons) Business with Economics, BSc (Hons) Business with Economics [EXD]; BSc (Hons) Business with Economics (with placement year); BSc (Hons) Finance with Economics; BSc Finance with Economics (with placement year)		

LEARNING, TEACHING AND ASSESSMENT INFORMATION

6a. Module Description

This module aims to provide essential quantitative skills useful for economists. You'll work with those mathematical tools and methods which are used frequently in economics to provide the mathematical foundations necessary to study second year economics modules such as Micro and Macro Economics and Introduction to Econometrics.
You'll begin with revision of basic algebra, covering exponents, roots and logarithms and manipulation of algebraic expressions before progressing on to linear and non-linear equations, differentiation and elementary statistics.
To further aid your understanding you will undertake exercises during seminars where you'll learn how to put that theory into practice solving complex problems and applying those principles to economic examples.

6b. Outline Content

- Topic 1: Revision of basic mathematical concepts
- Topic 2: Calculate equations and graphs lines/simple curves and solve quadratic equations
- Topic 3: Perform basic algebraic manipulation of polynomials and solve simultaneous equations
- Topic 4: Perform graphical analysis of functions and Calculate derivatives and partial derivatives
- Topic 5: Elementary statistics (mean mode median) and Random variable
- Topic 6: Sampling distributions and Normal distribution theory
- Topic 7: Law of large numbers
- Topic 8: Identifying of maximum and minimum points and optimisation
- Topic 9: Interpretation or regression analysis

6c. Key Texts/Literature

The reading list to support this module is available at: https://readinglists.aru.ac.uk/

6d. Specialist Learning Resources

None

7. Learning Outcomes (threshold standards)		
No.	**Type**	**On successful completion of this module the student will be expected to be able to:**
1	Knowledge and Understanding	Manipulate algebraic expressions, solve simple systems of linear and nonlinear equations, plot and interpret linear and non-linear equations;
2	Knowledge and Understanding	Differentiate and partially different equations of one or more variables, to identify points of maximisation and minimisation;
3	Intellectual, practical, affective and transferrable skills	Apply mathematical techniques to economic concepts such as elasticity and profit maximisation;
4	Knowledge and Understanding	Demonstrate baseline statistical knowledge and utilise key statistical concepts;
5	Intellectual, practical, affective and transferrable skills	Apply statistical techniques to economic and business scenarios.

8a. Module Occurrence to which this MDF Refers				
Year	**Occurrence**	**Period**	**Location**	**Mode of Delivery**
2026/7	ZZF	Template For Face To Face Learning Delivery		Face to Face

8b. Learning Activities for the above Module Occurrence			
Learning Activities	**Hours**	**Learning Outcomes**	**Details of Duration, frequency and other comments**
Lectures	0	N/A	N/A
Other teacher managed learning	49	1-5	2-hour Tutor-led Workshop (2hr x 11 weeks) Screencast or equivalent (20 minute maximum) x 10 weeks 2-hour Student led Workshop (2 hr x 12 weeks)
Student managed learning	251	1-5	Learning activities provided and explained on Canvas and assessment preparations
TOTAL:	300		

9. Assessment for the above Module Occurrence

The assessment for some modules includes a presentation (see below for details on how this particular module is assessed). We recognise that presenting, especially to a large group, can cause significant anxiety or distress for some students. If this may affect you, please contact your Module Leader or the Disability and Neurodiversity Service as early as possible. We will work with you to consider appropriate reasonable adjustments. Depending on your individual needs, these might include, for example, presenting to a smaller group or presenting only to a member of academic staff.

Assessment No.	Assessment Method	Learning Outcomes	Weighting (%)	Fine Grade or Pass/Fail	Qualifying Mark (%)
010	Coursework	1-5	100 (%)	Fine Grade	30 (%)

In-class Tests 1:15 hours for 010/1, 1:50 hour for 010/2

Assessment components for Element 010

Component No.	Assessment Title	Submission Method	Weighting (%)	Components needed for Mark Calculation?
010/1	In-Class Test 1:15 hours	Scheduled Activity: Timetabled assessment task	30 (%)	All
010/2	In-Class Test 1:50 hours	Scheduled Activity: Timetabled assessment task	70 (%)	

In order to pass this module, students are required to achieve an overall mark of 40% (for modules at levels 3, 4, 5 and 6) or 50% (for modules at level 7*).

In addition, students are required to:
(a) achieve the qualifying mark for each element of fine graded assessment as specified above
(b) pass any pass/fail elements

[* the pass mark of 50% applies for all module occurrences from the academic year 2024/25 – see Section 3a of this MDF to check the level of the module and Section 8a of this MDF to check the academic year]