1. **Title of the module**

ECON3060 (EC306) Mathematics for Economics Mode B

1. **Division or partner institution which will be responsible for management of the module**

Human and Social Sciences

1. **The level of the module (Level 4, Level 5, Level 6 or Level 7)**

Level 4

1. **The number of credits and the ECTS value which the module represents**

15 credits (7.5 ECTS)

1. **Which term(s) the module is to be taught in (or other teaching pattern)**

Autumn

1. **Prerequisite and co-requisite modules**

Students are expected to have a mathematics background well below A-Level mathematics. For the UK, this equates normally to GCSE mathematics.

1. **The programmes of study to which the module contributes**

This module (or its equivalent ECON3050 [EC305]) is **compulsory** for all students studying single and joint honours degrees in Economics.

The module is **not available** to students across other degree programmes in the University.

1. **The intended subject specific learning outcomes.
On successfully completing the module students will be able to:**
	1. Understand and use a range of mathematical techniques relevant to economics
	2. Present solutions to mathematical problems
	3. Understand how mathematics is used in economics
	4. Handle abstract concepts and consider them mathematically
	5. Model economic behaviour mathematically
2. **The intended generic learning outcomes.
On successfully completing the module students will be able to:**
	1. Demonstrate numeracy and quantitative skills
	2. Demonstrate problem solving skills
	3. Apply mathematical methods to analyse economic problems and issues
	4. Communicate economic and mathematical arguments clearly
	5. Plan work and study independently
3. **A synopsis of the curriculum**

The module introduces students to a basic understanding of mathematics necessary for intermediate and advanced level modules (levels 5 and 6) taken in Stages 2 and 3. The module is designed for students who do not have A-Level mathematics, AS mathematics or an equivalent qualification and who do not meet a minimum entry standard. The module (or its equivalent for students with A-level mathematics) is compulsory for all Single and Joint Honours degree programmes in economics.

The module considers the following topics: linear equations, quadratic equations, multivariable functions; matrix algebra; differentiation; techniques of optimisation; constrained optimisation; and non-linear functions. These topics cover the important uses of mathematics in economics (and business) and are developed within a clear, contextual framework derived from first principles. Each topic is applied to a range of economic phenomena and problems and linked explicitly to the core Stage 1 economics module - ECON3040 (EC304) Principles of Economics. Notably, the analytical and quantitative skills developed in the module are transferable across many different occupations.

In addition to the core Stage 1 mathematics curriculum, the module offers targeted support to students in order to identify gaps in their basic understanding mathematics and raise their proficiency to the level required in Stage 2.

1. **Reading list (Indicative list, current at time of publication. Reading lists will be published annually)**

Renshaw, G. (2016), Maths for Economics (4th ed.), Oxford University Press

Jacques, I. (2016), Mathematics for Economics and Business (8th ed.), Addison-Wesley

1. **Learning and teaching methods**

Total contact hours 48

Private study hours 102

Total study hours 150

1. **Assessment methods**
	1. Main assessment methods

Term-time problem sets 20%

In Course Test 105 minutes 20%

Examination 2 hours 60%

13.2 Reassessment methods

Reassessment Instrument: 100% exam

1. ***Map of module learning outcomes (sections 8 & 9) to learning and teaching methods (section12) and methods of assessment (section 13)***

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Module learning outcome** | *8.1* | *8.2* | *8.3* | *8.4* | *8.5* | *9.1* | *9.2* | *9.3* | *9.4* | *9.5* |
| **Learning/ teaching method** |  |  |  |  |  |  |  |  |  |  |
| Lectures | **x** | **x** | **x** | **x** | **x** | **x** | **x** | **x** | **x** |  |
| Seminars | **x** | **x** | **x** | **x** | **x** | **x** | **x** | **x** | **x** | **x** |
| Workshops | **x** | **x** | **x** | **x** | **x** | **x** | **x** | **x** | **x** |  |
| Private Study | **x** | **x** | **x** | **x** | **x** | **x** | **x** | **x** | **x** | **x** |
| **Assessment method** |  |  |  |  |  |  |  |  |  |  |
| In Course Tests | **x** | **x** | **x** | **x** | **x** | **x** | **x** | **x** | **x** | **x** |
| Problem-set | **x** | **x** | **x** | **x** |  | **x** | **x** | **x** |  | **x** |
| Examination | **x** | **x** | **x** | **x** | **x** | **x** | **x** | **x** | **x** | **x** |

1. **Inclusive module design**

The School recognises and has embedded the expectations of current equality legislation, by ensuring that the module is as accessible as possible by design. Additional alternative arrangements for students with Inclusive Learning Plans (ILPs)/declared disabilities will be made on an individual basis, in consultation with the relevant policies and support services.

The inclusive practices in the guidance (see Annex B Appendix A) have been considered in order to support all students in the following areas:

a) Accessible resources and curriculum

b) Learning, teaching and assessment methods

1. **Campus(es) or centre(s) where module will be delivered**

Canterbury

1. **Internationalisation**

Mathematics is a global language. The module develops skills and techniques that are globally transferrable.

**DIVISION SUPPORT OFFICE USE ONLY**

**Revision record – all revisions must be recorded in the grid and full details of the change retained in the appropriate committee records.**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Date approved | Major/minor revision | Start date of the delivery of revised version | Section revised | Impacts PLOs (Q6&7 cover sheet) |
| 19/07/16 | Minor | September 2016 | 1 | No |
| 09/07/19 | Minor | September 2019 | 12, 13 | No |
| 12/03/20 | Minor | September 2020 | 6,10,12,13,14 | No |

Revised FSO Jan 2018