Mathematical Economics A

Module Code: ECU33081

Module Title: Mathematical Economics A

- **ECTS Weighting**: 5
- **Semester/Term Taught**: Semester 1
- **Contact Hours**: 20 hours of lectures and 5 hours of tutorials
- **Module Personnel**: Lecturer - Jian Cao

Learning Outcomes

On successful completion of this module, you will be able to:

- Formulate economic problems mathematically
- Apply mathematical techniques to economic problems in both dynamic and static settings
- Interpret mathematical formulations of economic problems
- Derive and draw economic insights from solutions to mathematically formulated economic models

Satisfactory completion of this module will contribute to the development of the following key skills:

- Ability to understand mathematical representations of economic models
- Ability to represent economic dynamics in mathematical form
- Ability to quantify insights from economic models
- Ability to synthesize different mathematical techniques when solving economic problems

Module Learning Aims

The module covers topics in optimization in both dynamic and static settings. In particular, one goal of this half of the module is to show how mathematical techniques

may be applied to economic modelling. Particular emphasis is placed on the application of advanced mathematical methods to standard neoclassical production and consumption theory.

Module Content

Topics discussed during Term include:

- Kuhn-Tucker Optimization in Static and Dynamic Settings
- Differential Equations
- Difference Equations
- Applications of Integration
- Approximation Theory
- Dynamic Optimization Theory

Recommended Reading List

Chiang, A.C. and Wainwright, K., *Fundamentals of Mathematical Economics* (4th ed.), McGraw-Hill, 2005.

Module Pre Requisite

ECU22031 & ECU22032 Mathematical and Statistical Methods

Assessment Details

There will be a mid-term exam accounting for 20% of the overall grade, and the final exam will comprise the remaining 80% of the overall grade.

Module Website

Blackboard