Trinity College Dublin
Coláiste na Tríonóide, Baile Átha Cliath
The University of Dublin

Mathematical Economics B

Module Code: ECU33082

Module Title: Mathematical Economics B

- **ECTS Weighting**: 5
- **Semester/Term Taught**: Semester 2
- **Contact Hours**: 22 hours of lectures
- **Module Personnel**: Dr Vitaliia Yaremko

Module Learning Aims

This module covers topics in linear algebra. The purpose is to extend the treatment of linear algebra given in the Senior Freshman Mathematical and Statistical Methods, and to study applications of linear algebra in economics. The extensions are concerned with a more rigorous exposition of a range of results in matrix algebra and vector space theory.

Module Content

- Systems of Linear Equations and Matrices
- Determinants
- Eigenvalues and Eigenvectors
- Vectors and Vector Spaces
- Applications: Markov Chains;
- Applications: Algebra and Geometry of Ordinary Least Squares.

Learning Outcomes

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

- Prove simple linear algebra theorems;
- Formulate economic problems using linear algebra;
- Apply linear algebra solution concepts to economic problems;
- 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 use different mathematical techniques to solve economic problems;
- Ability to choose the best (most efficient) mathematical technique for a given economic problem.

Recommended Reading List

Linear Algebra and Its Applications, Lay, D. C., Lay, S. R., and McDonald, J. J., 6th (Global) edition, Boston: Pearson, 2021.

It is fine to use one of the recent editions of this textbook.

Module Pre Requisite

EC22031 & EC22032 Mathematical and Statistical Methods

Assessment Details

The assessments consist of homework (comprising 20% of the final grade), a test (40% of the grade), and a term project (40% of the grade).

Module Website

Blackboard