

ECO304 Mathematics Applications for Economics and Business

Level: 3

Credit Units: 5 Credit Units

Language: ENGLISH

Presentation Pattern: EVERY JULY

Synopsis:

ECO304 Mathematics Applications for Economics and Business aims to equip students with the mathematical approach to economic and business analyses. Mathematical formulations are essential to complement empirical and theoretical analyses. The course will cover the fundamental aspects of mathematical notations and models, and forms of linear and non-linear functions. The application of mathematics to economics and business problems further requires understanding of topics including static analysis, calculus (differentiation), and optimisation (with two variables, and with equality constraints). Lastly, the course will also introduce dynamic analysis.

Topics:

- Notations, mathematical models, and sets
- Functions
- Static (Equilibrium) analysis
- Linear Models and matrix algebra
- Comparative-static analysis and derivatives
- Differentiation
- Optimisation in equilibrium analysis
- Exponential and logarithmic functions
- Multivariate optimisation
- Constrained optimisation
- Dynamic analysis and integration
- Further mathematics applications in economics and business

Textbooks:

Fundamental Methods of Mathematical Economics 4th Alpha C. Chiang, Kevin Wainwright McGraw-Hill

ISBN-13: 9781307461916

ECO304 Study Guide (UDC - SUSS)

ISBN-13: SG-2059

Learning Outcome:

- Illustrate that economic and business problems can be represented by mathematical models
- Interpret static analysis using linear models
- Show that problems can be solved using mathematical tools such as differentiation and the Lagrangian method
- Solve for linear functions in comparative-static analysis using mathematical concepts
- Analyse optimisation problems under the cases of multiple variables and of constraints
- Relate static and dynamic analyses to applications in economics and business

Assessment Strategies - Regular Semester (Evening Class):

Components	Description	Weightage Allocation (%)
Overall Continuous Assessment	PRE-CLASS QUIZ 1	2
	PRE-CLASS QUIZ 2	2
	PRE-CLASS QUIZ 3	2
	PARTICIPATION 1	6
	TUTOR-MARKED ASSIGNMENT 1	18
	GROUP BASED ASSIGNMENT 1	20
Overall Examinable Components	Written Exam	50
Total		100

*The information listed is subject to review and change.