COURSE CONTENT

Course Coordinator   Wang Wei-Siang

Course Code   HE1004

Course Title   Mathematics for Economists

Pre-requisites   NIL

No of AUs   3

Contact Hours   39 hours (2 hours lecture & 1 hour tutorial per week)

Course Aims

This course is designed for students who do not have the necessary background in mathematics. Students will be taught mathematical techniques that are useful for economic analysis at both the elementary and the intermediate level. Topics covered include systems of linear equations, matrix algebra, determinants, diagonalization, eigenvalue and eigenvector, Input-Output model, functions, derivatives and partial derivatives, optimization with or without constraints, integration and other applications of calculus in economic analysis.

Intended Learning Outcomes (ILO)

By the end of this course, you (as a student) would be able to:

1. Use calculus and algebra for economic analysis
2. Use mathematical techniques in marginal analysis
3. Apply optimization principles to economic analysis
4. Solve marginal analysis problems in economics using partial derivatives
5. Solve systems of linear equations

Course Content

1.   One Variable Calculus I: Foundations
2.   One-Variable Calculus II: Applications
3.   Calculus of Several Variables
4.   Exponential and Logarithmic Functions
5.   Integration and Its Applications
6.   Differential Equations
7.   System of Linear Equations
8.   Matrix Algebra
9.   Determinants

Assessment (includes both continuous and summative assessment)

Continuous Assessment	:	50%
Final Examination	:	50%
Total	:	**100%**

Reading and References
HE1004 Study Guide developed by the Division of Economics.

Course Instructor

Instructor	Office Location	Email
Wang Wei-Siang	SHHK 04-55	WSWANG@ntu.edu.sg

Planned Weekly Schedule

Week	Topic	Course LO	Readings/ Activities
Week 1	One Variable Calculus I: Foundations	1-4	HE1004 study guide chapter 1
Week 2	One Variable Calculus I: Foundations	1-4	HE1004 study guide chapter 1
Week 3	One-Variable Calculus II: Applications	1-4	HE1004 study guide chapter 2
Week 4	Calculus of Several Variables	1-4	HE1004 study guide chapter 3
Week 5	Exponential and Logarithmic Functions	1-4	HE1004 study guide chapter 4
Week 6	Integration and Its Applications	1-4	HE1004 study guide chapter 5
Week 7	Integration and Its Applications	1-4	HE1004 study guide chapter 5
Recess Week			
Week 8	Differential Equations	1-4	HE1004 study guide chapter 6
Week 9	System of Linear Equations	5	HE1004 study guide chapter 7
Week 10	System of Linear Equations	5	HE1004 study guide chapter 7
Week 11	Matrix Algebra	5	HE1004 study guide chapter 8
Week 12	Determinants	5	HE1004 study guide chapter 9
Week 13	Revision	1-5	