

Economic Mathematics

Fudan University

Department: School of Economics

Course Code	MATH 120016		
Course Title	Economic Mathematics I		
Credit	5	Credit Hours	90
Course Nature	<input type="checkbox"/> Specific General Education Courses <input type="checkbox"/> Core Courses <input type="checkbox"/> General Education Elective Courses <input type="checkbox"/> Basic Courses in General Discipline <input checked="" type="checkbox"/> Professional Compulsory Courses <input type="checkbox"/> Professional Elective Courses <input type="checkbox"/> Others		
Course Objectives	By the end of the autumn semester a student has to: <ul style="list-style-type: none"> ● know about vector space, matrices; ● know about how to solve linear equations; ● Know about the principal results of one-variable and multivariable calculus; ● Be able to apply calculus to solve problems; ● Be able to find solutions of linear differential equations; ● Know about the main concepts and results of differential equations; ● Know about the main concepts of real analysis. 		
Course Description	The course gives students' skills of implementation of mathematical knowledge and practice to economic problems both theoretical and applied ones. There will be three parts in the course: <ol style="list-style-type: none"> 1) Linear algebra, including general theory of systems of linear equations and matrix algebra 2) Calculus with a focus on economic and social science applications 3) Brief introduction to real analysis. 		
Course Requirements: Prerequisites: None			

Teaching Methods:

Lecture, presentation, group discussion

Instructor's Academic Background:

Prof. YING Jiangang obtained his PhD in mathematics from University of California San Diego, and his Master and Bachelor in mathematics from Nankai University. He worked at Zhejiang University (1993-2001) and has been working at Fudan University since 2001. His teaching courses include calculus, ODE, linear algebra, probability and many others in English.

Members of Teaching Team

Name	Gender	Professional Title	Department	Responsibility
Ying Jiangang	Male	Professor		

Course Schedule**Part I Linear Algebra**

Week 1: Sets and mappings

Week 2: Matrices, vectors and their geometry

Week 3: Systems of linear equations

Week 4: Matrix inversion and determinants

Week 5: Vector spaces and related concepts

Week 6: Diagonalisation of matrices

Week 7: Applications of diagonalization

Part II Calculus

Week 8: Sequences, series and difference equations

Week 9: Basics Calculus

Week 10: Differentiation

Week 11: One-variable optimization

Week 12: Integration

Week 13: Functions of several variables

Week 14: Multivariate optimization

Week 15: Differential equations

Part III Real Analysis

Week 16: Intro to Real Analysis

Week 17: Final Exam

The design of class discussion or exercise, practice, experience and so on:

The course program consists of weekly regular classes and question sessions.

Class: Twice per week, 75 minutes/time, and doing of assignments

Question sessions: Once per week, 45 minutes/time

During each term there will be two mid-term exams and one final exam.

Grading & Evaluation (Provide a final grade that reflects the formative evaluation process):

Homework: 15%(1 point for each week)

Midterm: 40%

Final: 45%

Passing grade: 60, below 60 = fail

Teaching Materials & References (Including Author, Title, Publisher and Publishing time):

Mathematics for Economics by Michael Hoy, John Livernois, Chris McKenna et al.