

**City University of Hong Kong
Course Syllabus**

**offered by Department of Economics and Finance
with effect from Semester A 2019/20**

Part I Course Overview

Course Title: Methods in Economic Theory

Course Code: EF3452

Course Duration: 1 Semester

Credit Units: 3

Level: B3

Arts and Humanities

Study of Societies, Social and Business Organisations

Science and Technology

Proposed Area:
(for GE courses only)

Medium of Instruction: English

Medium of Assessment: English

Prerequisites:
(Course Code and Title) EF2452 – Mathematics for Economics and Finance, and
CB2200 – Business Statistics

Precursors:
(Course Code and Title) Nil

Equivalent Courses:
(Course Code and Title) Nil

Exclusive Courses:
(Course Code and Title) Nil

Part II Course Details

1. Abstract

This course aims to provide students majoring in economics with the necessary technical training to support successful learning in upper year courses (in both economics and finance). Students of trade theory, econometrics, micro and macro theory at the upper undergraduate levels require training in constrained optimization, difference and differential equations, integration, probability theory and the elements of dynamic models including Markov processes. This course provides these techniques.

2. Course Intended Learning Outcomes (CILOs)

(CILOs state what the student is expected to be able to do at the end of the course according to a given standard of performance.)

No.	CILOs [#]	Weighting* (if applicable)	Discovery-enriched curriculum related learning outcomes (please tick where appropriate)		
			A1	A2	A3
1.	Demonstrate proficiency on mathematical techniques developed in the course.	40%	√	√	√
2.	Apply theoretical methods to typical problems in various fields and synthesize the knowledge of the use and application of these tools.	50%	√	√	√
3.	Analyse specific problems in economics and finance. For example, using knowledge of distribution theory, obtain optimal bidding strategies in auctions. Or, using knowledge of constrained optimization derive the efficient portfolio in asset selection.	10%	√	√	√
		100%			

* If weighting is assigned to CILOs, they should add up to 100%.

[#] Please specify the alignment of CILOs to the Gateway Education Programme Intended Learning outcomes (PILOs) in Section A of Annex.

A1: Attitude

Develop an attitude of discovery/innovation/creativity, as demonstrated by students possessing a strong sense of curiosity, asking questions actively, challenging assumptions or engaging in inquiry together with teachers.

A2: Ability

Develop the ability/skill needed to discover/innovate/create, as demonstrated by students possessing critical thinking skills to assess ideas, acquiring research skills, synthesizing knowledge across disciplines or applying academic knowledge to self-life problems.

A3: Accomplishments

Demonstrate accomplishment of discovery/innovation/creativity through producing /constructing creative works/new artefacts, effective solutions to real-life problems or new processes.

3. Teaching and Learning Activities (TLAs)
(TLAs designed to facilitate students' achievement of the CILOs.)

TLA	Brief Description	CILO No.			Hours/week (if applicable)
		1	2	3	
Lectures	Students will participate in lectures through discussion, problem formulation and problem solving.	√	√	√	3 hours lecture per week
Self-learning exercises	In class examples will serve to demonstrate the application of mathematical methods to solve real world problems.	√	√	√	
Problem Sets	Problem sets will challenge students to explore in greater detail the formulation and solution of economic problems using mathematical techniques.	√	√	√	As required to complete

4. Assessment Tasks/Activities (ATs)
(ATs are designed to assess how well the students achieve the CILOs.)

Assessment Tasks/Activities	CILO No.					Weighting*	Remarks
	1	2	3	4	5		
Continuous Assessment: 60%							
Midterm examination The midterm exam will provide an early performance benchmark for students and identify weaknesses in the students understanding or approach to the material. This will provide an opportunity for self-evaluation and the development of new approaches as necessary.	√	√	√			30%	
Problem sets Assignments are designed to help students fully absorb the material and achieve a stronger grasp of technique application.	√	√	√			30%	
Examination: 40% (duration: 2 hours, if applicable)							
Final Examination Through innovative scenario questions, students are required to discover their ability to apply mathematical skills into economic concepts. The numerical result of the answer will be completed by an interpretation of their result with appropriate economic concepts.		√	√			40%	
						100%	

* The weightings should add up to 100%.

5. Assessment Rubrics

(Grading of student achievements is based on student performance in assessment tasks/activities with the following rubrics.)

Assessment Task	Criterion	Excellent (A+, A, A-)	Good (B+, B, B-)	Fair (C+, C, C-)	Marginal (D)	Failure (F)
1. Midterm examination	Exam questions	Strong evidence of mastering the mathematical tools in economics and finance. Students have demonstrated very strong overall ability to independently formulate an economic problem into a mathematic optimization problem.	Evidence of mastering the mathematical tools in economics and finance. Students have demonstrated strong overall ability to independently formulate an economic problem into a mathematic optimization problem.	Some evidence of knowing the mathematical tools in economics and finance. Students have demonstrated some ability to formulate an economic problem into a mathematic optimization problem.	Marginal familiarity with the mathematical tools in economics and finance. Students have demonstrated marginal ability to solve an optimization problem independently.	Little evidence of knowing the mathematical tools in economics and finance. Students have demonstrated little ability to solve optimization problem independently.
2. Problem sets	Exercise answers	Strong evidence of knowing how to apply the mathematical techniques outlined in CILOs. Students have demonstrated very strong overall ability to discover and innovate, and shown very strong evidence of accomplishments in discovery.	Evidence of knowing how to apply the mathematical techniques outlined in CILOs. Students have demonstrated strong overall ability to discover and innovate, and shown very strong evidence of accomplishments in discovery.	Some evidence of knowing how to apply the mathematical techniques outlined in CILOs. Students have demonstrated some ability to discover and innovate, and shown very strong evidence of accomplishments in discovery.	Marginal evidence of knowing how to apply the mathematical techniques outlined in CILOs. Students have demonstrated marginal ability to discover and innovate, and shown very strong evidence of accomplishments in discovery.	Little evidence of knowing how to apply the mathematical techniques outlined in CILOs. Students have demonstrated little ability to discover and innovate, and shown very strong evidence of accomplishments in discovery.

Assessment Task	Criterion	Excellent (A+, A, A-)	Good (B+, B, B-)	Fair (C+, C, C-)	Marginal (D)	Failure (F)
3. Final Examination	Exam Questions	Strong evidence of mastering the mathematical tools in economics and finance. Students have demonstrated very strong overall ability to independently formulate an economic problem into a mathematical optimization problem.	Evidence of mastering the mathematical tools in economics and finance. Students have demonstrated strong overall ability to independently formulate an economic problem into a mathematical optimization problem.	Some evidence of knowing the mathematical tools in economics and finance. Students have demonstrated some ability to formulate an economic problem into a mathematical optimization problem.	Marginal familiarity with the mathematical tools in economics and finance. Students have demonstrated marginal ability to solve an optimization problem independently.	Little evidence of knowing the mathematical tools in economics and finance. Students have demonstrated little ability to solve optimization problem independently.

Part III Other Information (more details can be provided separately in the teaching plan)

1. Keyword Syllabus

Input-output techniques, demand systems, shadow pricing and marginal value of resources.
Expected utility theory, risk aversion, small risk and welfare loss.
Macroeconomics systems, fiscal and monetary policy multipliers.
Welfare, consumer and producer surplus, Ramsey pricing, optimal taxation.
Profit, cost, long and short run cost.
Utility and expenditure and welfare evaluation.
Auctions.
Contract theory and mechanisms.
Agency problems.
Innovation and R&D, competition for a prize.
Growth dynamics and evolutionary models.

2. Reading List

2.1 Compulsory Readings

(Compulsory readings can include books, book chapters, or journal/magazine articles. There are also collections of e-books, e-journals available from the CityU Library.)

1.	<i>Mathematics for Economists with Applications</i> , J. Bergin, Routledge, 2015
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2.2 Additional Readings

(Additional references for students to learn to expand their knowledge about the subject.)

1.	<i>Mathematics for Economists by Carl P. Simon and Lawrence E. Blume</i> , W.W. Norton, 1994.
2.	<i>Essential Mathematics for Economic Analysis (2nd ed.)</i> by Knut Sydsaeter and Peter Hammond, Prentice Hall, 2006.