

**City University of Hong Kong**

**Information on a Course  
offered by the Department of Economics and Finance  
with effect from Semester A in 2009 / 2010**

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**Part I**

**Course Title:** Computational Economics

**Course Code:** EF5413

**Course Duration:** 1 semester (39 hours)

**Credit Units:** 3

**Level:** P5

**Medium of Instruction:** English

**Prerequisites:** Nil

**Precursors:** Nil

**Equivalent Courses:** Nil

**Exclusive Courses:** Nil

## Part II

### Course Aims

This course provides an introduction to the frontier of computational economics, particularly in the area of dynamic general equilibrium modelling. After an introduction to standard numerical methods, the course covers in detail numerical dynamic programming, linear quadratic and linear approximation methods, projection methods, computation of stationary distributions in heterogeneous agent models, and numerical solution of many periods overlapping generations models.

### Course Intended Learning Outcomes (CILOs)

*Upon successful completion of this course, students should be able to:*

No.	CILOs	Weighting (if applicable)
1.	Replicate and apply the computational methods covered in this course	60%
2.	Critical evaluate applications of computational economics in the literature	40%

### Teaching and Learning Activities (TLAs)

*(Indicative of likely activities and tasks designed to facilitate students' achievement of the CILOs. Final details will be provided to students in their first week of attendance in this course)*

CILO No.	TLAs	Hours/week (if applicable)
CILO 1	Lectures, in-class discussions, assignments	3 hours lecture per week
CILO 2	Lectures, in-class discussions, assignments	3 hours lecture per week

### Assessment Tasks/Activities

*(Indicative of likely activities and tasks designed to assess how well the students achieve the CILOs. Final details will be provided to students in their first week of attendance in this course)*

CILO No.	Type of Assessment Tasks/Activities	Weighting (if applicable)	Remarks
CILO 1 - 2	Exam (one 3-hr examination)	60 %	
CILO 1 - 2	Homework assignments, discussions	40 %	

### Grading of Student Achievement:

Refer to Grading of Courses in the Academic Regulations for Taught Postgraduate Degrees.

Letter Grade	Grade Points	Grade Definitions	Remarks
A+	4.3	Excellent	Strong evidence of firm grasp of the subject knowledge and achieving the stated CILOs
A	4.0		
A-	3.7		
B+	3.3	Good	Sufficient evidence of achieving the stated CILOs
B	3.0		
B-	2.7		
C+	2.3	Adequate	Some evidence of achieving the stated CILOs
C	2.0		
C-	1.7		
D	1.0	Marginal	Marginal familiarity with the subject knowledge
F	0.0	Failure	Little evidence of familiarity with the subject knowledge

## **Part III**

### **Keyword Syllabus**

Numerical dynamic programming; Projection methods for functional equations; Optimal control problems; Linear quadratic and linear approximation methods; Parameterized expectations; Heterogeneous agent models; Computation of stationary distributions; Numerical solution of overlapping generations models.

### **Recommended Reading**

#### **Text(s)**

Heer, B. and Maussner, A. (2005) *Dynamic General Equilibrium Modelling – Computational Methods and Applications*. Springer.

Judd, K. (1999) *Numerical Methods in Economics*. MIT.

Kendrick, D., Mercado, P. and Amman, H. (2006) *Computational Economics*. Princeton.

Miranda, M. and Fackler, P. (2002) *Applied Computational Economics and Finance*. MIT.