

COURSE SYLLABUS
FOR FULL-TIME UNDERGRADUATE PROGRAMS

(Issued under Decision No.1380/QĐ-ĐHKTQĐ on 15/8/2016 by the University President)

1. COURSE NAME: MATHEMATICAL ECONOMIC MODELING 2

Code: TOKT1116

Number of Credit: 3

2. DEPARTMENT IN CHARGE OF INSTRUCTION:

Office: *Location

Office Hours: *Times & Days

Office Telephone: *Phone Number

3. PRE-REQUISITE:

Mathematical Economic Modeling 1

4. COURSE DESCRIPTION:

Following the Mathematical Economic Modeling 1, this course studies:

- Issues related to verification and estimation consumer and producer behavior mentioned in course 1
- Static equilibrium models in the economy.

Equilibrium is an important, basic concept in the economy, in which under the constant exogenous factor, the endogenous factors are specified and constant over time. Equilibrium in the economy represents the balance between economic agents, resources and relationships. Economic equilibrium models used in the analysis and assessment of the behavior of the agents interact with each other, and government policy analysis in the scale of micro and macro. In equilibrium model class, the problem of general equilibrium, Walras equilibrium, Pareto equilibrium are considered and thoroughly analyzed

5. COURSE OBJECTIVES:

This course aims to provide student with a deep and more general view of the relationship of economic factors in an economy.

The course will be more meaningful when combined with the subject of Econometrics. Theoretical analysis modeling combined with empirical analysis on actual data will yield more accurate results. Learners with analytical skills and good analytical orientation can solve problems in economics, making scientific and accurate forecasts.

6. COURSE CONTENTS:

TENTATIVE SCHEDULE

<i>No</i>	<i>Contents</i>	<i>Total hours</i>	<i>In details</i>		<i>Notes</i>
			<i>Theory</i>	<i>Practice, Discussion, Exams</i>	
1	Chapter 5	9	6	3	
2	Introduction of	3	3	0	
3	Equilibrium	9	7	2	
4	model	12	9	3	
5	Chapter 6	12	8	2+2	
	Chapter 7				
	Chapter 8				
	Total	45	34	11	

CHAPTER 5 - ESTIMATION OF PRODUCTION AND CONSUMPTION BEHAVIOR MODEL

To analyze consumption and production optimal model and apply in practice, estimation behavioral functions, or to estimate the parameters and coefficients of the equation. The estimates made based on survey data and apply specific methods.

5.1. Estimate the model

5.2. Test optimal behaviors

5.3. Aggregate demand functions

5.3.1 Aggregate of items - Hicksian aggregate conditions

5.3.2 Aggregate by representative household

5.4. Estimate demand functions

5.4.1 Estimate partial demand functions

5.4.2 Estimate Linear expenditure demand system

5.4.2 Estimate almost ideal demand system

5.5. Estimate production functions

5.5.1 Problems

5.5.2 Estimate the specified production functions

5.6. Estimate cost functions

5.6.1 Estimated the specified cost function

5.5.2 Estimate cost curve

Textbooks

1. Hoang Đình Tuấn, Bui Duong Hai, Cao Xuan Hoa, and Hoang Bich Phuong(2014). *Theory of Mathematical Economic Modeling*, NEU, Chapter 5.
2. Dale W. Jorgenson (1986). *Econometric Methods for Modeling Producer Behavior*, Handbook of Econometrics, Volume III, Edited by Z. Griliches and M.D. Intriligator, Elsevier Science Publishers B V.

3. Daniel McFadden, Melvyn Fuss (1978). *Contributions to Economic Analysis*, North-Holland Publishing Company.
4. Deaton. A, J. Muellbauer (1980). *An Almost Ideal Demand System*, American Economic Review 70(3).
5. Eales, J., L. Unnevehr (1991). *The Inverse Almost Ideal Demand System*, Proceedings of the NCR-134 Conference on Applied Commodity Price Analysis, Forecasting, and Market Risk Management, Chicago.
6. Giancarlo Moschini, Anuradha Vissa (1992). *A Linear Inverse Demand System*, Journal of Agricultural and Resource Economics 17(2).
7. Geoffrey Jehle, Philip Reny (2011). *Advanced Microeconomics Theory*, Third Edition, Prentice Hall.
8. Varian H.R (1992). *Microeconomic Analysis*, Norton & Company New York.

INTRODUCTION - EQUILIBRIUM MODEL AND ANALYSIS

This section introduces the basic concepts of static equilibrium model to prepare for the next chapter, which will go deeper into the classes of static equilibrium models in economy.

1. Equilibrium
2. The model of economic equilibrium
3. Analysis of equilibrium

CHAPTER 6 - MODEL OF MARKET EQUILIBRIUM

In the static equilibrium model classes in economics, market equilibrium model serves basis, reflecting a balance between supply and demand in the economy. The market equilibrium depends on the strength of the market supply and demand, therefore it needs to be analyzed in case of perfect competition, monopoly and imperfect competition. The partial market equilibrium model would lead to a general equilibrium model.

- 6.1. Modeling market
- 6.2. Equilibrium model of perfect competition market
 - 6.2.1 Models
 - 6.2.2 Measurement of social welfare
 - 6.2.3 Static analysis
- 6.3. Supply monopoly equilibrium
- 6.5. General market equilibrium - Walras' equilibrium

Textbooks

1. Hoang Đình Tuấn, Bui Duong Hai, Cao Xuan Hoa, and Hoang Bich Phuong(2014). *Theory of Mathematical Economic Modeling*, NEU Press, Chapter 6.

2. Arrow K., Hahn F. (1971). *General Competitive Analysis*, San Francisco Holden Day.
3. T. Atkinson, J. Stiglitz (1980). *Lectures on Public Economics*, McGraw Hill.
4. Daniel McFadden, Melvyn Fuss (1978). *Contributions to Economic Analysis*, North-Holland Publishing Company.
5. Geoffrey Jehle, Philip Reny (2011). *Advanced Microeconomics Theory*, Third Edition, Prentice Hall.
6. Varian H.R (1992). *Microeconomic Analysis*, Norton & Company New York.

CHAPTER 7 - EQUILIBRIUM MODEL OF CLOSED ECONOMY

Model of macroeconomic equilibrium in closed economy indicates the role of government policy through fiscal and monetary policy. To be able to see the role of this policy, the model on the commodity market, monetary market and the combination of these two markets will be analyzed.

- 7.1. Macroeconomic models
- 7.2. IS curve
- 7.3. LM curve
- 7.4. IS - LM model and policy analysis

Textbooks

1. Hoang Đình Tuấn, Bui Duong Hai, Cao Xuan Hoa, and Hoang Bich Phuong(2014). *Theory of Mathematical Economic Modeling*, NEU Press, Chapter 7.
2. Nguyen Van Quy (1998). *Economic Model*. Education Press
3. Argy, V. (1995). *International Macroeconomics: Theory and Policy*, New York Routledge.
4. Blanchard Olivier (2006). *Macroeconomics*, 4th edition. Prentice Hall.
5. Hall, Robert E. and John B. Taylor (1991). *Macroeconomics*, 3rd edition, New York: Norton.
6. Kenen, P. (1985). *Macroeconomic Theory and Policy: How the Closed Economy Was Opened*, in R. Jones and P. Kenen (eds). *Handbook of International Economics*. Amsterdam: North-Holland.
7. Krugman Paul, Maurice Obstfeld (2003). *International Economics: Theory and Policy*, 6th edition, World Students Series.
8. Mankiw Gregory (2007). *Macroeconomics*, 6th edition, New York Worth.
9. Rudiger Dornbusch, Stanley Fischer (1992). *Macroeconomics*, 6th edition, McGraw-Hill.
10. Turnovsky, S. J. (1977). *Macroeconomic analysis and stabilization policy*. Cambridge University Press.

CHAPTER 8 - EQUILIBRIUM MODEL OF OPEN ECONOMY

With a small and open economy, foreign exchange market factor and exchange rate are very important. Those factors with the exchange rate policy of the government have contributed to macroeconomic equilibrium model in an open economy, in which the most important is Mundell - Fleming model.

- 8.1. Model of an open economy
- 8.2. Commodity market equilibrium
- 8.3. Monetary market equilibrium
- 8.4. Foreign exchange market equilibrium
- 8.5. Mundell - Fleming model with a fixed exchange rate
- 8.6. Mundell - Fleming model with flexible exchange rates

Textbooks

1. Hoang Đình Tuấn, Bui Duong Hai, Cao Xuan Hoa, and Hoang Bich Phuong(2014). *Theory of Mathematical Economic Modeling*, NEU Press, Chapter 8.
2. Argy, V. (1995). *International Macroeconomics: Theory and Policy*, New York Routledge.
3. Blanchard Olivier (2006). *Macroeconomics*, 4th edition. Prentice Hall.
4. Hall, Robert E. and John B. Taylor (1991). *Macroeconomics*, 3rd edition, New York: Norton.
5. Kenen, P. (1985). *Macroeconomic Theory and Policy: How the Closed Economy Was Opened*, in R. Jones and P. Kenen (eds). *Handbook of International Economics*. Amsterdam: North-Holland.
6. Krugman Paul, Maurice Obstfeld (2003). *International Economics: Theory and Policy*, 6th edition, World Students Series.
7. Mankiw Gregory (2007). *Macroeconomics*, 6th edition, NewYork Worth.
8. Rudiger Dornbusch, Stanley Fischer (1992). *Macroeconomics*, 6th edition, McGraw-Hill.
9. Turnovsky, S. J. (1977). *Macroeconomic analysis and stabilization policy*. Cambridge University Press.

7. REQUIREDTEXTBOOK & COURSE MATERIALS

Hoang Đình Tuấn, Bui Duong Hai, Cao Xuan Hoa, and Hoang Bich Phuong(2014). *Theory of Mathematical Economic Modeling*, NEU Press,.

8. Recommended Texts & Other Readings

By chapter

9. ASSESSMENT & GRADING POLICY:

- Band score: 10 and 4
- In details:
 - + Attendance: 10%
 - + Midterm test: 30%
 - + Final test: 60%

Hanoi, 2016

HEAD OF DEPARTMENT

PRESIDENT

(signed)

(signed)

PhD. Nguyen Manh The

Prof.Dr. Tran Tho Dat