



# **Syllabus**

## **Economics of Information**

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**August – December 2014**

**Electivo de Especialidad**

**Professor**

**Eduardo Mantilla**

## **I. General Information**

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Asignatura: Economics of Information  
Requisitos: Microeconomía II  
Créditos: 3

Código: 08705  
Semestre: 2014-II

## **II. Summary**

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This course examines the problems of uncertainty and asymmetric information in economics. The first topic is related to microeconomic models under uncertainty and risk, analyzing the insurance market, the portfolio allocation and price modeling. Then we will study the refinements on the concept of equilibrium from Game Theory, introducing the stochastic analysis. Furthermore, we will apply that theory to the concept of efficiency outcome, auctions mechanisms, and the recent theory of matching.

## **III. Course Objectives**

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During the last four decades, microeconomic theory has focused on information knowing privately by individual agents and its effects on the equilibrium outcomes, especially, on the market efficiency. There are several studies about the impact of asymmetric information, uncertainty, risk and incentives on the economy. One of the most important topics has referred to the incentives provided to the agents for getting an efficient outcome.

The objective of this course is covering a number of economic and political problems in which private information affects the outcome.

## **IV. Learning Outcomes**

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At the end of the course, the students will be able to:

- Build and analyze models involving asymmetric information and to use these models to explain a variety of economic phenomena.
- Apply the concepts of uncertainty and risk to different markets, especially the insurance market and investment decisions with risky assets.
- Solve problems of game theory considering incomplete information and asymmetric information, in order to predict an outcome and conclude what kind of equilibrium is obtained in the game.
- Understand the concept of efficiency in economics and to explain how the private information could affect the equilibrium.
- Identify the different auction mechanisms, provided the information and incentives.
- Solve matching algorithms and the effects of private information and misrepresentation of preferences.

## **V. Methodology**

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The course will be developed by theoretical classes, using some basic tools of mathematics (calculus) and statistics. We also will solve examples and exercises that will guide the homework assignments. Students must read the material provided by the professor in advance, in order to discuss the topics in class (see VI. Evaluation)

On the other hand, the homework assignments will have some problems about the theory learned in class; and a specific economic problem with a policy proposed to solve this, in order to analyze it considering the effects of private and asymmetric information.

## VI. Evaluation

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The evaluation system is permanent. The final grade will consider homework assignments – Permanent Evaluation (40%), a midterm exam (30%) and a final exam (30%)

There will be two homework assignments. The first one is referred to the application of behavior under uncertainty and its effects on markets. The second assignment will evaluate the effects of asymmetric information over the equilibrium outcomes. Those assignments worth 15 points and the remaining 5 points correspond to class participation.

The final grade is the result of applying the following formula:

$$FG = (0,30 \times MT) + (0,40 \times PE) + (0,30 \times FE)$$

- FG** = Final Grade
- MT** = Midterm Exam
- PE** = Permanent Evaluation
- FE** = Final Exam

## VII. Weakly Contents

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<b>WEEK</b>	<b>CONTENTS</b>	<b>ACTIVITIES</b>
<b>1°</b> <i>Del 21 al 27 de agosto</i>	<b>1. Behavior under uncertainty</b> 1.1 Uncertainty and probability. 1.2 Specification of preferences: the expected utility theorem. 1.3 Utility for money and risk aversion.	
<b>2°</b> <i>Del 28 de agosto al 03 de setiembre</i>	1.4 Insurance market. 1.5 Investing in a risky asset: the portfolio problem.	
<b>3°</b> <i>Del 04 al 10 de setiembre</i>	1.6 Allocation of wealth to risky assets. 1.7 Output decisions under price uncertainty.	
<b>4°</b> <i>Del 11 al 17 de setiembre</i>	<b>2. Game Theory beyond Nash Equilibrium</b> 2.1 Formal definition of games. 2.2 Mixed and behavioral strategies.	<b>Homework 1</b>
<b>5°</b> <i>Del 18 al 24 de setiembre</i>	2.3 Existence of Nash Equilibrium. 2.4 Bayes – Nash Equilibrium.	
<b>6°</b> <i>Del 25 de setiembre al 01 de octubre</i>	2.5 Sequential move games. 2.6 Perfect Bayesian Equilibrium (incomplete information) 2.7 Repeated games.	
<b>7°</b> <i>Del 02 al 08 de octubre</i>	<b>MID-TERM EXAM</b>	
<b>8°</b> <i>Del 09 al 11 de octubre</i>		
<b>8° y 9°</b> <i>Del 13 al 18 de octubre</i>	<b>EXÁMENES PARCIALES</b>	
<b>9°</b> <i>Del 20 al 22 de octubre</i>	<b>3. Equilibrium, efficiency and asymmetric information</b> 3.1 Asymmetric information. 3.2 Vickrey mechanism. 3.3 Equilibrium and Efficiency.	

<b>10°</b> Del 23 al 29 octubre	3.4 Equilibrium and Efficiency.	
<b>11°</b> Del 30 al 05 de noviembre	<b>4. Auctions</b> 4.1 Introduction. 4.2 The Vickrey Auction.	
<b>12°</b> Del 06 al 12 de noviembre	4.3 Four basic auction mechanisms.	<b>Homework 2</b>
<b>13°</b> Del 13 al 19 de noviembre	4.4 Revenue equivalence. 4.5 Application of the revenue equivalence theorem	
<b>14°</b> Del 20 al 26 de noviembre	<b>5. Matching</b> 5.1 Students and advisors. 5.2 College admissions. 5.3 Hospital and doctors. 5.4 Allocating dormitory rooms.	
<b>15°</b> Del 27 de noviembre al 03 de diciembre	<b>FINAL EXAM</b>	
<b>16°</b> Del 05 al 12 de diciembre	<b>EXAMENES FINALES</b>	

## VIII. Bibliography

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Campbell, Donald E. Incentives: Motivation and Economics of Information. Second Edition. Cambridge University Press, 2006.

Silberberg, Eugene and Wing Suen. Structure of Economics: A Mathematical Analysis. Third Edition. The McGraw-Hill, 2000.

Mas-Colell, Andreu, Michael D. Whinston and Jerry R. Green. Microeconomic Theory. Oxford University Press, 1995.

## IX. Professor

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