Syllabus
Economics of Information

August – December 2017

Elective

Professor

Juan José Cieza Bazán

I. General Information

Career   : Economics and International Relations   Code   : 08705
Type   : Elective Course   Semester : 2017-2
Course   : Economics of Information
Requires   : Microeconomía II
Credits   : 3
Start Date   : August 21
Finish Date   : December 2
Weekly hours   : 3 theoretical hours

II. Summary

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 incentives and contracts theory considering Game Theory framework which will be examined in depth prior to this unit. Furthermore, we will tackle the main issues regarding Auctions Theory.

III. Course Objectives

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

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

1. Students will be able to optimize consumer utility and firm profits under uncertainty, as well as to understand and assess the implications regarding the insurance market, lotteries and the basic framework of the financial markets.

2. Students will be capable to execute Game Theory tools in the topics related to the subject as well in other fields such Industrial Organization, Market Regulations, Finance, among others.

3. Students will be capable to distinguish the main problems regarding asymmetric information and apply the correct incentives to fix such market failures so as to design the proper contract.

4. Students will be capable to maximize the acquisition or the sale of goods that are subject to problems of asymmetric information, either in the private sector or under the government field.

V. Methodology

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 problem sets assignments. Students are strongly recommended to read the material provided by the professor in advance, in order to discuss the topics in class (see VI. Evaluation)

In addition, the problem sets will include article readings of current topics. A student group presentation of a research paper or case study will take place at the end of the term with the purpose to fix the theoretical framework developed along the course, as well as to contribute the development of written and verbal skills.

VI. Evaluation

The evaluation system is permanent along the term. The final grade will consider readings, two problem sets (each one before the mid and the end of term) and a group presentation – Permanent Evaluation (40%), a midterm exam (30%) and a final exam (30%)

There will be one main control reading (Levitt, Steven and Dubner, Stphen. Freakonomics: A rogue economist explores the hidden side of everything. Harper Perennial, 2009) that will take place before the midterm exam. In addition, the group presentation will consist on a research paper or a case study that students must submit as a lecture. The evaluation of the latter will consider Game Theory rules in the expositions.

The Permanent Evaluation (PE) is a result of the following:

PERMANENT EVALUATION 40%		
Evaluation Type	**Description**	**Participation %**
Oral Evaluation	Student Group Expositions and interactions with peers	15%
Problems Sets	Delivery of Problem Sets and control of article readings	10%
Main Control Reading	Freakonomics control reading	15%

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

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

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

VII. Scheduled Contents

WEEK	CONTENTS	ACTIVITIES /ASSESSMENTS
LEARNING UNIT I: BEHAVIOR UNDER UNCERTAINTY *LEARNING OUTCOMES:* *1.* Students will be able to optimize consumer utility and firm profits under uncertainty, as well as to understand and assess the implications regarding the insurance market, lotteries and the basic framework of the financial markets.		
1° August 21 - 26	1.1 Uncertainty and probability. 1.2 Specification of preferences: the expected utility theorem. 1.3 Utility for money and risk aversion.	
	Readings: - Silberberg-Suen. The Structure of Economics: A Mathematical Analysis, Third Edition. (pp. 394– 410) - Campbell. Incentives: motivation and the economics of information, Second Edition. (pp. 112 – 119)	
2° August 28- September 02	2.1 Applications: • Allocation of wealth to risky assets • Output decisions under price uncertainty • Introduction to insurance market • The market opportunity line • Insurance market	
	Readings: - Silberberg-Suen. The Structure of Economics: A Mathematical Analysis, Third Edition. (pp. 411– 417) - Campbell. Incentives: motivation and the economics of information, Second Edition. (pp. 119 – 135)	
LEARNING UNIT II: GAME THEORY *LEARNING OUTCOMES:* 2. Students will be capable to execute Game Theory tools in the topics related to the subject as well in other fields such Industrial Organization, Market Regulations, Finance, among others.		
3° September 04 - 09	3.1. Static Games of Complete Information 3.2. Prisoner Dilema 3.3. Nash Equilibrium 3.4. Nash Equilibria 3.5. Mixed strategies	• **Problem Set 1 assignment (Unit I and II)**
	Readings: - Gibbons Robert. Game Theory for Applied Economists. Princeton University Press, 1992. (pp. 1-14, 29-48)	
4° September 11 - 16	4.1. Applications of Static Games of Complete Information: Cournot, Bertrand, Final Offer Arbitration 4.2. Dynamic Games of Complete Information 4.3. Backward Induction: Stackelberg model 4.4. Two Stage Games. Applications: Bank Runs, Tariff and Imperfect International Competition.	
	Readings: - Gibbons Robert. Game Theory for Applied Economists. Princeton University Press, 1992. (pp. 15-26, 55-64, 71-79)	
5° September 18 - 23	5.1. Static Games of Incomplete Information 5.2. Bayesian Nash Equilibrium 5.3. Applications	
	Readings: - Gibbons Robert. Game Theory for Applied Economists. Princeton University Press, 1992.(pp. 143-152, 155-163)	

6° *September* 25 - 30		• **Control Reading: Freakonomics** • **Delivery of Problem Set 1 and random exposition**
7° October 02 - 07	**MID TERM EXAM OF ELECTIVE COURSES**	
8° October 09 - 14	**MID TERM EXAMS**	

LEARNING UNIT III: INCENTIVES, ASYMMETRIC INFORMATION AND CONTRACT THEORY
LEARNING OUTCOMES:

5. Students will be capable to distinguish the main problems regarding asymmetric information and apply the correct incentives to fix such market failures so as to design the proper contract.

9° October 16 - 21	9.1. Incentives in economic thought 9.2. Types of asymmetric information problems 9.3. The complete Information optimal contract: optimal payment mechanism and level of effort.	
	Readings: - Laffont, Jean Jacques and Martimort, David. The Theory of Incentives: The Principal – Agent Model (pp.7-27) - Macho-Stadler Inés and Pérez-Castrillo J. David. An Introduction to the Economics of Information: Incentives and Contracts. Oxford University Press (pp. 3-12, 17-31)	
10° October 23 - 28	10.1. The Moral Hazard Problem 10.2. Incentive and participation constraint with moral hazard.	
	Readings: - Macho-Stadler Inés and Pérez-Castrillo J. David. An Introduction to the Economics of Information: Incentives and Contracts. Oxford University Press (pp. 37-56) - Laffont, Jean Jacques and Martimort, David. The Theory of Incentives: The Principal – Agent Model (pp.145-174)	
11° October 30 - November 04	11.1. The Adverse Selection Problem 11.2. Participation constraint and countervailing incentives	• **Problem Set 2 assignment (Unit III and IV)**
	Readings: - Macho-Stadler Inés and Pérez-Castrillo J. David. An Introduction to the Economics of Information: Incentives and Contracts. Oxford University Press (pp. 101-126) - Laffont, Jean Jacques and Martimort, David. The Theory of Incentives: The Principal – Agent Model (pp.82-130)	

LEARNING UNIT IV: AUCTIONS
LEARNING OUTCOMES:

6. Students will be capable to maximize the acquisition or the sale of goods that are subject to problems of asymmetric information, either in the private sector or under the government field.

12° November 06 - 11	12.1. Introduction. 12.2. The Vickrey Auction. 12.3. Four basic auction mechanisms	
	Readings: - Campbell. Incentives: motivation and the economics of information, Second Edition. (pp. 326 – 348, 349 – 357)	
13° November 13 - 18	13.1. Revenue equivalence. 13.2. Application of the revenue equivalence theorem	
	Readings: - Campbell. Incentives: motivation and the economics of information, Second Edition. (pp. 358 – 383)	
14° November 20 - 25		• **Students presentations** • **Delivery of Problem Set 2 and random exposition**
15° November 27 - December 02	**FINAL EXAM OF ELECTIVE COURSES**	
16° December 04 - 09	**FINAL EXAMS**	

*Consider November 1 is a holiday in the 2017-2 semester

VIII. Bibliography

1. Campbell, Donald E. <u>Incentives: Motivation and Economics of Information</u>. Second Edition. Cambridge University Press, 2006.

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

3. Gibbons Robert. Game Theory for Applied Economists. Princeton University Press, 1992.

4. Macho-Stadler Inés and Pérez-Castrillo J. David. An Introduction to the Economics of Information: Incentives and Contracts. Second Edition. Oxford University Press, 2001

5. Laffont, Jean Jacques and Martimort, David. The Theory of Incentives: The Principal – Agent Model. Princeton University Press, 2002.

6. Levitt, Steven and Dubner, Stphen. Freakonomics: A rogue economist explores the hidden side of everything. Harper Perennial, 2009.

IX. Professor

Juan José Cieza Bazán
jcieza@esan.edu.pe