Faculty of Economics and Business

Uncertainty and Contracts

2022-2023

3rd Year

Degree in Economics
Double Bachelor's Degree in Business and Economics

Compulsory
Subject

Professor: Iñaki Aguirre

Office Hours: Wednesday from 8:30 to 9:30, from 11:30 to 12:30 and from 16:00 to 17:00, and Thursday from 8:30 to 10:00 and from 16:00 to 17:30.

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Professors:

Elena Iñarra (Castellano)

Marta San Martin (Euskera) (Coordinador)

Iñaki Aguirre (English)

Course Objectives:

Uncertainty and Contracts (Advanced Microeconomics II) is the fifth in a sequence of 5 courses in Microeconomics for a Degree in Economics and for a Double Bachelor's Degree in Business and Economics. This subject analyzes the economic consequences of the presence of uncertainty and asymmetric information in most economic decisions. The first part (chapters 1, 2 and 3) is dedicated to the study of several issues in Game Theory not analyzed in previous courses, including uncertainty both in static and dynamic games, and mixed strategies. Several economic applications are considered, as for instance Cournot duopoly under incomplete information, entry decisions into a market,.. Second part of the course is devoted to the analysis of economic decisions under uncertainty and the running of markets under asymmetric information. In Chapter 4 is analyzed the Theory of Decision under Uncertainty and the von Neumann-Morgenstern expected utility is introduced. We also consider different risk attitudes and their applications. Chapter 5 ends the subject by considering markets under asymmetric information, studying models with moral hazard and adverse selection.

Subject specific competences:

1. Acquire basic knowledge about the uncertainty literature.
2. Acquire knowledge on the basic models of Economics of Information.
3. Apply Game Theory to the lack of information.
4. Solve and interpret numeric problems illustrating the analyzed models.

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"Notes on Uncertainty and Contracts", Iñaki Aguirre, 2023.

Chapter 4. **Uncertainty and Expected Utility**

Chapter 19*, Intermediate Microeconomics with Calculus, Serrano and Feldman*

4.1. Introduction and examples.

4.2. Choice under certainty and ordinal utility.

4.3. Objects of choice under uncertainty. Simple lotteries and compound lotteries.

4.4. The expected utility theory of von Neumann-Morgenstern.

- 4.4.1. Axioms of choice under uncertainty.
- 4.4.2. Existence of an expected utility function.
- 4.4.3. Uniqueness of an expected utility function except for positive affine transformations.
- 4.4.4. Allais paradox and the maximization of expected utility.

4.5. Attitudes towards risk.

- 4.5.1. Saint Petersburg paradox.
- 4.5.2. Attitudes towards risk: risk aversion, risk neutrality and risk loving.
- 4.5.3. Certainty equivalent and attitudes towards risk.
- 4.5.4. Graphic representation.
- 4.5.5. Saint Petersburg lottery and attitudes towards risk.
- 4.5.6. Attitudes towards risk and Exchange opportunities.

4.6. Economic applications.

- 4.6.1. The demand for insurance.
- 4.6.2. Investment in a risky asset.

Chapter 5. **Uncertainty and Asymmetric Information**

Chapter 20*, Intermediate Microeconomics with Calculus, Serrano and Feldman*

5.1. Introduction.

5.2. Markets where sellers have more information than buyers. “The market for lemons”.

5.3. Markets where buyers have more information than sellers.

- 5.3.1. Second-Degree Price Discrimination.
- 5.3.2. Adverse selection in the health insurance market.

5.4. Moral hazard in the insurance market.

Methodology of the course:

Lectures: The primary emphasis of these classes is on transmitting a body of knowledge of *Uncertainty and Contracts*, explaining ideas and principles, and/or modelling skills. Students are expected to participate actively in classroom activities.

Problem classes and seminars: These classes will be devoted to solving problems and students are expected (individually or in groups) to have solved the problems previously.

2 tests: These individual exams allow the students to evaluate their progress in the subject.

Course Requirements and Evaluation:

Attendance at all classes is required and students who miss three or more classes or come to class late on a regular basis will jeopardize their successful completion of the course.

Evaluation

We follow a mixed evaluation system for this subject (at least at the first sitting). 70% of the course grade will be based on the final exam (**May 29**, 2023) in which the student must solve both theoretical and practical problems. 30% will be based on two tests: the first one (**April 3**, 2023) after chapters 1, 2 and 3, will account for 20% and the second one (**May 19**, 2023) corresponding to chapters 4 and 5, represents 10% of the final grade.

The final grade will be the maximum between: a) 100% final exam, b) 70% final exam + 20% first test + 10% second test.

Those students that for legitimate reason have missed the mixed evaluation system will have the right to be evaluated with a single final exam representing a 100% of the grade.

NOTE:

If health conditions prevent face-to-face teaching and/or in-person exams, both activities will be adapted to online teaching and evaluation using the eGela teaching platform.

Office Hours

I strongly encourage students to come to office hours for help with the material o just to explore their ideas about Microeconomics and thereby get the most out of the course. My office hours are: Wednesday from 8:30 to 9:30, from 11:30 to 12:30 and from 16:00 to 17:00, and Thursday from 8:30 to 10:30 and from 16:00 to 17:30. However, if you cannot attend office hours, or need additional time, let me know (for instance, by sending me an email) and I will be able to find a time to meet.

Basic Bibliographic References:

- "Notes on Uncertainty and Contracts", Iñaki Aguirre 2023.
- "Problem Collection of Uncertainty and Contracts", 2022-2023.
- Serrano R and A. Feldman (2013): Intermediate Microeconomics with Calculus. Cambridge University Press.
- Osborne, M. J. (2004): An Introduction to Game Theory, Oxford University Press; New York, USA.

Complementary bibliography:

- Nicholson, W. (2006): Microeconomic Theory. Thomson, 8th edition.
- Gibbons, R. (1992): Un primer curso de Teoría de Juegos. Antoni Bosch,
- Macho-Stadler, I. y D. Pérez-Castrillo (1994): Introducción a la Economía de la Información. Ariel Economía.