

# INSTITUTO TECNOLÓGICO AUTÓNOMO DE MÉXICO

## Department of Economics

Eco-21111-01  
Consumer and Producer Theory  
(*Teoría del Consumidor y Productor*)  
Class Time:  
Monday, Wednesday 15:30 - 17:00

Place: Santa Teresa, salon 105

Professor Andrei M. Gomberg  
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Phone: 5628-4000, extension 2917  
Office Hours:  
Monday, Wednesday 17:00 - 18:00 **and by appointment**  
Place: Santa Teresa, CIE

## INTRODUCTION

This is the first part of a three-semester sequence of microeconomic analysis for students specializing in economic theory. The object of study in this course is the behavior of rational economic agents (consumers and producers), facing a given economic environment. The material of this class will form the basis for the study of, among others, such issues as the general equilibrium resulting from simultaneous actions by multiple economic agents, and strategic interactions between economic agents. All of these will be explored in the later parts of the microeconomic theory sequence. The study of individual choice also forms the foundation for the modern approach to study of macroeconomic phenomena.

The formal subject matter of this course is similar to that of the Intermediate Microeconomics classes you may have taken in the past. This class, however, will provide a substantially more formal presentation of the material. Furthermore, a major goal of this class is to equip students with the technical "machinery" required for understanding and conducting modern research in economics. It should, however, be stressed, that this is not a course in applied mathematics, and the mathematics involved is not an end in itself, but rather an important tool required to understand and model complex *economic* phenomena. It is thus essential, that students try to see the economic intuition behind the mathematical language.

The formal mathematical prerequisites for the class are limited to the standard topics in set theory, calculus and probability, which should be familiar to most of the students. If, on occasion, additional material is needed, it will be fully developed in class. **Caution:** if, at any stage of the class, you feel that your level of mathematical preparation is inadequate **be sure to let me know ASAP.**

## TEXTS

### Main Textbooks

- Mas-Colell, A., M. Whinston, M. and J.Green: *Microeconomic Theory*, Oxford University Press, 1995

- Rubinstein, A., *Lecture Notes in Microeconomic Theory: The Economic Agent*, Princeton University Press 2005 (updated 2011 version available on the web at the author's webpage)

### **Recommended Alternative/Additional Textbooks**

- Jehle, G. and P. Reny: *Advanced Microeconomic Theory*, 3<sup>rd</sup> edition, Addison Wesley, 2011
- Kreps, D., *Notes on the Theory of Choice*, Westview Press 1988
- Gilboa, I., *Theory of Decisions Under Uncertainty*, Cambridge University Press 2009

### **Other Standard Textbooks**

- Kreps, D.: *A Course in Microeconomic Theory*, Princeton University Press, 1990
- Varian, H.: *Microeconomic Analysis*, W.W. Norton Co., 1992

The main textbook for this class is *Microeconomic Theory* by Mas-Colell et.al. This is a fundamental up-to-date teaching and reference volume by a group of leading contemporary economic theorists. In general, the exposition of the material in the book will be followed closely. Many of the exercises assigned will be taken directly out of this text. I also increasingly use the *Lecture Notes* by A. Rubinstein to supplement the exposition in Mas Colell et al., which is more current on the recent developments in decision theory. I strongly encourage you to read that text and go through the exercises it contains.

A few other well-regarded texts on microeconomic theory are listed above. Some students may find it useful to refer to them for an alternative (and, sometimes, somewhat less abstract) treatments of certain topics. I particularly recommend the *Advanced Microeconomic Theory* by Jehle and Reny for a concise and rigorous, while easy to understand exposition. This book also has a very good review of relevant mathematical topics which we will follow closely in the beginning of the semester. For parts of the material, Kreps's *Notes on the Theory of Choice* may be useful (though, if you decide to read that book, beware that the notation and definitions in it differ significantly from those in the other texts: be sure to carefully read all definitions).

On occasion, additional handouts may be circulated in class. In addition, you will be required to read recent papers in decision theory to learn more about recent developments in this lively research area. I will distribute the bibliography at the appropriate moment.

### **EXERCISES**

You will find that proper understanding of the material of this class is impossible without solving numerous exercises. Therefore, these will be assigned regularly throughout the semester. While only a fraction of these will be explicitly graded exercises, students are strongly encouraged to solve as many problems as possible. Additional exercises can be found after every chapter of Mas Colell et. al. and Rubinstein books. Review questions at the end of the Rubinstein's book are particularly worth looking at towards the end of the semester.

**Formal homework** will be assigned on a regular basis; selected exercises **may be graded** (I will decide what to grade **after** you submit the homework). Homework problems will regularly be solved in class and you are welcome to come to me with any questions you have about them.

## **WEB PAGE**

All relevant materials for the class, such as exercises, notes, past exams, grades, etc. will be posted at the course web page at <http://ciep.itam.mx/~gomberg/cp>

## **EXAMS AND GRADING**

There will be a midterm and a final examination in this class. The final examination will be cumulative, in the sense that the exam questions may refer to any material covered from the beginning of the semester. No make-up opportunities will be provided, unless an **extremely** valid medical or other reason can be documented. The final grade will be determined as follows:

Grade on the midterm - 40%

Grade on the final - 60%

Class participation, homeworks, etc. may be used in difficult cases to break the ties between the grades.

Keep in mind, that while homeworks do not form a major part of the grade, experience shows, that the effort applied to doing them is highly correlated with the performance on the exams.

## **OFFICE HOURS**

Besides the scheduled office hour, students are encouraged to schedule appointments to discuss any matters relevant to the class. I can always be reached by e-mail and will respond as soon as possible.

## **LANGUAGE AND OTHER MATTERS**

The language of instruction in this class is **English**. However, you are welcome to submit any exams and/or homeworks in Spanish. If you do not understand anything I say or write in class or in a private discussion after class and during the office hours, feel free to interrupt at any time and ask for clarification – in Spanish, if you are more comfortable that way. I would also appreciate any comments on the material and style of the class that you can make.

## APPROXIMATE OUTLINE OF THE CLASS

### Introduction.

1. The Subject of Microeconomics
2. Math Review  
Jehle and Reny, Chapters 1-2  
Mas-Colell, M.F. – M.I, M.A. – M.D.

### Part I. Consumer Theory

1. Choices, Preferences and Utility Representation  
Mas-Colell 1B, 1C, 1D, 3B, 3C  
Jehle and Reny 3.2  
Rubinstein Lectures 1-4
2. Utility Maximization and Expenditure Minimization. Consumer Demand  
Mas-Colell 3D – 3E  
Jehle and Reny 3.3 – 3.5  
Rubinstein Lecture 5
3. Duality and Integrability. More on Revealed Preference  
Mas-Colell 2F, 3F – 3J  
Jehle and Reny 4.1 – 4.3  
Rubinstein Lecture 6
4. Aggregate Demand  
Mas-Colell 4C
5. Intertemporal Choice  
Mas-Colell, 20B
6. Choice under Uncertainty  
Mas-Colell, Chapter 6  
Rubinstein Lectures 8-9

### Part II. Producer Theory – Theory of a Competitive Firm

1. Technology: Production Sets and Production Functions  
Mas-Colell 5B, 5D  
Rubinstein Lecture 7
2. Profit Maximization Cost Minimization.  
Mas-Colell 5C  
Jehle and Reny 5.3 - 5.5  
Rubinstein Lecture 7

### Part III Social Choice (*time permitting*)

Rubinstein Lecture 10