



UNIVERSITÀ
DEGLI STUDI DI MILANO-BICOCCA

SYLLABUS DEL CORSO

Microeconomia M

2526-1-F8206B004

Learning objectives

The course (42 hours of frontal teaching, delivered in lecture format, 6 ECTS) aims to provide students with advanced specialized knowledge in the field of microeconomics, building upon the foundational concepts acquired at the bachelor's level.

In terms of knowledge and understanding, the course explores in depth the formulation of profit maximization (and cost minimization) problems for firms and utility maximization problems for consumers, including their dual representations and key theoretical implications.

Regarding the ability to apply knowledge and understanding, students will develop skills to critically analyze the properties of demand and supply functions derived from these optimization problems, particularly within competitive market contexts, assessing their practical implications for economic welfare and efficiency.

In terms of independent judgment, by the end of the course, students will be able to critically evaluate whether demand and supply functions presented in empirical analyses or professional reports are correctly and comprehensively formulated. They will be equipped to identify inappropriate applications and suggest methodological and conceptual improvements.

Concerning communication skills, students will gain proficiency in professionally presenting core concepts of microeconomic theory, including topics such as substitutability and complementarity, the role of preferences and technology, and the impacts of income changes and production scale adjustments.

Finally, regarding learning skills, the course aims to equip students with the tools necessary to independently explore advanced topics that, due to time constraints, cannot be extensively covered during lectures, such as flexible functional forms and the econometric methods used for their estimation.

Contents

This course aims to discuss some fundamental results in the theory of duality in production and consumption theory (competitive markets).

Detailed program

The course aims to provide a treatment of duality theory and its applications in modern microeconomics. Problems of consumer and producer optimization will be presented in both primal and dual versions and functional relations among relevant variables will be discussed. In particular, we will discuss the problem of profit maximization (cost minimization) and consumer choice, and the associated demand and supply functions.

We will discuss the following analytical tools:

direct and indirect production functions;

direct and indirect utility functions;

cost/expenditure functions;

profit functions (general and restricted);

quasi-linear preferences and consumer surplus measures;

input and consumption direct and inverse demand functions;

Slutsky decompositions of price effects;

Roy and Hotelling-Wold identities;

Hotelling and Shephard lemmas.

Prerequisites

Basic calculus (analysis and linear algebra) and microeconomics.

Teaching methods

Conventional lectures and classes of exercises (if needed, the latter will be provided in remote), for about 20% of the available time (8 hours).

Assessment methods

Written final test: two exercises designed to evaluate the student's ability to apply course concepts to specific issues and one open question intended to assess theoretical knowledge and understanding of the models discussed during the lectures. Each of the three parts is worth 10 points.

The student may request to take an additional oral exam. In this case, the final grade will be the arithmetic average of the written and oral exam grades. A student who fails the oral exam will be required to retake the written exam.

No midterm exams are scheduled. Assessment tests will take place exclusively during the official exam sessions.

Textbooks and Reading Materials

Hal R. Varian, *Microeconomic Theory*, third edition, Norton, 1992: Chapter 1 (all but paragraph 1.3), Chapter 2 (all but paragraphs 2.5 and 2.6), Chapter 3 (all), Chapter 4 (all but paragraph 4.5), Chapter 5 (all), Chapter 6 (paragraphs 6.3 (only the examples), 6.4 and 6.5), Chapter 7 (all), Chapter 8 (paragraphs 8.1, 8.2, 8.3, 8.4, and 8.6), Chapter 9 (paragraphs 9.2, 9.4 and 9.5), Chapter 10 (paragraphs 10.1, 10.2, 10.3 and 10.4).

- additional stuff uploaded on the course website on the comparative statics of costs, input inverse demand, the indirect production function, duality in consumption and quasilinearity of preferences and the marshallian consumer surplus.

Just another textbook:

Richard Cornes, *Duality and Modern Economics*, Cambridge University Press, 1992.

Semester

II semester.

Teaching language

Italian.

Sustainable Development Goals

RESPONSIBLE CONSUMPTION AND PRODUCTION
