UNIVERSITÀ
DEGLI STUDI DI MILANO-BICOCCA

COURSE SYLLABUS

Microeconomics M

2021-1-F8204B005

Learning objectives

This (42h and 6 CFU) course intends to offer specialized training in the following areas of microeconomics (Assuming that basic knowledge has already been acquired by attending students):

a) Duality in consumption and production: theory and applications;

b) Choices under uncertainty;

c) Auctions and applications.

Contents

Starting from the assumption that students (are supposed to) have already acquired a sound background in basic general microeconomics, the first part of this graduate course intends to provide a comprehensive treatment of duality theory and its applications in modern microeconomics. Problems of consumer and producer optimization will be analysed in order to derive duality functional relations serving as a theoretical introduction to the methods and results of microeconometric analysis of consumer demand and production efficiency. The second part of the course will provide a graduate treatment of individual choice under uncertainty starting from expected utility and including topics such as measures of risk aversion, risk spreading and risk pooling. The last part of the course deals with the basic issues of auction theory starting from IPV models and the Revenue Equivalence

Theorem.

Students should bear in mind that

a) Topics such as games and oligopoly form part of the program of another microeconomic course (Advanced Microeconomics) delivered during the second year. In order to avoid useless duplications they are not considered here.

b) Topics such as moral hazard and adverse selection in the field of insurance will be covered in other courses (in particular Economics of Insurance/Economia delle Assicurazioni).

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Detailed program

Details of the topics covered

Individual consumer behaviour and demand

- Direct and indirect utility functions

- Roy's identity
- Expenditure function and Slutsky decomposition
- Functional forms and estimations
- Hotelling-Wold identity
- Distance function and its properties
- Relations between distance and direct utility functions

Producer behaviour and efficiency

- Direct and indirect production functions
- The cost function and Slutsky decomposition
- Profit functions (unrestricted; restricted)
- Functional forms and estimations
- Input and Output Distance Function and their properties
- Measurement and estimation of production efficiency

Uncertainty

- Notion of uncertainty
- Choice under uncertainty and Axioms
- Properties of the utility function, risk premium and measures of risk aversion
- Measure of risk
- Comparative statics under uncertainty
- Production under uncertainty
- Price and technological uncertainty

Auctions

- Basic single unit auction formats
- IPV vs CV
- Bidding models and optimal bids for risk neutral bidders
- Revenue Equivalence
- Risk aversion
- Multiunit auctions

Prerequisites

Intermediate mathematics including constrained optimization in R^N (Calculus I and basic matrix algebra) and basic microeconomics. Students are recommanded to avoid "maths for economists" textbooks.

Undergaduate referencee text: H. R. Varian, *Intermediate Microeconomics*. *A modern approach*, Norton, 8th (Eighth) edition.

Teaching methods

Frontal class lectures (if sanitary conditions will allow). Individual execises with class solutions. Two hours of weekly small group tutorials will be organized according to curcumstancies. On line material available (E-Learning course website).

Continuing the current conditions, the lessons will take place completely remotely asynchronously with some events in physical presence. Students will find audio/videos files in the E learning page.

At the beginning of the course an entry test paper will be organized.

Assessment methods

Final written exam (6 questions with 3 exercises; each question includes subquestions) if sanitary conditions are satisfied. No differencs between attending and non-attending students. No mid-term exam.

The examination procedures are subject to health conditions. The exams can be carried out remotely according to the procedures adopted by the University.

Textbooks and Reading Materials

Reading List

duality

H. Gravelle and R. Rees, *Microeconomics*, Prentice Hall, third edition, 2004 (Chapters 2, 3, 5, 6).

R. Cornes, *Duality and modern economics*, Cambridge University Press, 1992 (Chapters 2 – 8)

Or equivalent chapters in graduate textbooks. (Example: R. Sickles and V. Zelenyuk, *Measurement of Productivity and Efficiency*, C.U.P, 2019)

uncertainty

H. Gravelle and R. Rees, *Microeconomics*, Prentice Hall, third edition, 2004 (Chapters 17 – 19). Or equivalent chapters in graduate textbooks.

auctions

Lecturer's notes (e learning page)

Basic online material with exercises will be provided (please visit the E-Learning platform of the course). Language: Italian and English

Semester

1st semester

Teaching language

Italian