

MGT-454

Principles of microeconomics

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Cursus	Sem.	Type
Energy Science and Technology	MA1, MA3	Opt.
Financial engineering	MA1, MA3	Opt.
Management, Technology and Entrepreneurship minor	H	Opt.
Managmt, tech et entr.	MA1, MA3	Obl.
Mathematics	BA5	Opt.

Language of teaching	English
Credits	4
Session	Winter
Semester	Fall
Exam	Written
Workload	120h
Weeks	14
Hours	4 weekly
Courses	3 weekly
Exercises	1 weekly
Number of positions	

Summary

The course allows students to get familiarized with the basic tools and concepts of modern microeconomic analysis. Based on graphical reasoning and analytical calculus, it constantly links to real economic issues.

Content

- **Introduction**
- **Consumer theory** - Utility theory - Consumer optimum - Demand function - Applications
- **Production theory** - Short term/long term production - Cost functions - Equilibrium of firm under perfect competition - supply function
- **State interventions on the markets** - Price fixation - Supply and demand orientation - Trade politics
- **Imperfect competition** - Monopoly - Monopsony - Bilateral monopoly - Monopolistic competition - Oligopoly - Cartel
- **Game theory** - Introduction - Game theory and rationality - Nash equilibrium - Repeated games - Games with incomplete information
- **Public goods** - Market failures - Different types of goods - Externalities - Natural monopoly

Keywords

Microeconomics, consumers, producers, state interventions, imperfect competition, game theory, public goods.

Learning Prerequisites**Important concepts to start the course**

No prior knowledge of economics is required for this course but a sound knowledge of calculus is recommended.

Learning Outcomes

By the end of the course, the student must be able to:

- **Analyze Consumer and Producer Behavior:** Apply advanced models of utility maximization and cost minimization to understand decision-making under various constraints.
- **Assess / Evaluate Market Structures:** Critically assess the efficiency and outcomes of different market structures (perfect competition, monopoly, oligopoly, monopolistic competition) using game-theoretic and equilibrium analysis.
- **Apply General Equilibrium and Welfare Economics:** Understand and apply the concepts of general equilibrium, Pareto efficiency, and social welfare to evaluate policy interventions.

- **Examine Market Failures and Externalities:** Identify sources of market failure such as externalities, public goods, and asymmetric information, and evaluate corrective policy tools.
- **Use Mathematical and Graphical Tools:** Employ calculus, optimization techniques, and graphical analysis to solve microeconomic problems and interpret results.
- **Interpret and Critique Economic Models:** Assess the assumptions, strengths, and limitations of microeconomic models in explaining real-world phenomena.
- **Conduct Policy Analysis:** Apply microeconomic theory to analyze and design public policies in areas such as taxation, regulation, and competition policy.

Transversal skills

- Plan and carry out activities in a way which makes optimal use of available time and other resources.
- Communicate effectively with professionals from other disciplines.
- Take responsibility for environmental impacts of her/ his actions and decisions.

Teaching methods

Lectures and exercises: Theory presented and studied during classes will be extensively illustrated and trained with exercises, generally referring to real economic problems.

Expected student activities

Exercises will be available online approximately one week before corrections. Estimated workload for exercises: one to two hours per week. To obtain full value this class is offering, it is imperative that you come to class prepared. Indeed, exercises will be discussed and corrected every week in detail during classes. Moreover, as part of the exam will be based on the exercises, their regular preparation and understanding are crucial.

Assessment methods

- 30% written midterm exam (closed book), based on the theory and exercises seen during the course.
- 70% written final exam (closed book), based on the theory and exercises seen during the semester, will take place during the exam session. The exam will be composed of multiple choice questions and open questions. Multiple choice questions will examine the theory presented during the semester. The open questions will be based on the exercises that are presented, discussed and corrected weekly in class. Hence, regular preparation and training through the exercises are essential for the exam.

Supervision

Assistants	Yes
Others	Contact by e-mail.

Resources

Virtual desktop infrastructure (VDI)

No

Bibliography

Mankiw, N.G. (2023), *Principles of Microeconomics*, 10th edition, Boston, MA, Cengage.
 Mas-Colell, A., M.D. Whinston and J.R. Green (1995), *Microeconomic Theory*, New York, NY, Oxford University Press.
 Perloff, J.M. (2022), *Microeconomics*, 9th edition, Harlow (UK), Pearson.
 Varian, H.R. (2014), *Intermediate Microeconomics: A Modern Approach*, 9th edition, New York, NY, W.W. Norton & Company.

Ressources en bibliothèque

- [Find the references at the Library](#)

Moodle Link

- <https://go.epfl.ch/MGT-454>