

## MICRO-ECONOMICS (BASISVAK)

**Specifics:** course code 206 BE; 10 credits; Semester 2, part III

**Objectives:** To gain principle knowledge in microeconomics: theoretical and empirical insight in basic applications.

**Teachers:** Prof. dr. Arthur Schram  
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**Prerequisites:** You may only participate in this class if

- you are studying in the English FEE-program 'Bachelor in Economics and Business'
- you have passed the propedeuse course Micro-economics (109PE).

**Exam:** Written open book exam (75%) and Participation in class(25%)

**Blackboard:** All information on this course will be distributed through BlackBoard.

### Contents:

The central issue is the functioning of markets in a mixed economy: how do agents behave, what determines the outcome of the market process, how is this outcome dependent on the exact market structure? The results of the market process (allocation of goods, prices, the distribution of income) are evaluated according to the Paretian welfare theory.

### Literature:

*Mandatory (to be used in class):*

- Nicholson, W., Microeconomic Theory, Dryden Press, Orlando, 8th edition, 2001 (also used in the third Semester course Mathematics 3). ISBN 0030335930.

*Advised (own reading):*

- Salvatore, D. Microeconomics, Theory and Applications, Oxford University Press, Oxford, 4th edition 2003.

### General structure of the course

This is a 7-week course. There are two classes per week. Starting on February 2<sup>nd</sup>, every Monday, 9.15-12.00 (lecture hall E-003) there is a lecture by Arthur Schram on the topic of the week. Lectures will follow the outline of Nicholson. Every Wednesday, 10.15-13.00 (lecture hall A-102), there will be tutorials guided by Astrid Hopfensitz.

The course is built around four topics. These are

- Consumer theory and demand
- Producer theory and supply
- Market equilibrium and welfare theory
- Game theory

## Student Participation

Students must participate actively in classes. This is a 10-credit course in a 15-credit block (9 weeks). You are therefore expected to spend 28-30 hours on this course, *every week*, starting February 2<sup>nd</sup>. For the lectures, this means that you must briefly read through all of the material beforehand (possibly skipping text that is too difficult). Beware, the assignment may be up to 100 pages of text or more for any given week! After the lecture (before and after the tutorial), you must carefully reread all of the material and prepare the exercises announced in the tutorial.

Attendance in the tutorials will be monitored. In addition, students will be split up into groups of approximately 6. Students who do not actively participate in this setup will not have access to the tutorials. Each group is responsible for a fair distribution of the exercises across the individual members. Each group has to hand in one set of the solutions to the homework problems and be prepared to give a presentation in class. The assignment for the tutorial will be approximately 6 exercises per week. For each exercise, one group will be randomly selected to give a presentation of the solution. The group may (pre-)select one member to give this presentation. The presenter must be a different student every week.

The presentation and the homework set will each be marked by the grade '2', '6' or '10'. This mark holds for the whole group. The marks are averaged across weeks and constitute 25% of the final grade. To qualify for this compensation, you must attend at least 5 tutorials. Students who participate less can compensate the 25% through extra questions on the exam.

## Overview

(preliminary; keep track of BlackBoard, for changes)

Wk	Date	Time	Place	Type	Topic	Readings (Nicholson)
1	Feb 2	9.15-12.00	E003	Lec	introduction, refresh math , refresh consumer theory	1-58; 63-77; 92-98; 115-124
1	Feb 4	10.15-13.00	A102	Tut		
2	Feb 9	9.15-12.00	E003	Lec	utility, choice, demand	78-88 ; 99-112; 125-191
2	Feb 11	10.15-13.00	A102	Tut		
3	Feb 16	9.15-12.00	E003	Lec	choice under uncertainty	197-242
3	Feb 18	10.15-13.00	A102	Tut		
4	Feb 23	9.15-12.00	E003	Lec	refresh producer theory; production functions, costs, profit maximization	267-341
4	Feb 25	10.15-13.00	A102	Tut		
5	Mar 1	9.15-12.00	E003	Lec	supply, partial equilibrium, monopoly (excl. welfare analysis)	342-400; 495-502; 506-524
5	Mar 3	10.15-13.00	A102	Tut		
6	Mar 8	9.15-12.00	E003	Lec	general equilibrium, welfare analysis (incl. monopoly)	401-492; 502-506
6	Mar 10	10.15-13.00	A102	Tut		
7	Mar 15	9.15-12.00	E003	Lec	game theory	245-264; 553-572
7	Mar 17	10.15-13.00	A102	Tut		
<b>exam</b>	Apr 1	9.30-12.30	tba	exam	all of the above	all of the above

## Goals and content per topic

### 1. Introduction

The student can:

- explain the role of models in economic theory
- reproduce the development of the economic theory of value
- routinely apply mathematical optimization methods for functions of one and multiple variables, with and without constraints
- apply the implicit function theorem and the envelope theorem
- graphically derive individual choice from utility maximization
- graphically distinguish between substitution and income effects

### 2. Consumer theory and demand

The student can:

- mathematically derive individual choice from utility maximization
- reproduce the Cobb-Douglas and CES utility functions
- derive the indirect utility function and explain its meaning
- derive individual choice from expenditure minimization
- mathematically distinguish between substitution and income effects
- derive compensated demand curves and explain their meaning
- use and explain Shephard's lemma and Roy's identity
- explain and apply Slutsky's decomposition
- derive market demand from individuals' utility maximization
- calculate and apply expected utility
- explain and derive measures of risk aversion and relative risk aversion
- explain the concepts of moral hazard and adverse selection and apply these in specific situations

### 3. Producer theory and supply

The student can:

- apply the concept of production functions
- graphically and mathematically derive optimal input choice, using the production function
- reproduce Cobb-Douglas and CES production functions and derive the corresponding rate of technical substitution and their elasticity of substitution
- explain the difference between an accountant's and an economist's definitions of costs
- graphically and mathematically derive input choices from cost minimization
- distinguish between short-run and long-run behavior of firms
- derive the profit maximizing choices of a monopolist
- derive and explain the effect of price discrimination

### 4. Market equilibrium and welfare theory

The student can:

- graphically and mathematically derive partial equilibrium in the competitive model, both in the short-run and in the long-run

- explain in detail (graphically) what the relationship is between the short-run and long-run equilibria
- graphically show the welfare obtained in the market equilibrium and how various policy measures (taxes, price ceilings, tariffs) affect the distribution of welfare
- explain graphically the concept of deadweight loss
- construct and analyze an Edgeworth box for production and derive a production possibility frontier from this
- determine and analyze the general equilibrium in a two-good economy
- explain Walras' law and its importance
- explain the concept of Pareto efficiency
- show the efficiency of perfect competition

## 5. Game theory

The student can:

- explain the concept of Nash equilibrium and provide a mathematical definition
- explain the difference between normal form and extensive form games and transform a game from one form to the other
- explain and apply the concept of subgame perfection
- derive Nash equilibria and subgame perfect Nash equilibria for simple games
- derive the Bertrand equilibrium for a duopoly
- derive the Cournot equilibrium for a duopoly
- derive the Stackelberg equilibrium in a sequential game
- explain the concept of Bayesian-Nash equilibrium in a game of incomplete information