SUBJECT DATASHEET

Market games

BMEGT30BX4U001-00

I. SUBJECT DESCRIPTION

1. SUBJECT DATA

Subject name
Market games

ID (subject code) BMEGT30BX4U001-00

Type of subject
Contact lessons

Course types and lessons

Type	*Lessons*
Lecture	2
Practice	0
Laboratory	0

Type of assessment
mid-term grade

Number of credits
3

Subject Coordinator

Name	*Position*	*Contact details*
Dr. Ligeti Zsombor	associate professor	ligeti.zsombor@gtk.bme.hu

Educational organisational unit for the subject
Department of Economics

Subject website
https://edu.gtk.bme.hu/local/tad/view.php

Language of the subject
Magyar és angol - HU, EN

Curricular role of the subject, recommended number of terms
Programme: **Any programme**
Subject Role: **Compulsory elective**
Recommended semester: **0**

Direct prerequisites

Strong	None
Weak	None
Parallel	None
Exclusion	None

Validity of the Subject Description
Approved by the Faculty Board of Faculty of Economic and Social Sciences, Decree No: 580501/3/2025 registration number. Valid from: 2025.07.10.

2. OBJECTIVES AND LEARNING OUTCOMES

Objectives

The course provides an introduction for students in engineering and natural sciences to economic patterns that are also relevant to their fields—such as the varying levels of development across countries or income inequality within societies. These patterns ultimately emerge as the result of interconnected decisions made by individual actors. Such decisions arise from the outcomes of games played between these actors. Within the framework of the course, we simulate and model various types of games, allowing students to actively engage in the decision-making and strategy development processes. A key objective of the course is to enhance students' strategic thinking skills, enabling them to gain practical advantages in everyday strategic interactions.

Academic results

Knowledge

1. The student understands the fundamental concepts commonly used in game theory, as well as the key principles and methods for solving game-theoretic problems.
2. The student is familiar with the P.A.P.I. analytical framework in relation to decision-making situations.
3. The student is aware of the role of asymmetric and incomplete information in the decision-making processes of economic and political actors.
4. The student has a basic understanding of graph-theoretical concepts used in network analysis.

Skills

1. The student is able to describe processes of economic and political decision-making, as well as micro- and macro-level games, using basic game-theoretic models.
2. The student is able to simplify everyday decision-making situations to their essential elements, represent them using payoff matrices and decision trees, and analyse the possible outcomes of the games and the strategies employed by the actors.
3. The student is able to identify optimal strategies for the actors within a given modelling framework and to determine the likely outcomes of the games based on these strategies.
4. The student is able to express ideas in a clear and well-structured manner, both orally and in writing.

Attitude

1. 1. The student continuously expands their knowledge through ongoing learning.
2. 2. The student is open to using information technology tools.
3. 3. The student is able to make decisions even in complex situations, taking all relevant factors into full consideration and carefully weighing them.

Independence and responsibility

1. The student is open to well-founded critical feedback.
2. The student collaborates with professionals from other disciplines when carrying out professional tasks.
3. The student applies a systems-based approach in their thinking.

Teaching methodology

Lectures, computational exercises and communication in written and oral form. use of IT technics, optional: individual and in group problem solving.

Materials supporting learning

- 1. Tóth-Bozó Brigitta, Bánhidi Zoltán (szerk.): Piaci játszmák - A játékelmélet és alkalmazásai a modern világban, Akadémiai Kiadó Budapest, 2025. ISBN 978 963 664 121 4
- 2. Eric Rasmusen – Games and Information, Blackwell, 2006,
- 3. Barabási Albert-László (2016): A hálózatok tudománya. Libri, Budapest,
- 4. Hal. R Varian (2014), Intermediate Microeconomics with Calculus, WW Norton and Co. New York
- 5. Egyéb oktatási segédanyagok (gyakorló feladatok, mintazh, szorgalmi feladatok stb.) elérhetősége: https://edu.gtk.bme.hu/

II. SUBJECT REQUIREMENTS

TESTING AND ASSESSMENT OF LEARNING PERFORMANCE

General Rules

Assessment of learning outcomes described under 2.2. is based on two written mid-term tests during the semester

Performance assessment methods

Learning unit assessment: the complex assessment of knowledge, skills and attitude is written test containing a test part and an exercice part. The test part is intended to assess the knowledge of notions and principles, the exercice part is intended to assess students' problem solving. The precise from, content and assessment of the written test is to be determined by the lecturer in accordance with the subject responsible.

Percentage of performance assessments, conducted during the study period, within the rating

- **1. learning unit assessment**: 50
- **2. learning unit assessment**: 50

Percentage of exam elements within the rating

- **during the semester assessment**: 100

Conditions for obtaining a signature, validity of the signature

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Issuing grades

Excellent	91
Very good	86-90
Good	71-85
Satisfactory	56-70
Pass	40-55
Fail	0-40

Retake and late completion

1) The obligatory mid-term test can be retaken or made up according to the general rules of the university. In case of make up, the grade of the make up test is the grade.

Coursework required for the completion of the subject

contact	28
preparation for mid term test	40
learning of written material	22

Approval and validity of subject requirements

Consulted with the Faculty Student Representative Committee, approved by the Vice Dean for Education, valid from: 07.07.2024.

III. COURSE CURRICULUM

THEMATIC UNITS AND FURTHER DETAILS

Topics covered during the term

Subject includes the topics detailed in the course syllabus to ensure learning outcomes listed under 2.2. can be achieved. Timing of the topics may be affected by calendar or other circumstances in each semester.

1 Introduction I — game theory and elements of games
2 Introduction II — game theory and elements of games
3 EU-related games
4 Trade policy games
5 Global and geopolitical games I
6 Global and geopolitical games II
7 Obligatory mid term assessment (written mid term test)
8 Price-setting games
9 Asymmetric information I — moral hazard, adverse selection, and signalling
10 Asymmetric information II — the principal-agent problem
11 Introduction to networks
12 Network games
13 Obligatory mid term assessment (written mid term test)
14 Obligatory mid term assessment (written mid term test) - retake/make-up opportunity

Additional lecturers

Bánhidi Zoltán	egyetemi adjunktus/senior lecturer	banhidi.zoltan@gtk.bme.hu
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Approval and validity of subject requirements