

Strategic Interactions in Markets Syllabus

1. Description

This course is part of the Managerial Accounting, Finance & Economics module. It revises basic undergraduate concepts and introduces game theory tools for studying different **market settings**. It focuses on the organization of production and competition between firms in market-based economic systems. More specifically, instances of **non perfectly competitive markets** are discussed, and various modes (static, sequential, and stochastic) of **oligopolies** are analyzed in detail. To this end, the basics of game theory for simultaneous, dynamic, and stochastic games are introduced. This provides students with the essential tools to set up and think through problems of strategic interactions in many different settings going beyond those of the course. Finally, the course emphasizes the importance of **market power**, **leadership**, and sustainability of **tacit collusion** in determining market outcomes.

2. Objectives and Requirements

This course is intended for first-year graduate students. It is designed to introduce essential concepts, results, and modeling approaches to help students understand classic, yet still contemporary, topics in business and academic economic discussions. In particular, students will be able to recognize and analyze the pricing strategies of firms with some degree of market power by the end of the course.

The course's main approach is to introduce the students to critical economic thinking. The introduced concepts will be continuously challenged and contrasted with actual business practices (case studies) and patterns observed in real markets during the course. The students will not be instructed on the "correct" market model but rather be introduced to critically examining economic problems in market settings, determining the most relevant concepts, and applying the most appropriate theoretical ideas.

Participants are expected to have a basic understanding of the long-run behavior of markets and the theoretical ideal of a competitive market. Additionally, students are expected to have some knowledge of the basic price-setting monopoly decision framework. A fast-track revision of perfectly competitive, monopoly markets and their welfare properties will be given during the initial lectures and tutorials of the course.

Introductory knowledge of economic decision-making (simple optimization techniques) is a prerequisite. Previous knowledge of game theory can be helpful, but it is not required. From a mathematics perspective, essential results from high-school calculus will be commonly used. In particular, knowledge of basic differentiation is expected.

3. Reading Material

Textbooks:

The course gathers topics from multiple textbooks. Specific sections of each book and supplementary material can be found at the end of each topic on the online blog. The three most important sources for the course are:

[BP] Belleflamme, P., & Peitz, M. (2010). *Industrial organization: Markets and strategies*. Cambridge University Press.

This is a fairly comprehensive review of modern industrial organization with topics ranging from introductory to a bit more advanced.

[W] Watson, J. (2008). *Strategy: An introduction to game theory*. W.W. Norton.

This textbook offers a less technical and more intuition-oriented introduction to game theory.

[V] Varian, H. (2014). *Intermediate Microeconomics. W. W. Norton & Co. A Modern Approach (9th edition)*.

A general, introductory microeconomic theory book that can be helpful for reviewing basic undergraduate concepts.

Blog:

The discussion topics of the course are available online. Each topic is organized in a separate discussion session in the course's online blog. In addition, the blog contains interactive components (figures, videos, etc.) that can be used when studying. It is highly recommended that the students use this feature in their preparation.

<https://teach.pikappa.eu/competition/>

Slides:

The slides of the course are available online. The content of the slides is a subset of the content available on the blog. The slides are optimized for presenting the course's main ideas in the lectures and are not meant to be used as reading material. For instance, they do not include the tutorial exercises.

<https://teach.pikappa.eu/competition/slides.html>

Handout:

A cumulative version of the course's material is given in an online handout format (loading all the material can take a while on older cell phones or tablets, though). Finally, the online handout contains the exercises of the course. Those who prefer using printed material can download a PDF version of the handout from the downloads section of the blog.

<https://teach.pikappa.eu/competition/handout.html>

Exercises:

The exercises and extensive solution hints are also available online. Their format is similar to that of the online handout. The exercises and their hints can also be downloaded as a PDF from the downloads section of the blog.

<https://teach.pikappa.eu/competition/exercises.html>

4. Organization

The lectures are organized based on topics. Each lecture corresponds to one of the main course's discussion topics. For one to make the most out of this lecture, some preparation prior to each lecture is recommended. Those who come unprepared to the class will most probably not reap the course's benefits to their full extent. A first read of the corresponding chapters of the main text before coming to class can be quite helpful for the participants' understanding. The discussion of each topic in class will focus on i) clarifying concepts that students might have found difficult on the first pass of their reading and ii) critically discussing the arguments given in the main textbooks. Besides some standard points that will be covered by default, the discussion in the class will primarily be orchestrated by the well-prepared students.

The tutorials are organized and given by Fabian Smetak. The online handout contains various exercises at different difficulty levels at the end of each lecture. Some (not necessarily all) exercises will be discussed during the tutorial sessions. There are two exercise groups that are ordered in ascending difficulty. Group A contains the easiest exercises that can be asked in an exam (potentially adjusted, taking into account time limitations). Group

B exercises are more advanced and will constitute a smaller part of the examination points. Their inclusion aims to reward the students that exhibit significant interest and dedication to this course during the semester.

Table 1: Planned Coursework

Date	Class	Topic	Preparatory Reading
2023-11-02	Lecture	Markets, Games, and Competition	BP 1.1-1.4, BP 2.1.1-2.1.4
2023-11-07	Lecture	Simultaneous Games I	W 3, W 6, W 9, V 29.1-4, V 30.1-5
2023-11-09	Lecture	Simultaneous Games II	W 4, W 11, V 29.1-4, V 30.1-5
2023-11-14	Lecture	Simultaneous Competition I	W 10, BP 3.1.2
2023-11-16	Tutorial		
2023-11-21	Lecture	Simultaneous Competition II	W 11, BP 3.1.2
2023-11-23	Tutorial		
2023-11-28	Lecture	Dynamic Games	W 2, W 14, W 15
2023-11-30	Lecture	Dynamic Competition I	W 15, BP 4.1, BP 4.2.1-3
2023-12-05	Tutorial		
2023-12-07	Lecture	Dynamic Competition II	W 16, BP 4.1, BP 4.2.1-3
2023-12-09	Lecture	Collusion and Market Power	W 22, W 23, BP 2.3, BP 3.5, BP 14.2.1
2023-12-14	Tutorial		

5. Examination

The course evaluation comprises two parts; A take-home exam during the lecture period (30 points) and a written final examination (60 points). The take-home exam will be conducted in groups of three to five persons and will test your ability to apply the concepts and ideas discussed during the lectures. The final exam will test your understanding of the basic concepts, analytical skills, and economic intuition discussed in the lectures and tutorials.

In group work, all members have to participate actively. Free-riding is not acceptable and can (will) be punished by a lower grade or exclusion from the group. In case free-riding occurs (e.g., some assigned group member does not reply to emails or does not participate in meetings, etc.), please get in touch with the instructor immediately and explain the case.

6. Acknowledgments

The material and the exercises have greatly profited from the comments of many of my colleagues and students; in particular Jenny Kragl, Elena Jarocinska, Fabian Smetak and Peymaneh Safaynikoo. I am extremely grateful for the suggestions and typos and mistake corrections in earlier versions of the material indicated to me by many readers and students. I encourage others to send me their comments to my contact email.

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[Pantelis Karapanagiotis](#)

karapanagiotis [at] ebs [dot] edu

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