Firms and Markets
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Syllabus

Course description

The goal of this course is to give you insights into how markets work. The first part of the course starts with the study of decision making by consumers and firms and concludes with a fundamental result in economics: a set of conditions under which markets function efficiently. The second part of the course focuses on situations when, for various reasons, markets don't work efficiently. These situations are very common. We emphasize the importance of strategic behavior, and we model it using game theory.

Microeconomics (as this course is frequently referred to) is an important component of an MBA program. First, microeconomics focuses on specific dimensions of optimal firm decision making, such as pricing as well as entry and exit. Second, the formal economics perspective on business plays an important role in other areas of MBA study, such as finance or marketing. Finally, by studying public policy aiming to avoid market failures and inefficient outcomes, microeconomics highlights important factors that define the framework of strategic interactions among firms.

Some of the key concepts we will introduce include economic incentives, marginal analysis, opportunity cost (i.e., which costs matter), market efficiency (what does it mean for a market to work well), strategic behavior (how to predict and respond to rivals' decisions), and asymmetric information (what happens when others know something you do not). Our experience with students in prior years is that much of this is intuitive. But much is not, and my hope is that the combination of theoretical structure and practical examples will be useful in the years to come. It will not make you a success on its own, but it may give you an edge a few times when it matters.

Prerequisites

You are expected to be comfortable with basic algebra and calculus, including *systems of equations, derivatives, maximizing functions, and NPV calculations*.

Course materials

- *Lecture notes*. They review the theory relevant to most classes. In a few pages, they outline and explain the key concepts, define terms, give examples, and (where it makes sense) work through numerical problems. They are intended to complement the lectures rather than substitute for them.

- *Textbook*. There is no required textbook for this course. However, if you want a reference text, I recommend Michael Baye's *Managerial Economics and Business Strategy* (McGraw-Hill,

10th edition), which is available in the bookstore or online. There is also a study guide to accompany the text. Some students indicate that they find this book helpful.

- *Slides*. I will send you by email the slides for each class and bring copies, but keep in mind that the slides are not a complete record of all that is discussed in class. I recommend that you take notes during the class as a supplement to the slides.

- *Additional materials*. I will occasionally send by email and distribute additional materials. These will include timely newspaper articles or research papers that are interesting or relevant.

Deliverables and grades

The various "deliverables" in the course are designed to develop different skills:

- *Class participation*. It is important to integrate what you learn and be able to express it effectively. Moreover, there is a great deal of collective insight and experience in the class, and we all benefit from sharing it. But the *quality* of your contributions is more important than the *quantity*. Your attendance, punctuality, and overall citizenship in class are all also relevant dimensions of your participation performance.

- *Individual problem sets*. Problem sets emphasize quantitative applications of the principles and tools developed in class. They are due at the start of class. They will be graded on a zero to two scale. You are expected to hand these in and to make a reasonable attempt; failure to do so will be penalized.

  Most of the problems are quantitative, while some are qualitative and may not have definitive "right" or "wrong" answer—it is understanding the underlying issues that is key. You should also note that the problem sets are the best preparation for the exams. Dates and deadlines for all assignments can be found in the detailed course outline.

- *Group work*. Working with classmates will be an important component of the course, as there is much we can learn from each other's different experiences and perspectives. Group work will include a combination of the following:

- *Exams*. There will be *two* in-class exams, a first and a second exam. Generally, there will be three or four questions in each exam, similar to the problem sets and additional practice problems.

Your grade for the course will be based on your contributions to all of these deliverables, weighted as follows:

Problem sets	10%
First exam	45% (or 40%)
Second exam	45% (or 50%)

Your performance in terms of class participation will serve as a *tiebreaker* if you are on the border between two grades.

The first exam counts 45% if it increases your grade but only 40% if it does not. This means that if you do better in the first exam than in the second exam, then the first exam will count 45%. By contrast, if you do better in the second exam than the first exam, then the first exam will count only 40%. The reason for doing this is that the course will move fast, and I am sensitive to the fact that some students may need some time to familiarize themselves with what economics is about. Ultimately, I care about what you learn by the end of the course - the grading scheme is intended to be consistent with that concern.

Final grades will strictly follow the School's guideline for core courses: **no more than 35% of the class will receive A or A–**. This guideline was instituted in response to student concerns that different sections of a course might be graded by different standards.

Exams and re-grading

You are responsible for checking the exam dates and avoid any conflict with other commitments. Exams will not be re-administered on other dates. During an in-class exam, you are *not* allowed to consult class notes, books, or any other material. You may, however, consult one page of notes (a standard-size sheet of paper written on one side). Questions about grading must be made in writing and no more than a week after the exams are returned.

Honor code

The Stern community believes that honesty and integrity are necessary for rewarding academic and professional experiences. These qualities form the basis for the strong trust among members of the academic community (students, faculty, and administrators) that is essential for excellence in education. The Honor Code requires that each student act with integrity in all academic activities and endeavor to hold his or her peers to the same standard.

In this course, you may discuss assignments with anyone, but any written work submitted for a grade should be your own. On exams, you may bring in and consult one piece of paper with anything on it you like, but your answers should be entirely your own work.

Students with disabilities

If you have a qualified disability and will require academic accommodation during this course, please contact the Moses Center for Students with Disabilities (CSD, 998-4980) and provide me with a letter from them verifying your registration and outlining the accommodations they recommend. If you will need to take an exam at the CSD, you must submit a completed Exam Accommodations Form to them at least one week prior to the scheduled exam time to be guaranteed accommodation.

Getting help

I would like each of you to learn and gain as much as you can from this course. If you are stuck, or have any difficulty with the material, don't hesitate to ask for assistance. Please send me an email (economides@stern.nyu.edu), and I will try my best to respond promptly.

You can also get help from your fellow MBA teaching assistant: Chris (Jinyang) Huang jinyang.huang@stern.nyu.edu . All announcements regarding the course will be made through email and NYU Brightspace.

Preliminary List of Topics to be Covered

Demand, supply and market equilibrium: demand and supply; market forces; market equilibrium; shifts in demand and supply.

Demand: demand function; consumer surplus; demand elasticity; demand estimation.

Economic cost analysis: opportunity costs; sunk costs; marginal costs; economic costs and cash flows.

Perfect competition and market equilibrium: short-run equilibrium; long-run equilibrium; comparative statics; welfare analysis: consumer surplus, producer surplus, and economic efficiency.

Basic monopoly pricing: profit maximization; marginal revenue; marginal cost; elasticity rule.

Advanced pricing: price discrimination; market segmentation; two-part tariff; quantity discount; versioning and bundling; dynamic pricing.

Market power and policy: economies of scale and economies of scope; market power; public policy and antitrust when market power is present.

Game theory: strategies and payoffs; simultaneous-move games and normal-form games; sequential-move games and extensive-form games; dominant and dominated strategies; best responses; Nash equilibrium; backward induction; the prisoner's dilemma, the coordination game, and other important games.

Price competition: Bertrand competition; avoiding the "Bertrand trap": cost leader, cooperative pricing, limiting capacity, product differentiation, price matching.

Competition and cooperation: cooperation in business; cooperative pricing; repeated games; trigger strategies; cartels; tacit collusion; factors that make cooperation easier; antitrust.

Commitment: credibility; the value of a credible commitment; first-mover advantages; preemption; product proliferation; entry and exit.

Asymmetric information: hidden actions; moral hazard and the agency problem; incentive design; hidden types; adverse selection and the lemons problem; screening and signaling; auctions.

Externalities and network effects: positive and negative externalities; network effects; expectations and critical mass; strategic compatibility decisions; two-sided markets.

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Calendar

Date	Tentative plan for class	Deliverables
February 3	**Introduction.** **Supply and demand:** demand curve; supply curve; market equilibrium; changes in equilibrium; welfare analysis; consumer surplus; producer surplus; total surplus	
February 10	**Consumer demand:** demand function; elasticity and its applications.	**Problem Set 1 due at the start of class.**
February 24	**Economic cost analysis:** marginal costs; cost functions, short and long run; opportunity costs; sunk costs; output decision; supply curve, economies of scale and of scope. **Competitive markets:** welfare and policy; short-run equilibrium; long-run equilibrium.	**Problem Set 2 due at the start of class.**
March 3	**Monopoly pricing:** profit maximization; marginal revenue and marginal cost; elasticity rule; welfare losses because of monopoly; antitrust as it relates to monopoly.	
March 10	**Advanced pricing I:** price discrimination; market segmentation; perfect price discrimination. **Advanced pricing II:** bundling; tying; two-part tariffs; quantity discounts; dynamic pricing, antirust on price discrimination issues.	
March 24	**Market power and policy:** market power; antitrust and competition policy; application to mergers. **Exam review.**	**Problem Set 3 due at the start of class.**
March 31	**First exam:** 3 or 4 problems, largely quantitative. You may consult one page of notes (a standard-size piece of paper with anything on it you like) and a calculator.	

April 7	**Game theory I & II:** strategies and payoffs; normal-form representation; dominant and dominated strategies; best responses; simultaneous-move games; Nash equilibrium; prisoner's dilemma and other important games; mixed strategies; extensive-form representation; sequential-move games; backward induction; hold-up problem.	
April 14	**Price competition:** Bertrand competition; avoiding the "Bertrand trap": cost leader, limiting capacity, price matching, cooperative pricing, product differentiation, informational frictions. **Cooperation:** repeated Bertrand game; trigger strategies; cartels; tacit collusion.	**Problem Set 4 due at the start of class.**
April 21	**Commitment:** visibility and credibility; commitment and entry deterrence: excessive capacity, product proliferation. **Asymmetric information:** hidden actions; agency issues; screening and signaling.	
April 28	**Market failures:** thin markets; moral hazard; adverse selection and the lemons problem. **Network effects**: critical mass, standards, technical compatibility, winner-takes-most. **Exam Review.**	**Problem Set 5 due at the start of class.**
May 5	**Second exam:** 3 or 4 problems, largely quantitative. You may consult one page of notes (a standard-size piece of paper with anything on it you like) and a calculator.	