

Introduction to Industrial Organization

Lecture 1: Introduction

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Outline

- Course Information
- Introduction to Industrial Organization

Course Information

Course Information (I)

- **Contact information:**
 - Name: Jian-Da Zhu
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 - Office: Social Science Building 717
- **Office hours:** Thursdays 15:30-16:30, or by appointment
- **Lectures:** Thursdays, 9:10-12:10.

Course Information (II)

- For Whom?

1. For those undergraduate students who have finished the core courses (Microeconomics and Econometrics) and want to know what Industrial Organization (IO) is.
2. For those graduate students who want to do the research related to IO.

- Course Description:

- Market structures and the theory of the firm
- Theoretical models and empirical studies
- Overviews of important topics and approaches in IO

- Prior Knowledge:

- Principles of economics, especially microeconomics.
- Calculus, such as differential and basic integration.
- Basic game theory, such as Nash equilibrium.
- Basic econometrics, such as linear regression model.

Course Information (III)

- Recommended Textbooks:

- Dennis W. Carlton and Jeffrey M. Perloff. *Modern Industrial Organization (4th Edition)*, Pearson/Addison Wesley, 2005.
- Jean Tirole. *The Theory of Industrial Organization*, Cambridge, MA: MIT Press, 1988.

- Course Requirements:

- Do the homework and participate in the discussion every week

- Grading:

- 1 Homework (30%).
- 2 Class participation (30%).
- 3 Final project (group) (due date: **Jan 16, 2020**) and presentation (scheduled on **Jan 2, 2020** or **Jan 9, 2020**) (40%).

Homework

- I will list some questions on the slides every week, and you should answer it in **1-2 pages**.
- **Deadline:** every Wednesday 21:00.
- **Example:**
 1. After finishing the monopoly part, I might give you some questions:
 - Please provide an example of monopoly.
 - Given this example, do you know any government regulation for this monopoly?
 - Do you think that this monopoly has the market power to decide the price?
 2. After finishing the demand estimation, I might give you the homework:
 - Download the data from XXX website, then do the following steps for the analysis.

Discussion

- Structure of each lecture:
 - Discussion on the questions (homework) from the last lecture.
 - New lecture.
- I encourage you to finish your homework every week and share what you find in the discussion.

Final Project: Term Paper and Presentation (I)

- **Purpose:** The main goal is to let you use the knowledge from this class to answer some interesting questions. For graduate students, you might treat it as a proposal for your future research.
- Based on a group (1-2 students)
- **Do it step by step:**
 - Find an interesting question. (You need to talk to me before **Oct 17, 2019**)
 - Find a suitable data to answer your question.
 - Do the analysis based on what you have learned from this class.
 - Prepare the presentation and write it as a term paper.

Final Project: Term Paper and Presentation (II)

- Presentation:

- Each presentation will be 8 minutes long. With time for questions, the total presentation time will be 10 minutes for each group.
- Presentation date: **January 2, 2020** and January 9, 2020 (if needed).
- Email me your slides on or before Wednesday, January 1, 2020.

- Term paper:

- Deadline: January 16, 2020.

- Final project grades: (Total 40%)

- Presentation: 20%
- Term paper: 20%

Any questions about this course?

Introduction to Industrial Organization

Introduction

- Question: What is Industrial Organization?
 - In economics, Industrial Organization is a field that builds on **the theory of the firm** by examining the **structure** of firms and markets.
- Two important issues:
 - Market structure
 - The theory of the firm
- Some other important topics
- Two aspects for studying:
 - Theoretical model
 - Empirical study

Market Structure (I)

1. The number of firms in the market
 - a. **Monopoly**: only one firm in the market
 - Why monopoly? Any other entry?
 - How to do the regulation?
 - What is the strategy of the **dominant firm**?
 - b. **Oligopoly (Duopoly)**: two or more firms in the market, but not too many
 - Quantity competition? price competition?
 - How is the multiple-period competition?
 - How about the capacity constraint?
 - c. **Monopolistic Competition**: products are differentiated, not perfect substitutes
 - Product differentiation
 - Location models
 - d. **Perfect Competition**: firms are price takers

Market Structure (II)

2. Upstream firms and downstream firms

- Vertical integration or horizontal merger
- Vertical control or restraints
- Contracts between upstream firms and downstream firms
- Welfare analysis

3. Peer-to-peer market

- Put buyers and sellers together on a platform
- Example: Ebay, Uber, Airbnb

Firm Theory (I)

1. Basic assumptions:

- a. Inputs and outputs
- b. Profits maximization
 - Revenue (R) - Cost (C)
 - Cost: long-run versus short-run
 - Fixed cost, variable costs, average costs, marginal costs, ...

2. Pricing strategies:

- a. Price discrimination
 - Perfect price discrimination
 - Third-degree price discrimination
- b. Second-degree price discrimination
- c. Dynamic pricing (over time)
- d. Other pricing strategies for competition

Firm Theory (II)

3. Interactions between firms

- a. Collusion behavior
- b. Location choices
- c. Entry deterrence
- d. Acquisition or merger
- e. Investment

4. Behavior of consumers

- a. Search costs
- b. Switching costs
- c. Learning
- d. Bidding behavior
- e. Purchase timing

Course Map (I)

1. Perfect competition (week 2)
2. Monopoly and dominant firms (week 2)
3. Oligopoly and cartels (weeks 3 and 4)
 - single-period (static) versus multiple-period (dynamic)
 - price competition versus quantity competition
 - capacity constraints
 - collusion
 - edgeworth price cycles

Course Map (II)

4. Monopolistic competition (weeks 6, 7, and 8)

- Hotelling model
- circular model
- free entry and welfare
- demand estimation
- analysis after demand estimation
- merger analysis

5. Price Discrimination (week 9)

- Perfect price discrimination
- Third-degree price discrimination
- Second-degree price discrimination

Course Map (III)

6. Price Dispersion and Search (week 10)
 - Consumer search behavior and cost
7. Dynamic Pricing (week 11)
 - Examples and consequences
8. Entry and Market Structure (week 12)
 - Number of firms in the market
 - Estimate an two-by-two entry game
9. Strategic incumbents and entry (week 13)
 - Entry deterrence
10. Vertical relationship (Weeks 14 and 15):
 - Vertical contract or integration
 - Retail chain
11. Peer-to-peer markets (Week 16)