

## UCLA Econ 106P: Pricing and Strategy

Summer 2016, Session C

### Basic Information

**Instructor:** Yingju Ma

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**Lectures:** Tuesday / Thursday, 10:45am-12:50pm, Bunche 1209B.

**Office hours:** Thursday, 2-4pm, Bunche 2265.

### Course Description

*Economics 106 pricing and strategy* is a microeconomic course designed for students who are interested in firms' decision-making. In this course, students will learn pricing theories, and how to apply them to practical business problems. They are encouraged to think as a real CEO of a firm, and use both analytical and numerical approach to help their firms make optimal price decisions. At the beginning of the quarter, I will make use of the first two lectures to make an introduction to the mathematical tools which are useful to this class. After that, we will turn to an old topic of intermediate micro, the monopoly. However, we will see monopoly from a more complicated perspective. We will discuss the best price discrimination strategies under different market circumstances, and real business cases will help us understand these theories. How to make pricing decision in a strategic situation will be our next topic. We will add new elements to models like Cournot, Bertrand and Stackelberg to see how a company should compete with other firms in a market with market power. Theories of repeated game will also be introduced in this section. At the end of this quarter, I will introduce theories regarding auction and asymmetric information to talk about how to make pricing decisions when there is no perfect information.

## Prerequisites

This course is designed for junior or senior students who have already learned Econ 11 and Econ 101 (intermediate level microeconomics). Students should know basic calculus.

## Textbook

- *Lecture notes* will be provided.
- *Strategy: An introduction to Game Theory*, Joel Watson, 3<sup>rd</sup> Edition, 2013, Norton.

## Grading Policy

The final grade (letter grade) will be based on problem sets and two exams.

- 20% Homework (2 assignments, 10 pts for each)
- 30% Midterm (Aug. 23, Tuesday, in-class exam)
- 40% Final Exam (Sep. 8, Thursday, in-class exam)
- 10% Essay

## Essay

Write your own case or model. Find a newspaper article that discusses a firm's pricing, contracting, or competition strategy. Write a model to capture the economics and analyze the economic intuition of the strategy. Maximum 2 pages. Attached with the original article.

Due date: Sep 9, Friday, 10:00pm.

## Academic Dishonesty

Any cases of academic dishonesty will be reported to the Office of the Dean of Students. For more details please refer to the Office of the Dean of Students website at <http://www.studentgroups.ucla.edu/dos/>

## Course Enforced Policies

If a student has a valid medical excuse and can provide documentation of such of an excuse, or if the student has received prior permission (at least one week in advance of the exam) to miss an exam from the instructor, then additional weight will be placed on the final exam. Prior permission to miss an exam is only granted for serious and compelling reasons. A student who misses an exam without a valid medical excuse or without receiving prior permission will receive a zero.

## Tentative Course Schedule

Topics			
Lecture 1	Overview; Monopoly; Price Discrimination	notes	
Lecture 2	Joint Cost Production; Merger & Acquisition	notes	
Lecture 3	Game Theory; Nash Equilibrium; Dominance; Mixed-Strategy NE.	Ch 3, 6, 9, 11	
Lecture 4	NE applications; Cournot, Bertrand model	Ch 8, 10	
Lecture 5	Subgame Perfect Equilibrium; Stackelberg Competition; Entry Deterrence	Ch 14, 15	
Lecture 6	Dynamic Pricing	Ch 16	
—	<i>Midterm</i>		
Lecture 7	Bargaining Problems	Ch 18, 19	
Lecture 8	Hold-up, Options, and Ownership	Ch 21	
Lecture 9	Incomplete Information, Bayesian NE, Principle-Agent Problem	Ch 24, 25, 26	
Lecture 10	Auctions	Ch 27	
—	<i>Final Exam</i>		

### *I. Lecture 1A: Optimization method and review of monopoly.*

In this part, we will review analytical tools including one- and two- variables optimization, and especially the Lagrange method of solving a constrained optimization problem. we will also give a brief review on the topic of monopoly covered in Econ101.

***II. Lecture 1B, 2: Price discrimination, joint cost and merger.***

This will be the core part of this course. We will study various scenarios that a firm with a certain level of market power will be facing, and derive the firm's optimal action.

***III. Lecture 3, 4: Game theory and Nash Equilibrium***

Students will learn the basics on game theory, and use the game theoretic tools to analyze optimal pricing decisions in the presence of competitors. We will discuss the idea of Nash Equilibrium and its application in Cournot and Bertrand competition model.

***IV. Lecture 5, 6, 7, 8: Behavior in Dynamic Settings***

Students will learn the extension form and the notion of subgame perfect equilibrium. With these tools we will analyze the issues of dynamic pricing, bargaining between several parties, and hold-up problems.

***V. Lecture 9: Games with Incomplete Information.***

In this part, we will analyze games with incomplete information, with an Principle-Agent example. With this example we will discuss problems including signaling, adverse selection, screening and moral hazard.

***VI. Lecture 10: Auctions.***

Students will learn how to derive simple optimal bidding strategies and bidding functions, in different forms of Auctions. A real in-class auction will be conducted before and after the lecture to help students understand the theories.