Industrial Organization (ECON 235)
Spring 2014
Monday and Wednesday 2 – 3:30pm at Annenberg 111
Instructor: SangMok Lee

Course Logistics

Office hours: Tuesday 11am-1pm (McNeil 462)
Email: sangmok-at-sas.upenn.edu

Teaching Assistant: Naijia Guo
TA Office Hours: Thursday 1:30 – 3:30pm (555-557 McNeil)
TA Email: guonaija-at-sas.upenn.edu

- No Class on Mar 24. Instructor's office hours on Mar 25 will be changed to Mar 27.
- We will use Canvas for announcements, handouts, notes, homework assignments etc.

Course Description

Summary: Theories of various industrial organizational structures and problems are developed, including monopoly, oligopoly, nonlinear pricing and price discrimination. These theories are used to model various industries, antitrust cases, and regulatory issues.

Prerequisites: Econ 101 (Intermediate Micro Theory), Math 104 and either Math 114 or Math 115 (Calculus Part I and II). Econ 103(Statistics for Economists) is also recommended. Econ 212 (Game Theory) will be very useful.

Textbooks: A decent textbook is highly recommended, though not required.

Recommended textbook:
- *Industrial Organization: Contemporary Theory and Practice*, Thompson & South-Western, Fourth edition, by Pepall L., Richard D. and G. Norman.

Other suggested textbooks:
- *Modern Industrial Organization*: Harper/Collins, by D. Carlton and J. Perloff.
        *This book has many real applications and is (a bit too far) less technical than Pepall et al.
- *The Theory of Industrial Organization*: MIT Press 1988, by Jean Tirole.
        *This book is an advanced level textbook. Recommended only for students with very strong background in Mathematics.

Requirement and Grading Policy

1. **Grades**

Due/Exam dates

Three problem sets	3 x 10%	Feb 10, Mar 19, Apr 28
Two midterm exams	2 x 20%	Feb 17, Mar 31 (class time)
One final exam	1 x 30%	May 5 (9-11am)

2. **Midterm and Final examinations** will be *in-class* and *closed-book*. Collaboration on the examinations is prohibited.

3. **Assignments** will be given one-week prior to the due dates and will be due at the start of the lecture on the day they are due. You can submit in class, or electronic submission via email is also allowed. Collaboration on homework assignments is allowed and encouraged, but final solutions must be written independently. Each student should participate fully in solving each problem and understand the answer.

Topics to be covered (Subject to change)

I.   Market structure

1. Intro & Review. Technology and Costs. Perfect competition. Monopoly. Measuring market power.

2. Imperfect (oligopolistic) Competition. Introduction to game theory. Static games. Nash Equilibrium. Prisoner's dilemma. Cournot model. Bertrand model. Capacity constraints in price competition. Extensive form games. Subgame perfect equilibrium. Stackelberg model.

3. Cartels and collusion Multi-period ("dynamic") games. Repeated games and tacit collusion.

II.   Firm practices

1. Incumbent advantage. Incumbent advantage. Limit pricing and credibility. Dixit model of capacity investment.

2. Product differentiation. Product differentiation resolves Bertrand paradox. Spatial Competition. Pricing, Location and Entry.

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3. <u>Price discrimination.</u> Perfect, 2nd-degree, 3rd-degree price discrimination. Nonlinear pricing and bundling. Application: post-patent drug price anomaly.

4. <u>Vertical integration and vertical restraints.</u> Vertical Externalities (Double Marginalization, Downstream Moral Hazard). Vertical integration and vertical Restraints (Exclusive Territories, Tie-In, Resale Price Maintenance, etc.).

III.   Information economics

1. <u>Price dispersion and search.</u> Price dispersion for homogeneous products. Diamond paradox. Equilibrium price dispersion with costly search. Applications: online books, gasoline markets.

2. <u>Auctions.</u> Games of incomplete information. Bayesian equilibrium. First-price auctions, second-price auctions. Winner's curse. Applications: online auctions.

3. <u>Additional topics:</u> Dynamic models and market clearing. Patents.

Course Policies

1. Late assignments will not be accepted without either proper prior arrangement or a compelling and verifiable reason.

2. All hand written answers to exam questions should be legible. Anything that the TA or I cannot read or understand is wrong.

3. Assignments and exams will be returned to you during class. You are responsible for picking them up. Your exams will be scanned to deter cheating.

4. A request for a re-grade of a problem set or an exam must be submitted to me in writing within 1 week after the graded assignment has been returned. In such a case, I will reevaluate your complete homework set or exam.

5. If you miss a midterm exam, with a verifiable and justifiable reason, there will be a make-up oral exam.

6. If you have to miss the final exam, following the departmental policy, a make-up exam will be given in the designated make-up exam week (first week of the following semester).