15.013 — INDUSTRIAL ECONOMICS FOR STRATEGIC DECISIONS

FALL 2019

This subject is designed to provide a working knowledge of the analytical tools of economics that bear most directly on the strategic decisions that firms must make. The kinds of decisions that will be of interest to us include: setting prices and output levels; advertising; investments in new production capacity; the introduction of new products, brands, and quality variations; investments in R&D; and the use of patents. Throughout the course, our emphasis will be on market structure, its relationship with the way firms interact strategically, and its implications for market power. The analysis of market structure, strategic interactions among rival sellers, and strategies for entering an industry, or for deterring entry or controlling its impact, will be covered with a mix of theory and case material.

Students taking this course should have a good background in microeconomics — specifically, course 15.010 or its equivalent. In addition, some background in finance is strongly recommended.

No textbook will be assigned for the course, but a set of readings is available on the Canvas course site. These readings include my lecture notes, along with various articles and book chapters. In addition, we will assign a number of HBS cases, which can be obtained via StudyNet. (A link to StudyNet is on the 15.013 Canvas site.) Also, from time to time we will post additional readings on Canvas.

You will need to find a teammate, with whom you will work on two aspects of the course: the Strategic Oligopoly Game and the written exercises. (Your teammate should be in the same section of 15.013.) Grading in the course will be based on four different aspects of your performance:

- Classroom participation (27% of grade) — All students are expected to have read the assigned materials, to attend class, and to participate actively in class discussions.

- Strategic oligopoly game (15% of grade) — You and your teammate will compete weekly against two other (anonymous) firms in this semester-long game. You will be graded on your performance as measured by your cumulative profits, relative to the overall performance of both sections of 15.013, not relative to the performance of your industry.

- Exercises (28% of grade) — We will assign 8 written “exercises” over the semester. You are only required to turn in 7 of these exercises. (If you do all 8, we will drop the lowest grade.) You and your teammate will work on these exercises together. To receive credit, exercises must be submitted electronically, and on time.

- Final exam (30% of grade) — This will be an in-class exam. (Closed-book, but you can bring an 8.5 x 11” sheet of paper with notes, formulas, etc. on both sides.)
Class Attendance: You are expected to attend all classes, and to arrive in class promptly. You are also expected to have done the required reading and be prepared to participate actively in class discussion. I will begin most classes by “cold calling” on several students.

Laptop Computers and Phones: Given the importance of class participation, we ask that you do not open your laptop computer during class. There are only two exceptions to this rule: (1) presentations and discussions of exercises, where spreadsheets or other results are on your computer; (2) students with special needs (e.g., handwriting difficulties), who get permission in advance to use their computers. The same rules apply to iPads and phones. *As tempting as it might be to check your phone every 10 minutes, please turn it off and put it away during class.*

Group Work: You are expected to participate fully in any exercise or other assignment that has your name on it. It is absolutely unacceptable to “rotate” assignments with your teammate, or take credit for an assignment in which you were not fully involved.

Submission of Game Plays and Exercises: Your game play must be submitted every Monday before 5:00 pm. The game play and the exercises can be submitted using the links on Canvas.

**DATES TO REMEMBER**

*Monday, Sept. 9*  
Please submit via the template on Canvas a short (1- or 2-paragraph) “biography” describing your background and interests. Include a photograph, and the *phonetic spelling* of your name.

*Wednesday, Sept. 18*  
Exercise 1 is due.

*Monday, Sept. 23*  
Trial Play of Strategic Oligopoly Game. (Submit by 5:00 pm.)

*Monday, Sept. 30*  
First real play of Strategic Oligopoly Game. (Submit by 5:00 pm.)

*Wednesday, Oct. 9*  
NO CLASS, Yom Kippur.

*Monday, Oct. 14*  
NO CLASS, Columbus Day. However, game play is due at 5:00 pm.

*Monday, Oct. 21*  
NO CLASS, SIP week. However, game play is due at 5:00 pm.

*Wednesday, Oct. 23*  
NO CLASS, SIP week.

*Monday, Nov. 11*  
NO CLASS, Veterans Day. However, game play is due at 5:00 pm.

*Wednesday, Nov. 27*  
NO CLASS, Thanksgiving vacation.

*Monday, Dec. 2*  
Last play of Strategic Oligopoly Game.

*Monday, Dec. 9*  
FINAL EXAM (90 minutes, in-class).

*Wednesday, Dec. 11*  
Debriefing, and results of strategy game. Discussion of additional topics as time permits.
TENTATIVE OUTLINE

Sept 4  Wed  Introduction: Sources and Uses of Market Power. Overview of the course. Market structure, market power and the value of the firm. Strategic decisions that affect market structure and market power. Competing in the market versus competing for the market.

Sept 9  Mon  Intertemporal Production Constraints, Pricing, and Market Power. How the dynamics of cost affects pricing and market power. Production and pricing with a learning curve. The learning curve in the strategic oligopoly game. The production and pricing of depletable resources. Effects of uncertainty over future market conditions. The option value of oil reserves. Why are oil prices so volatile? Can we predict oil prices?

Read:  R. Pindyck & D. Rubinfeld, Microeconomics, Section 15.8.
Lecture Notes on Intertemporal Production and Pricing, Sections 1-5.

Turn in brief biography and photo via Canvas/Google form.
Be prepared to answer questions on learning curve and oil well problem.


Read:  R. Pindyck & D. Rubinfeld, Microeconomics, Section 11.6.
Lecture Notes on Market Definition, Concentration, and Advertising.
Readings on beer.

Be prepared to answer questions on the beer industry.
Hand in choice of game and exercise partner.


Read:  Notes on Internet Economics and Internet Music.

Read: “Spotify.” [HBS Case #9-516-046]
Lecture Notes on Pricing, Section 2.

Exercise 1 due.


Read: “WebMD (A).” [HBS Case #9-701-007]
“WebMD (B).” [HBS Case #9-701-133]
Readings on WebMD.

Trial play of Strategic Oligopoly Game. Submit by 5:00 pm.


Read: Lecture Notes on Vertical Structure, Sections 1, 3 and 4.
Pindyck & Rubinfeld, Microeconomics, Review Section 11.4.

Exercise 2 due.


Read: Lecture Notes on Game Theory, Sections 1—6.

First real play of Strategic Oligopoly Game. Submit by 5:00 pm.


Exercise 3 due.


Read: Lecture Notes on Entry and Reaction to Entry.

Oct 9       Wed    NO CLASS (Yom Kippur).

Oct 14      Mon    NO CLASS (Columbus Day). However, game play is due by 5:00 pm.

Oct 16      Wed    Entry Decisions under Uncertainty. Analyzing and predicting the behavior of new entrants. Learning from an entrant. The option to invest and the value of waiting. The disposable diaper industry. The importance of process R&D. Diapers as an “experience good.” Consumer-driven price discrimination. Should Kao invest early in premium diapers?

Read: Pindyck & Rubinfeld, Microeconomics, Examples 13.6 and 15.4. “Kao Corporation.” [HBS Case #9-591-012]

Exercise 4 due.

Oct 21      Mon    NO CLASS. (SIP week.)

Oct 23      Wed    NO CLASS. (SIP week.)
**Oct 28**  
*Mon*  

Read: “Boeing 787: Manufacturing a Dream.” [HBS Case #9-615-048]  
Readings on Commercial Aircraft Industry.

*Exercise 5 due.*

**Oct 30**  
*Wed*  

Read:  
Pindyck & Rubinfeld, *Microeconomics*, review Section 11.5.  
Lecture Notes on Bundling and Brand Proliferation, Sections 1-2.  
Lecture Notes on Pricing, Section 3.

**Nov 4**  
*Mon*  
Brand Proliferation. Discussion of attribute space and its use in economic analysis. Local competition among brands in attribute space. Choosing the attributes for new brands. Brand proliferation, entry deterrence, and market power. Analysis of the breakfast cereal industry.

Read:  
Lecture Notes on Bundling and Brand Proliferation (complete).

**Nov 6**  
*Wed*  

Read:  
Lecture Notes on Network Externalities.  
Lecture Notes on Pricing, Section 4.  
“Philips’ Compact Disk Introduction (A).” [HBS Case #9-792-035]

*Exercise 6 due.*
Nov 11  Mon  NO CLASS (Veterans Day holiday).

However, play of strategic oligopoly game is due by 5:00 pm.


“Fasten: Challenging Uber and Lyft with a New Business Model.” [HBS Case # 9-616-062]
Lecture Notes on Multi-Sided Platforms, Section 1.


Lecture Notes on Multi-Sided Platforms, Section 2.

Exercise 7 due.


Read:  “Apple Pay.” [HBS Case # 8-516-027]


Read:  Lecture Notes on R&D and Patent Licensing.
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| Dec 2  | Mon  | **R&D, Patenting, and Licensing (continued).** Continued discussion of R&D and patent licensing decisions. Licensing to raise prices vs. licensing to lower prices. Licensing to become the standard: Intel in computer processors. Complementary patents: cross-licensing versus the formation of “patent pools.” IP blocks and Systems-on-a-Chip.  
Read: Lecture Notes on R&D and Patent Licensing.  
| Dec 4  | Wed  | **R&D, Patenting, and Licensing (continued).** Completion of material on R&D and patent licensing decisions. The use of patent portfolios to deter entry. Patent “trolls” and other intermediaries. Can regulation deter “trolls?”  
| Dec 9  | Mon  | **FINAL EXAM.** (Closed-book, but you can bring an 8.5 x 11” sheet of paper with notes, formulas, etc. on both sides.) |
| Dec 11 | Wed  | **Wrap-Up Class.** Results of strategic oligopoly game – meet your competitors!  
General discussion of topics related to course. |