15.013 — ECONOMICS FOR STRATEGIC DECISIONS

FALL 2022

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; competition among platforms; 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, I will be using financial concepts (e.g., risk-adjusted discount rates, option pricing), so some background in finance is strongly recommended.

No textbook will be assigned, 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:

- **Class 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 7 written “exercises” over the semester. 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 prepare and bring an 8.5 x 11" sheet of paper with notes, formulas, etc. on both sides.)
Class Attendance and Participation: 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 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 rule applies 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.

**IMPORTANT DATES**

*Monday, Sept. 12*  
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. 21*  
Exercise 1 is due.

*Monday, Sept. 26*  
Trial play of Strategic Oligopoly Game. (Submit by 5:00 pm.)

*Monday, Oct. 3*  
First real play of Strategic Oligopoly Game. (Submit by 5:00 pm.)

*Wednesday, Oct. 5*  
NO CLASS, Yom Kippur.

*Monday, Oct. 10*  
NO CLASS, MIT Holiday. However, game play is due at 5:00 pm.

*Monday, Oct. 24*  
NO CLASS, SIP week. However, game play is due at 5:00 pm.

*Wednesday, Oct. 26*  
NO CLASS, SIP week.

*Wednesday, Nov. 23*  
NO CLASS, Thanksgiving vacation.

*Monday, Dec. 5*  
Last play of Strategic Oligopoly Game.

*Monday, Dec. 12*  
FINAL EXAM (90 minutes, in-class).

*Wednesday, Dec. 14*  
Wrap-up class. Debriefing and results of strategy game. Discussion of additional material as time permits.
TENTATIVE OUTLINE

**Sept 7  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.


Lecture Notes on Market Definition, Concentration, and Advertising.

Be prepared to answer questions on the beer industry.
*Turn in brief biography and photo via Canvas/Google form.*

**Sept 14  Wed** Intertemporal Production Constraints: The Oil Market. How the dynamics of cost affects pricing and market power. Production and pricing with a learning curve. The production and pricing of depletable resources. Some basics of oil exploration, development, and production. Effects of uncertainty over future market conditions. The option value of oil reserves. Why are oil prices so volatile? Can we predict oil prices?

Lecture Notes on Intertemporal Production and Pricing, Sections 1-5.

Be prepared to answer questions on learning curve and oil well problem.


Read:  Notes on Internet Economics and Internet Music.
**Sept 21  Wed**  

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

*Exercise 1 due.*

**Sept 26  Mon**  
**Market Structure and Evolution: Information and Industry Transformation.** How does the greater availability of information affect industry structure? Can the Internet transform the medical industry? Asymmetric information in the medical industry. Analysis of WebMD. What went wrong, and what would you have done? The failure of Google Health. Predicting “the next big thing.”

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.*

**Sept 28  Wed**  

Read:  
Lecture Notes on Vertical Structure, Sections 1, 3 and 4.  

*Exercise 2 due.*

**Oct 3  Mon**  

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

*First real play of Strategic Oligopoly Game. Submit by 5:00 pm.*
Oct 5 Wed  NO CLASS (Yom Kippur).

Oct 10 Mon  NO CLASS – MIT HOLIDAY

*However, play of Strategic Oligopoly Game is due by 5:00 pm.*


*Exercise 3 due.*


Read:  Lecture Notes on Entry and Reaction to Entry.  “McKinsey’s Partners Suffer from Collective Self-Delusion.”

Oct 19 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 in the U.S. and Japan.  The importance of process R&D.  Diapers as an “experience good.”  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 24 Mon  NO CLASS. (SIP week.)

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

Oct 26 Wed  NO CLASS. (SIP week.)

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 2 Wed  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).


Exercise 5 due.


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“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 6 due.* |


| Nov 23 Wed | NO CLASS (Thanksgiving Vacation). |


Read: Lecture Notes on R&D and Patent Licensing.

Exercise 7 due.


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

Dec 7  Wed  Climate (and other) Catastrophes. The economics of climate change. What we know and don’t know about climate change, why we don’t know certain things, and the implications for policy. Other potential catastrophes: pandemics, nuclear and bio-terrorism, cyber-war, and more. Business decisions in a world of economic fragility.

Read: R. Pindyck, “What We Know and Don’t Know about Climate Change, and Implications for Policy,” Environmental and Energy Policy and the Economy, 2021.

Dec 12  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 14  Wed  Wrap-Up Class. Results of strategic oligopoly game – meet your competitors! General discussion of topics related to course.