

Northwestern | Kellogg

MECN 430-0 Microeconomic Analysis Winter 2018

Professor **Georgy Egorov**
Office: KGH 3141
E-mail: g-egorov@kellogg.northwestern.edu

NOTE: THIS SYLLABUS IS TENTATIVE

Course Overview

What trends in future prices can you expect for a particular good? Should you increase, or perhaps decrease your production capacity? How should you price a good for which you have market power? Should you expect government to intervene in or regulate your industry? If you change the price of a good, how should you anticipate your competitors will respond to your action -- and how should you respond to their actions? All of these questions are informed by economic analysis. This course will enhance your understanding of important economic models while examining their implications for pricing, price leadership, capacity management, market entry and exit, and other key business strategies. Importantly, we will see that competition is fundamental to understanding why markets may function well, and hence business strategy must anticipate the existence and actions of potential competitors in order to create and capture value. We will also understand when to expect governments to intervene in markets because markets fail or because the government had been persuaded to intervene by some key stakeholder. Businesses require the ability to understand, forecast and influence government intervention in their industry. More specifically, by the time you complete this course:

1. You will learn how to construct fact-based, logically grounded *analysis of major strategic bets in hypercompetitive markets*. We will develop the concepts of *short-run and long-run supply curves* and relate them to costs.

- This will allow you to make educated conjectures about the path of prices in such markets, predict the range and magnitude of price fluctuations, and conduct financial evaluation of strategic decisions such as capacity expansion or new market entry.
2. You will learn how to **identify the costs categories** that are relevant for critical business decisions such as supply, capacity abandonment and exit, and new market entry.
 - The typical costs of a business fall into numerous categories, and mistakes in identifying which of these categories truly matter for a decision at hand can lead to outcomes that impair a business's competitiveness and destroy profitability.
 3. You will learn the basics of **game theory**: how to represent strategic interactions between firms in markets as games and how to predict the outcome of such games using Nash equilibrium.
 - We will use game theory to understand strategic moves key industry players can execute to change the nature of their industry and create win-win environments via **price leadership**.
 - Sometimes an industry will be win-lose and we will use game theory to study how to win in those settings.
 4. You will learn how the interplay between cost and demand fundamentals **determines profit-maximizing pricing decisions**.
 - Pricing is one of the most important business decisions and an understanding of the role of economic fundamentals can translate directly into more profitable pricing decisions.
 5. You will learn when markets fail.
 - We will define and explore the key concept of **externalities** and study how it underlies everything from global warming to national defense to technology adoption. We will study how business strategy in such environments can influence the evolution of the entire market and create and capture significant value.
 - We will define and explore the key concept of **adverse selection**. Healthcare and finance are key sectors of the economy where markets can fail because of adverse selection. You will understand how **cream-skimming** can capture value
 6. You will be able to understand and even forecast how **government interventions** help shape prices and the distribution of value in competitive markets.
 - We will learn that **taxes and subsidies** can be used to increase total value from trade when there are market failures. You will get some insight into how and why a government might intervene in your industry.
 - You will also learn that there is **government failure** and government intervention can reduce value and create winners and losers. This can help you spot opportunities for using institutions in the non-market environment of your business to capture additional value or prevent the capture of value at your expense by others.

Weekly Class Preparation

The material to be prepared each week is detailed in the tentative course outline below. **Each assignment is required, unless explicitly described as “optional.”** There are several categories; each category requires a different type of preparation, as follows:

Team and Individual Homework Assignments

A written answer is required to be submitted **on Canvas prior to the beginning of class in which the homework is due**. The assignments are graded within a week after they are collected. When no homework or exercises appear in a given session then none are required.

Cases

You are required to prepare all cases covered in this course. Most cases are preceded by a set of discussion questions that should guide you in your preparation.

Current Affairs

You will see that I really enjoy talking about economically-relevant current events in class. I will try as much as possible to discuss current and recent events. Some of the recent articles are in the syllabus, and I will add more as the quarter goes on. If you have materials that may be worth discussing, from the media or from your own experience, please send them to me!

Kellogg Honor and Etiquette Codes

The Honor Code requires that a student not seek an unfair advantage over other students, including but not limited to giving or receiving unauthorized aid during completion of academic requirements; to truthfully represent fact and self at all times; and to respect the property and personal rights of all members of the Kellogg community. I will interpret the honor code in the following ways in this course.

Exams: You may study for exams with others. However, once the exam has begun, you should have absolutely no communication about the exam with anyone inside or outside the class. You will be allowed to bring in one 8.5 x 11 inch, double-sided sheet of notes to the midterm. You may bring an additional such sheet to the final.

Homework: Some assignments are individual and must be completed without help from others. Others are group assignments and must be done with members of your group only. Do not consult with others who have already taken the course or use their submissions.

If you have questions about whether behavior is within the bounds of honorable behavior, please ask. The watchword should be: when in doubt, ask.

The Etiquette Code: Students are expected to respect Kellogg’s Code of Student Etiquette at all times.

- **No electronics.** You may not use **laptops, mobile phones, tablets,** or related devices in class unless directed to do so. It is distracting to your classmates to sit beside or behind you while you surf, text, or game.
- **Punctuality and Behavior.** Class will start on time. It is distracting to your classmates for you to be climbing to your seat and settling in while they are trying to pay attention to the class. If you are absent or late more than twice, it will reduce your class participation grade. Also, *leaving then returning during class is disruptive* and should occur only in emergencies.
- **Seating chart.** Your assigned seat for the quarter will be the seat you choose for the second class session. I use assigned seats to help me keep track of class discussion, and also to have a place to direct prospective students and visitors to sit.
- **Beverages and snacks.** You are welcome to bring something to drink to class. Don't bring food into class.

Course Materials

1. **Canvas:** All readings, required and optional (with the exception of the optional textbook) will be made available on Canvas. The same is true about some videos. Slides will also be made available after the class.
2. **Optional Textbook:** Besanko, David and Ronald R. Braeutigam, *Microeconomics: An Integrated Approach*, New York, John Wiley & Sons, 2007, **third edition** (hereinafter B & B). This book relies on more knowledge on math than what I plan to require. Thus, if having more math would help you understand the material, you are welcome to consult the book; otherwise the book would not be helpful.

There are newer fourth and fifth editions but they are expensive and the new material is not relevant for the course. If you want a textbook, you should buy a used third edition from, say, Amazon: http://www.amazon.com/gp/offer-listing/0470049243/ref=sr_1_1_olp?ie=UTF8&qid=1320685145&sr=8-1&condition=used
All references below relate to the third edition but feel free to ask if you want help mapping into the relevant material in the edition you have.

There is also an online textbook that may be useful:

<http://www.kellogg.northwestern.edu/faculty/dale/icav21.pdf>

Attendance and Class Participation

Attendance, preparation, and participation are expected and represent an essential component of the learning experience in this course. I evaluate class participation based on the *quality of participation*, not its “quantity.” You should provide insights, observations, inferences, or conclusions that not only express your viewpoint, but also defend your analysis. Your comments should be relevant to the topic at hand, and should advance the discussion. A simple opinion or viewpoint is not very valuable without any justification. I value comments that respond to, elaborate

on, lend support to, contradict, or correct a comment by one of your classmates. Counter-productive comments include opinions without a justifying argument, pure repetition of previous points, class interruptions that do not advance the discussion and rambling, vacuous or disparaging comments.

I will cold call in class, both to give you an incentive to prepare for class, and to make sure the discussion does not collapse to a handful of students. At a minimum, everyone in class should be prepared to answer all of the preparation questions handed out in advance.

Missing class: Class attendance not only provides an opportunity to participate in the discussion but to learn fundamental material. **If you miss class or are late more than twice, it will lower your class participation grade.** (Kellogg provides exceptions for religious holidays, funeral attendance, and student/dependent hospitalization.) If you must miss class, you should do the readings, prepare, and turn in the assignments on time (late assignments will not be accepted), and arrange to get notes from a friend about what you missed in class. I will post the presentation slides on the course page on Canvas following each lecture. Excessive absences will affect your final grade even more dramatically.

Grading Components and Guidelines

Course score before adjustments:

This score is based on the following components:

1. In-class midterm exam, 40%
2. In-class final examination, 50%;
3. Homework assignments, 10%.

The result is your *course score before adjustments*.

For each student the higher of two scores is used in the final course grade:

1. The score based on the percentages above; and
2. The score with the same weights for homework, but where the final exam counts for 90% and the midterm carries no weight.

This means that the midterm will count only if it can help improve your overall position.

Class participation adjustment: Based on contributions to class discussion, the grade may be adjusted to reflect class participation.

Adjusted course score: I will take the score before adjustment and add to it participation adjustments to obtain the adjusted course score. Your final letter-grade in this course will be based on this adjusted score.

Midterm and Final Exams

Midterm: Tuesday, February 13, 2018 (in class)

Final: Administered by Student Affairs during the exam week

IMPORTANT:

The *mid-term* will not be offered at any other time and for any reason other than a documented medical condition. No exceptions are made for any other reasons.

The *final exam* will be given during the Winter Quarter 2018 Final Exam Period, which runs from the morning of Saturday, March 17 through the afternoon of Tuesday, March 20. The precise date(s)/time(s) for the final exam will be determined in the first few weeks of the Winter Quarter. **All students should plan on taking the final exam during the six-day exam period.** Any students with concerns regarding this policy should contact Assistant Dean Lesley Kagan Wynes.

How to study for this course

This course aims to give you a fundamental understanding of microeconomics and to apply this knowledge to business decision-making. We do this by introducing new material every week with associated homework assignments. You need to pay constant attention to understand the key ideas and get the most from the course. Here is my advice on how to do this:

Come to class prepared. Read the cases and attempt the exercises before class.

Engage in class discussion. In terms of participation, everyone is different. Regardless, engaging means both listening critically to what other people are saying in order to evaluate whether you think their arguments are right, and speaking up when you think you have something to contribute.

Practice. When you read the newspaper or see interesting articles on the web, use the fundamental microeconomics you are learning to understand the issues at a deeper level and come up with your own critical ideas (and feel free to discuss those with me). The homework assignments will also help you to do this. They will also prepare you for the exams so you should take them very seriously. Before exams, extra practice problems will be posted on Canvas and you should do them too.

Course Outline

WEEK 1: Introduction. Why markets?

Class 1a: January 9 (Tuesday)

Introduction

- Syllabus, pages 1-6.

Price forecasting: oil

- *Oil market trends are setting the foundation for higher crude prices, Schlumberger says* (CNBC, 10/20/17)
- *IEA: Oil prices to hit a ceiling in 2018* (USA Today, 10/16/17)

Damaged goods: Tesla

- *Tesla flips a switch to increase the range of some cars in Florida to help people evacuate* (Techcrunch.com, 9/9/17)
- *Denmark Is Killing Tesla (and Other Electric Cars)* (Bloomberg, 6/1/17)

Class 1b: January 12 (Friday)

Marketplace: experiment

- To be distributed in class

Free markets

- (Optional) Besanko, D., “Note on Economic Profit,” Kellogg School of Management.
- (Optional) B & B, Chapter 2, Section 2.1 up to Shifts in Supply or Demand; Chapter 10, section 10.1 up to Excise Taxes).

Consumer and producer surplus

- Al-Najjar, N.I. and D. Besanko, “Note on Consumer Surplus,” Kellogg School of Management.
- Besanko, D., “Note on Producer Surplus,” Kellogg School of Management.

Fairness and social responsibility

- *Uber’s ‘surge pricing’ may benefit both riders and drivers* (ConsumerAffairs, 1/3/17)
- *The pharma price-gouging scandal* (Moneyweek, 12/26/16)
- *In Iran anyone can sell their kidney for thousands of dollars* (Business Insider, 8/26/16)
- *All French citizens are now organ donors unless they opt out* (Independent, 1/4/17)
- (Optional) *Paying to Get Inside the Restaurant* (The Atlantic, May 2015)

WEEK 2: Free markets: supply, demand, and short-run equilibrium

Class 2a: January 16 (Tuesday): Short-run supply

Aluminum: a competitive industry

- Case: Besanko, D. and A. Copelevitz, “Capacity Expansion in the Global Aluminum Industry, 2006”.
- *How Caterpillar's Big Bet Backfired* (WSJ, 10/17/16)

Cost types and relevant costs

- Baliga, S. and N. Persico, “Note on the Microeconomics of Cost,” Kellogg School of Management.

Short-run supply

- (Optional) B & B, Sections 9.1, 9.2.

Class 2b: January 19 (Friday): Demand and short-run equilibrium

Demand curve and elasticities

- (Optional) B & B, Sections 2.2 – 2.4.

Short-run equilibrium: price and market size

- (Optional) B & B, Section 9.3.

WEEK 3: Free markets: long-run equilibrium and industry dynamics

Class 3a: January 23 (Tuesday): Long-run equilibrium

Homework 1 (individual) due before class

- Homework on Canvas

Entry and exit decisions

- *Alcoa to Permanently Close Suriname Alumina Refinery and Bauxite Mines* (WSJ, 1/3/17)
- (Optional) B & B, Section 9.4.

Long-run equilibrium

- (Optional) B & B, Section 9.4.
- (Optional) *China's Hunger for Commodities Wanes, and Pain Spreads Among Producers* (NYT, 1/9/16)

Class 3b: January 26 (Friday): Industry dynamics

In-class exercise: understanding industry dynamics

- To be distributed in class

Capacity control

- *Supermines Add to Supply Glut of Metals* (WSJ, 1/4/16)

Industry dynamics in expanding and dying industries

- (Optional) *Oil Replays 1980s Bust* (WSJ, 1/13/15)
- (Optional) *OPEC unsure how it can 'live together' with shale oil* (Bloomberg, 2/22/16)
- (Optional) B & B, Section 9.4.

WEEK 4: Market power: pricing

Class 4a: January 30 (Tuesday): Monopoly pricing

Homework 2 (group) due before class

- Homework on Canvas

Why monopolies arise

- *How Much Does Data Really Cost an ISP* (Broadbandnow, 6/23/16)
- *China eases state monopoly on salt market overhauling 2000 year old system* (Telegraph, 1/3/17)
- (Optional) B & B, Section 11.6.

Price setting: marginal revenue and dilution effect

- (Optional) B & B, Sections 11.1 – 11.3.

Margin rule

- (Optional) B & B, Section 11.2.
- (Optional) *Thinking twice about price* (Economist, 7/23/13)

Class 4b: February 2 (Friday): Making pricing decisions in practice

How to use (and how not to use) margin rule

- (Optional) B & B, Section 11.2.
- (Optional) Using big data to make better pricing decisions (McKinsey, 2014)

Loss leadership

- *Exclusive: Amazon's \$79 Kindle Costs \$84 to Make* (TheStreet.com, 11/9/11)

Welfare effects of monopolies and regulation

- *Drugs For Rare Diseases Have Become Uncommonly Rich Monopolies* (NPR, 1/17/17)
- (Optional) B & B, Section 11.5.

WEEK 5: Market power: price customization

Class 5a: February 6 (Tuesday): Setting multiple prices

Homework 3 (individual) due before class

- Homework on Canvas

Price customization and unlocking profits

- (Optional) B & B, Chapter 12, Sections 12.1 – 12.5

Price customization challenge: segmentation

- (Optional) B & B, Section 12.4.
- (Optional) Big Data and Differential Pricing (Executive Office of the President of the United States, February 2015)

Class 5b: February 9 (Friday): Price customization challenge

Price customization challenge: identification

- *Can shopping online make you a victim of price discrimination* (CBSNews, 1/9/17)

Price customization challenge: computation

- *Seeking Perfect Prices, CEO Tears Up the Rules* (WSJ, 3/27/7)

Price customization challenge: implementation

- *Airline Fare Riddle One Route Two Prices* (WSJ, 1/7/15)

Versioning and damaged goods

- *10 ways monopoly airlines use calculated misery* (Alternet.org, 9/26/15)
- (Optional) B & B, Section 12.4.

WEEK 6: MIDTERM – and more on price customization

Class 6a: February 13 (Tuesday): MIDTERM

In-class midterm

Class 6b: February 16 (Friday): Price customization strategies

Two-part tariffs

- (Optional) B & B, Section 12.3.

Bundling

- (Optional) B & B, Section 12.5.

Coupons

- (Optional) B & B, Section 12.4.

WEEK 7: Price competition

Class 7a: February 20 (Tuesday): Price competition and game theory

Price competition: experiment

- Al-Najjar, N.I., “Experiment on Price Competition,” Kellogg School of Management (*to be passed out in class*).

Introduction to game theory

- *Schwab just fired the latest shot in the passive investing price war* (CNBC, 2/2/17)

Reaction functions, best responses, and Nash equilibrium

- (Optional) B & B, Sections 13.1 – 13.2 and 13.4.

Class 7b: February 23 (Friday): Getting around price competition: cooperative strategies

Repeated games

- *Uber drivers gang up to cause surge pricing, research says* (Telegraph, 8/2/17)
- (Optional) B & B, Section 14.2.

Price leadership

- Case: Baliga S. and N. Persico, “Budorona”, Kellogg School of Management, 2013.

- *Netflix's biggest competitor? Sleep* (Guardian, 4/18/17)

Mergers and antitrust

- TBD

WEEK 8: Price competition (continued). Externalities

Class 8a: February 27 (Tuesday): Price competition: strategies

Homework 4 (individual) due before class

- Homework on Canvas

Price transparency and price obfuscation, search costs

- TBD

Capacity games

- (Optional) B & B, Section 13.2.

Cost cutting with strongly and weakly differentiated products

- (Optional) Besen, S. and J. Farrell (Spring 1994). Choosing How to Compete: Strategies and Tactics in Standardization. *Journal of Economic Perspectives*.
- (Optional) B&B, Sections 13.2 and 13.4.

Class 8b: March 2 (Friday): Externalities

Experiment: commuting game

- To be distributed in class

Externalities

- Besanko, D. and J. Horner, "London's Congestion Charge" Kellogg School of Management

Solving the problem of externalities

- (Optional) B & B, Sections 17.1 and 17.2.

WEEK 9: Network effects. Government intervention

Class 9a: March 6 (Tuesday): Markets with network externalities

Homework 5 (group) due before class

- Homework on Canvas

Network effects. Creating/killing inertia/momentum

- *The New Copycats: How Facebook Squashes Competition From Startups* (WSJ, 8/9/17)
- (Optional) *Leaked Lyft Financials Show the Struggles of Being No 2 Behind Uber* (Bloomberg, 11/18/15)

Subsidizing early adopters

- *How to Launch Your Digital Platform* (HBR, April 2015)
- (Optional) *Strategies for Two-Sided Markets* (HBR, October 2006)

Class 9b: March 9 (Friday): Government interventions

Government interventions and redistribution

- Case: Besanko, D. and J. Horner, “The Economic Impact of U.S. Cotton Subsidies,” Kellogg School of Management.
- Cotton subsidies: video (on Canvas)

Why governments intervene

- *Farm Subsidies: Milking Taxpayers* (Economist, 2/14/15)
- (Optional) B & B, Section 17.3.

WEEK 10: Markets and information

Class 10a: March 13 (Tuesday): Markets with information externalities

Adverse selection

- S. Baliga, “Notes on Adverse Selection.”
- (Optional) B & B, Section 15.3.

Strategies for the informed. Signaling

- TBD

Strategies for the uninformed. Cream skimming

- *Employers Fear GOP Health Overhaul Could Damage Job-Based Insurance* (NPR, 2/3/17)

- (Optional) *Outrage of the Month: Health Care Insurers Find Creative New Way to Discriminate Against Sick Patients by Increasing Drug Costs* (HuffingtonPost, 2/26/15)

Class 10b: March 16 (Friday): Summary

Summary of the class

- Optional Al-Najjar, N, and D. Besanko, “The California Power Crisis,” Kellogg School of Management.