

Northwestern | Kellogg

MECN 430-0 Microeconomic Analysis Winter 2020

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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 would 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 was 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 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.
 4. 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***.
 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.
 - 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:

Individual or Group Homework Assignments

A written answer is required to be submitted **on Canvas prior to the beginning of class in which the homework is due**. Acceptable formats are Word (doc, docx) and Acrobat (pdf). If the assignment is done by other means (handwritten, Excel), please scan and/or convert to pdf. When no homework or exercises appear in a given session then none are required.

Solutions will be made available on Canvas at 3pm on the day the assignment is due, and grades and comments will be posted on Canvas within a week.

Readings, largely based on current or very recent events

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! Note: these materials are subject to change, even as the quarter progresses!

I understand that with recruiting going on, keeping on track with the syllabus and the course progress may be challenging. As a way to address it, I will be posting weekly announcements on Canvas covering how to prepare to the upcoming week. They will mention briefly what we have covered and where we are going and remind you of the assignments. They will also mention the readings that we will discuss in the class in the upcoming week, and how to prepare for such discussion.

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.** I ask you to choose your seat before the first class and keep it throughout the quarter. I use assigned seats to help me keep track of attendance, 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 from time to time, 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. Participation is especially likely to affect your grade in borderline cases.

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 11, 2020 (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. Remember that the midterm is optional, and if you miss it, your grade will be determined by the final (and the homeworks)

The *final exam* will be given during the Winter Quarter 2020 Final Exam Period. **All students should plan on taking the final exam during the 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 7 (Tuesday): Introduction and marketplace experiment

Introduction

- Syllabus, pages 1-6
- *Amazon gets an edge with its secret squad of PhD economists* (CNN Business, 2/13/19)

Marketplace: experiment

Class 1b: January 10 (Friday): Markets

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)
- (Optional) *The compassionate logic of pricing human life* (Bloomberg, 9/10/19)

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

- *Wringing cash from life insurance* (NYT, 10/13/17)
- (Optional) *All French citizens are now organ donors unless they opt out* (Independent, 1/4/17)

WEEK 2: Hypercompetitive markets. Business strategy in the short run

Class 2a: January 14 (Tuesday): Cost fundamentals and short run supply

Cost categories and relevant costs

- *Is the post office making or losing money delivering Amazon packages?* (Washington Post, 4/4/18)
- Baliga, S. and N. Persico, “Note on the Microeconomics of Cost,” Kellogg School of Management
- (Optional) *FedEx to end ground deliveries for Amazon* (WSJ, 8/7/19)

Short-run supply

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

Class 2b: January 17 (Friday): Demand and short-run equilibrium

Demand curve and elasticity

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

Short-run equilibrium: price and market size

- (Optional) B & B, Section 9.3

Supply and demand shocks. Reaction of the market

- *British Airways strike sees fares rise by up to 2,100%* (CNN, 9/9/19)
- (Optional) *U.S. steel to idle two furnaces as demand falls* (WSJ, 6/18/19)

WEEK 3: Hypercompetitive markets. Business strategy in the long run. **Industry dynamics**

Class 3a: January 21 (Tuesday): Long-run equilibrium

Homework 1 (individual) due before class

- Homework on Canvas

Entry and exit in competitive markets

- *What the price of Iberian ham tells us about Spain's economy* (WSJ, 2/18/18)

Aluminum: a competitive industry

- Case: Besanko, D. and A. Copelevitz, "Capacity Expansion in the Global Aluminum Industry, 2006," Kellogg School of Management

Long-run equilibrium and price predictions

- (Optional) B & B, Section 9.4

Class 3b: January 24 (Friday): Industry dynamics

Understanding industry dynamics: in-class exercise

Industry dynamics: Examples of specific industries

- *Shale boom is slowing just when the world needs oil most* (WSJ, 9/29/19)
- *Frackers prepare to pull back, exacerbating a slowdown in U.S. oil growth* (WSJ, 11/11/19)
- *U.S. Oil's growth challenges investors* (WSJ, 11/10/19)

- (Optional) *California's legal weed profits going up in smoke* (CBS News, 10/24/19)

WEEK 4: Market power: pricing

Class 4a: January 28 (Tuesday): Pricing with market power

Homework 2 (group) due before class

- Homework on Canvas

Price setting: marginal revenue and marginal cost

- *Cartier owner destroys more than £400m of watches in two years* (Guardian, 5/18/18)
- (Optional) B & B, Sections 11.1 – 11.3
- (Optional) B & B, Section 11.6

Margin rule and elasticity of demand

- *Exclusive: Data show Trump's DC hotel was pricier and emptier than peers in 2017* (CNN, 1/27/18)
- (Optional) B & B, Section 11.2

Class 4b: January 31 (Friday): Market power and business decisions

Loss leadership

- (Optional) *Exclusive: Amazon's internal numbers on Prime Video, revealed* (Reuters, 3/15/18)
- (Optional) *Exclusive: Amazon's \$79 Kindle costs \$84 to make* (TheStreet.com, 11/9/11)

Entry and exit decisions

- (Optional) *Google is shutting down Google+ for consumers following security lapse* (The Verge, 10/8/18)

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 4 (Tuesday): Price customization

Homework 3 (individual) due before class

- Homework on Canvas

Price customization challenges: arbitrage and incentives

- *Seeking perfect prices, CEO tears up the rules* (WSJ, 3/27/7)
- (Optional) B & B, Chapter 12, Sections 12.1 – 12.5

Market segments and price customization

- (Optional) *Burberry to stop burning clothing and other goods it can't sell* (NYT, 9/6/2018)
- (Optional) *After years of testing, the Wall Street Journal has built a paywall that bends to the individual reader* (NiemanLab, 2/22/18)
- (Optional) *Big data and differential pricing* (Executive Office of the President of the United States, February 2015)

Versioning and pricing

- (Optional) B & B, Section 12.4

Product design. Damaged goods

- *Tesla hikes prices as it makes autopilot a standard feature on most cars* (CNN, 4/12/19)

Class 5b: February 7 (Friday): Price customization strategies

Coupons and sales

- (Optional) B & B, Section 12.4

Bundling

- (Optional) *AT&T eyes \$16- to \$17-a-month streaming service in strategy shift* (WSJ, 6/6/19)
- (Optional) B & B, Section 12.5

Subscription fees

- (Optional) *MoviePass will limit customers to three movies per month* (CNN, 8/6/18)
- (Optional) B & B, Section 12.3

WEEK 6: MIDTERM – and price competition

Class 6a: February 11 (Tuesday): MIDTERM

In-class midterm

Class 6b: February 14 (Friday): Price competition

Price competition: experiment

Reaction functions

- (Optional) *Supreme Court rules states can require online retailers to collect sales tax* (WSJ, 6/21/18)

Product differentiation and cost management

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

WEEK 7: Price competition with weakly differentiated products

Class 7a: February 18 (Tuesday): Price competition and game theory

Introduction to game theory: concepts

- (Optional) B & B, Section 14.1

Best responses, dominant strategies, Nash equilibrium

- (Optional) *Apple may steal Netflix streaming crown, but only for a year* (Reuters, 9/11/19)

Class 7b: February 21 (Friday): Price leadership

Repeated games

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

Price leadership and price matching

- (Optional) *Justice department investigates chicken industry* (WSJ, 6/25/19)
- Case: Baliga S. and N. Persico, “Budorona”, Kellogg School of Management, 2013
- *Bud's Super Bowl ad threatens to derail beer alliance* (WSJ, 2/24/19)
- *Netflix's biggest competitor? Sleep* (Guardian, 4/18/17)

WEEK 8: Price competition (continued). Externalities

Class 8a: February 25 (Tuesday): Price competition: changing the game

Homework 4 (individual) due before class

- Homework on Canvas

Price transparency and price obfuscation. Search costs

- (Optional) *The secret other reason basic economy is everywhere* (WSJ, 4/4/18)

Mergers and antitrust

- (Optional) Miller, N., and M. Weinberg. *Understanding the price effects of the MillerCoors joint venture* (Econometrica, 85(6): 1763-1791, November 2017)

Capacity games

- *Supermines add to supply glut of metals* (WSJ, 1/4/16)
- (Optional) B & B, Section 13.2

Class 8b: February 28 (Friday): Externalities

Commuting game: experiment

Externalities

- (Optional) *Reckonings; Microsoft: what next* (NYT, 4/26/00)

Solving the problem: contracts and property rights

- *How much is a view worth in Manhattan? Try \$11* (NYT, 7/22/19)
- (Optional) B & B, Sections 17.1 and 17.2

WEEK 9: Network effects. Government intervention

Class 9a: March 3 (Tuesday): Markets with network externalities

Homework 5 (group) due before class

- Homework on Canvas

Network effects. Inertia and momentum

- (Optional) *The ghost of MySpace haunting Facebook and Twitter* (Washington Post, 7/28/18)

Navigating markets with network externalities

- *FTC antitrust probe of Facebook scrutinizes its acquisitions* (WSJ, 8/1/19)

- *The new copycats: how Facebook squashes competition from startups* (WSJ, 8/9/17)
- (Optional) *How to launch your digital platform* (HBR, April 2015)
- (Optional) *Strategies for two-Sided markets* (HBR, October 2006)

Class 9b: March 6 (Friday): Government intervention

Government intervention: farm subsidies

- Case: Besanko, D. and J. Horner, “The Economic Impact of U.S. Cotton Subsidies,” Kellogg School of Management

Why governments intervene

- (Optional) *Trump budget proposes steep subsidy cuts to farmers as they grapple with crisis* (Reuters, 3/11/19)
- (Optional) *Farm subsidies: milking taxpayers* (Economist, 2/14/15)
- (Optional) B & B, Section 17.3

WEEK 10: Markets and information. Summary

Class 10a: March 10 (Tuesday): Markets and information

Adverse selection: experiment

Adverse selection and market failure

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

Strategies for the informed. Signaling

Strategies for the uninformed. Cream skimming

- (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 13 (Friday): Summary

Moral hazard

- (Optional) *Olive Garden's Never Ending Pasta Passes sell out instantly; over 20,000 wanted the \$500 'lifetime' version* (FoxNews, 8/15/19)

Summary of the class

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