Finance 30210
Managerial Economics
Fall 2016

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Office Hours: T, TH, 1-3PM

Teaching Assistants: Office Hours in the Basement of Mendoza

Kristen Lombardo (klombard@nd.edu): Monday, 7-9PM
Maddie Karnatz (mkarnatz@nd.edu): Tuesday, 7-9PM

Primary Sources:


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<th>Bookstore Price</th>
<th>Amazon Price</th>
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<td>New: $387.25</td>
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Other Sources:


**Grading:** There will be three non-cumulative exams given during the course as well as weekly quizzes (generally on Wednesdays). Quiz questions will come from the problem sets posted on the class web site. The final grade will be computed as follows:

\[
\begin{align*}
\text{Highest two midterms} & = 200 \\
\text{Quizzes} & = 100 \\
\text{Total} & = 300
\end{align*}
\]

There is also the possibility of random, unannounced quizzes, so attending class and keeping up with the material is very important. Bonus points will be awarded for exceptional class participation.

The median score (out of 300 points) will receive a ‘B’ for the course. The ranges for other grades will be at various intervals around the median based on the standard deviation of scores. A typical grading scale is as follows:

- 260 - 300: A
- 245 - 260: A-
- 230 - 245: B+
- 215 - 230: B
- 200 - 215: B-
- 185 - 200: C+
- 170 - 185: C
- 155 - 170: C-
- 140 - 155: D
- <140 : F

**Honor Code:** This course, like all other courses at Notre Dame, is subject to the *Academic Code of Honor*. Please read the Handbook to refresh your understanding of the code.
Course Objectives:

The primary objective for this course is decision making in the context of managing a business. Profits are simply revenues minus costs, so maximizing profits relies on minimizing costs while maximizing revenues. This problem requires an understanding of three topic areas:

1) Production and cost decisions – we need to determine a method and a scale of production to manufacture your product at the lowest possible cost
2) Consumer analysis and demand forecasting – we need an understanding of the consumer you face. Specifically, how will your customer base respond to changes in your price and how is your customer base affected by demographic changes.
3) Market Structure and Strategy – how should you set your price knowing that you face competition in the marketplace? How does a changing marketplace affect your pricing strategy?

However, the bigger picture of this course is to understand decision making in a broader context. Economics is all about human behavior. Economists try and understand why people do what they do. In this sense, being an economist is a lot like being a detective. Just as detectives look for clues to solve a crime, we look at the behavior of individuals and use these observations on human behavior as clues to understand the objectives behind those decisions.

Part I: Introduction

Here, we will lay out the basic assumptions and tools that we will rely on for the remainder of the class. We assume that economic man behaves in a very specific way, so we should spend some time thinking about whether or not our behavioral assumptions are reasonable.

- MMH Chapters 1, 2

Part II: Supply, Demand, and Equilibrium

Next, we will look at some of the implications of economic man for how markets function and how market prices are determined. Truthfully, there are very few applications of supply and demand that are reasonable for analyzing the real world, but the simple supply/demand story will always provide some good intuition into how a more complicated world functions.

- MMH Chapters 1-2

Part III: Mathematical Preliminaries and Optimization Theory
Every economic decision involves optimization. Consumers make purchase decisions to maximize their well-being under the constraint of limited income. Firms make production decisions to minimize production costs and then make pricing decisions to maximize profits. In this section, we will review some of the mathematical techniques involved in these maximization problems.

**Part IV: Statistical Analysis**

Here we will learn some tools to deal with an uncertain word. Probabilities allow us to characterize the uncertainty that we face and make decisions accordingly. Statistics is all about using available data to try and discover the true probabilities that you face. Here, we will develop a toolbox for use with probabilities and statistics.

**Part V: Production and Cost Analysis**

Next, we will take a close look at the cost side of a firm’s decision process. First, we have to distinguish between the firm’s short-term decisions versus its long term decisions. The short term refers to a time frame short enough that some elements of the firm’s production process are considered fixed (i.e. a firm can’t change the size of its production facility overnight). Next, we need to distinguish between allocative efficiency and scale efficiency. Allocative efficiency refers to the process of finding an effective mix of resources in your production process (i.e. do I rely more on automation or labor in my manufacturing process). Scale efficiency refers to the selection of the overall size of your production process (i.e. is there a point where my company is too big and, hence, inefficient?). These decisions will determine what your cost structure will look like.

- MMH Chapters 7-9

**Part VI: Consumer Demand Analysis**

Once we have a good handle on your production costs, we need to have a better understanding of your customer base. The key point for this section is that the more information you have about the consumers you face, the more efficiently you will be able to price your product. Elasticity is a good measure of how consumers will respond to price changes, but it is a very incomplete picture of the consumer. Demand curves are better and will allow you to make good pricing decisions in some cases. For more complicated pricing decisions, you need to actually understand the underlying consumer preference structure.

- MMH Chapters 3

**Part VII: Consumer Demand Forecasting**

Given demographic data, can we determine an actual estimate of your customer base? Can we forecast sales for your product based off the price that you charge? Can we
estimate how your customers will respond to changes in your price as well as changes in other factors such as a change in your competitor’s price?

- MMH Chapters 4, 5

Part VIII: Competitive Pricing Techniques

Now, we have all the pieces in place (almost)! The final issue facing the firm is an understanding of the competitive environment in which it operates. In this session, we will look at the simplest of environments. Specifically, we will focus on industry structures where pricing decisions are competitive (i.e. you choose your price taking the decisions of your competitors as a given constant). In a monopoly environment, you are by definition, the only firm in the marketplace, so competitive pricing is a reasonable assumption. In a pure/monopolistic competition framework, you face the opposite extreme – you have so many competitors that the effect of any one competitor’s behavior is small enough that it can be ignored. In this environment, we will look at a variety of pricing structures from the simplest (you set one price to everybody) to the more complex (you set multiple prices to different customer types).

- MMH Chapters 10, 11

Part IX: Introduction Game Theory

To this point we have looked at how economic players make decisions without worrying about how those decisions affect those around them. For example, a firm sets its price without any consideration of how rival firms may be affected by that decision and, more importantly, how rival firms might respond to that decision. There are many real life situations where the reactions of rival firms must be taken into account. Game theory gives us the mathematical tools necessary to model these strategic interactions.

- MMH Chapter 13

Part X: Strategic Pricing Techniques

Next, we move from competitive pricing to strategic pricing. In this environment, you face a small number of competitors (think about the airline or automotive industries). In this market structure, you can no longer ignore your competitor’s decisions. In fact, you have to assume that any decision you make will cause a reaction from your competitors.
Therefore, we need to take those responses into consideration when setting our prices. Also, to this point, we have assumed that the firm’s goal is to maximize current profits and it is that single goal that drives the firm’s decisions. In this section, we will analyze situations where a firm might have alternative goals in mind. For example, a firm might choose to set a price that is lower than the “profit maximizing” price if it could drive a competitor out of business. Alternatively, sometimes firm’s choose to establish cartels. That is, work together to maximize joint profits rather than individual profits.

- MMF Chapter 12,13,14

Part XI: Uncertainty and Information

Finally, the last assumption to lift is that of perfect information. So far we have assumed that the outcome of any particular decision in known with perfect certainty. Here we will look at how economic decisions are altered when there is uncertainty with regard to the outcome. For example, how much would you be willing to pay for car insurance given that you are unsure as to if you will actually get into a car accident.

- MMH Chapter 15