Course packet

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Syllabus

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1. TEXTBOOKS

Recommended: Shapiro and Varian, Information Rules
Varian, Intermediate Microeconomics
Course Packet: Readings and Handouts available on Canvas

2. COURSE DESCRIPTION

This is a course in microeconomics and its implications for management and strategy – particularly (but not exclusively) in the context of information technology firms.

Microeconomics, as discussed in this course, focuses on the models and methods by which managers can analyze their market and organizational environment to make optimal decisions. The key to such optimal decision-making is an understanding of the trade-offs in allocating scarce resources. The core models of microeconomics are fundamental to more applied areas of management such as strategy, marketing, production, and finance.

The course will begin with an examination of the underlying structure and models of competitive markets, and the efficiency and welfare implications of those models. We will then examine economic models that describe firm output, pricing and entry/exit decisions. These models will then be applied to a variety of market contexts, including monopoly, oligopoly, and competition. As we go through this analysis, we will seek to understand the implications of the theory for information technology firms. We will also examine interesting dynamics between information, agents and economic outcomes in the context of game theory. Most of our discussions of the economic models will be accompanied by explorations of the ideas and examples presented in the Shapiro and Varian text.

3. OBJECTIVES

The main objective of this course is to provide a level of economic “literacy” adequate to understand and apply crucial economic concepts to areas as diverse as management decision making and finance; marketing and strategy; policy making and social analysis.

A second, related objective of this course is to discuss the particular economic characteristics of the IT industry, and to offer tools to understand its processes and mechanisms.
4. GRADING

There are two components of your grade. There will be three homework assignments and three quizzes. The weighting of these components is:

1. Homework  35%
2. Quizzes    65%

Monday and Wednesday classes are used for actual lectures. Friday review sessions are used for Homework discussions and for quizzes. Homework assignments will consist of numerical problems and open-ended questions (e.g. short essays or analysis questions). Each Homework assignment will be uploaded to Canvas on a Wednesday. Your answers will have to be submitted online (via Canvas) by the start of the Friday review session of the following week (that is, for a Homework to be graded it must be submitted before the review session starts). Ideally, your Homework’s answers will be typed. Alternatively, you can hand-write your answers, scan the paper, and submit the digital scanned version of it – but if you do so, please make sure that your handwriting is legible and that all figures/equations are clear.

Quizzes will be administered in paper form during the Friday review sessions, and will last 1 hour and 20 minutes. Thus, review sessions are mandatory on the days when quizzes are given. Quizzes will consist of true/false questions, numerical problems, and open-ended questions. Quizzes are closed-book. No laptops or mobiles phones can be used during a Quiz. Old-school calculators can be used – but most likely you will not need them.

Please check carefully the schedule of Homeworks and Quizzes in the latter part of this document, and avoid scheduling meetings (e.g., job interviews) that conflict with your Homework and Quiz sessions. While I understand that some of you may have job interviews to do during this Mini, allowing students to take Quizzes at a later time than the rest of their classmates would create unfair advantages. Hence, postponing Homeworks or Quizzes will not be allowed (except in truly exceptional circumstances, in which case the Homework or Quiz will be subject to late penalties in grading).

The Chair of the MISM Steering Committee recommends the mean grade for core Heinz classes (such as ours) to be between 3.33 and 3.42. That said, I am aware that a class of students in any given year may perform differently from other classes of students in other years, and should be judged fairly and according to their own merits. Furthermore, do keep in mind that grades are effectively useless to you at this point in your professional life (other than achieving the threshold level required to assure your graduation). Focusing on grades interferes with actual learning (and most likely also your stress level). If you really, really believe otherwise and feel that you have been unfairly graded by a TA, you can request that the grading of an assignment be reviewed by submitting to me (the instructor) your original assignment with a written explanation of why you think the grader was in error.
5. CLASSES, LECTURE SLIDES, HOMEWORK, AND QUIZZES

Some important notes about classes, lectures slides, homework, and quizzes.

First, the relation between: a) the models and exercises discussed in class, and b) the homework and the quizzes is the following:

- Each homework is designed to make you exercise on and think critically about the models and topics discussed in class. Hence each homework will challenge you to reflect on a number of different topics and models discussed in class and expand on the problems we will solve together in class, by combining them and critically applying them to a variety of different scenarios with different complexities. In other words, each homework extends the material and the exercises discussed in class. Some of the homework scenarios are numerical exercises. Some are open-ended questions that have more than just one “right” answer. In general, the homework will make you think – they will not simply ask you to “plug in” a formula and find a value.

- Quizzes will be similar to the homework but shorter, with fewer exercises and fewer calculations involved. You can find samples of previous quizzes in the course packet.

Second, the relation between: a) the lecture slides and b) the textbooks and readings is the following:

- The lecture slides I will provide cover all the topics that will be part of homework and quizzes, but not all the details. They can be used as a summary of the relevant topics, but they are not meant to substitute the books and the more detailed explanations that the textbooks and the readings contain.

6. THEORY VS. APPLICATIONS IN THIS CLASS

Some of our lectures will be about formal models of economic behavior and will apply (simple) mathematics to represent those models and describe that behavior. Some others of our lectures will be about applications, and may be more discursive. Different lectures may be challenging and luckily interesting in different ways.

More precisely, the first three weeks of this course will focus on formal models a little more than the remaining weeks of the course. Formal models will give us the theoretical foundations to understand the rest of the topics. So don’t get discouraged if you have never taken economic courses before, or if the first two weeks will appear a bit “theoretical:” the level of mathematics necessary to do well in this class is actually quite basic, and the theoretical tools that we will learn in the first weeks will turn useful as we will discuss more practical
applications and study concrete market examples in the second part of this course.

7. COLLABORATION

Students are permitted to collaborate on the homework in groups of up to three students, whose names must be clearly indicated in the submitted homework (however, trust me: you will learn much more if you first try and do the homework by yourself, and then collaborate).

As noted above, Quizzes will be in-class and closed-book.

Plagiarism from online sources (e.g., using answers found online) and/or copying of another group's homework or another student's quiz, or from previous years’ homework and quizzes are university offenses. Just don’t do it. Please. It's not worth it. These rules and the academic integrity standards outlined in your student handbook will be strictly enforced. Violations of these rules or standards are considered a fundamental breach of trust and may result in failure of the course.

8. ABOUT THE TEXTBOOKS

We will use Varian’s Intermediate Microeconomics for the modeling portions of our classes. Any recent edition (from 5th on) is good. While we will often adopt the approach and the arguments that you can find in that book, you may (at your own judgment and risk) replace Varian’s book with any other decent Microeconomic book – such as Frank and Bernanke; Perloff; or Pindyck and Rubinfeld – as long as you will make sure to cover equivalent material to that which we will cover in Varian’s book (that’s why I write above: “at your own judgment and risk”).

Why do we use Varian’s book instead of those others? Because – among other reasons - it offers a sound yet simple mathematical approach that will turn useful for other courses you will take at the Heinz College, and hopefully for your future career as well.

We will use Shapiro and Varian’s Information Rules for applications of economic theory to information technology and information systems. Although it was first published in 1998 (that is, in the early days of the ecommerce revolution), it remains one of the best guides to understanding the economics of information technology.

Finally, we will use a number of additional readings (which I uploaded to the Canvas) to discuss specific topics such as collusion, predatory pricing, and so on.
9. HOW TO DO WELL IN THIS CLASS

Here are some tips that I (as the instructor) and previous students of this class have learnt about how to perform well in this class:

- Even if you collaborate on the homework with other students, try first to solve the exercises by yourself, alone. You will learn much more this way. **Absolutely do not “split” the questions among the members of your team** – during the quiz you will be alone in answering similar questions, and you will not have anybody to split questions with.
- Study the readings before the lecture – this way the topic of the lecture will not be completely novel to you, and you will find it easier to follow the lecture.
- Study the readings and the book chapters once again after the lecture – the lecture slides I will provide cover all the topics that will be part of homework and quizzes, but not in complete detail. As I mention above, the lecture slides can be used as a summary of the relevant topics, but they are not meant to substitute the books and the more detailed explanations that the books contain.
- Get back from the TAs and revise your corrected homework. Quizzes are similar (although not identical) to the homework, so you should learn as much as you can from the graded, corrected homework in order to do well in the quizzes.
- Be ready to not just plug in formulas, but think about the economic problems we discussed in class in order to complete the homework.
- From time to time, get some sleep (but not in class). No, seriously: sleeping enough, eating well, taking care of yourself are very important things. See Section 10. below.
- Use the force.

10. HOW TO DO WELL THROUGHOUT YOUR HEINZ PROGRAM, IN GENERAL

Do take care of yourself. Do your best to maintain a healthy lifestyle - eating well, exercising, getting enough sleep, and taking some time to relax. This will help you achieve your goals and cope with stress. Courses at CMU can be intense. If you are stressed out, please know that you are not alone, and that there are many helpful resources available on campus - an important part of the college experience is learning how to ask for help if it is needed. Asking for support sooner rather than later is often helpful. If you, or anyone you know, experiences academic stress, difficult life events, or feelings like anxiety or depression, please seek support: consider reaching out to a friend, faculty or family member you trust. Also, Counseling and Psychological Services (CaPS) is there to help: you can call 412-268-2922 or visit their website at [http://www.cmu.edu/counseling/](http://www.cmu.edu/counseling/).
11. COURSE SCHEDULE AND TOPICS

Readings listed below must be completed prior to the class for which they are listed, since we will discuss them together. Readings other than “Shapiro and Varian” or “Varian” are contained in the course packet available on the Canvas. The material for each class should be read by the date indicated below, even if we have not yet finished going through the previous class’ Lectures.

Note: for Varian’s book, the chapter numbers reported below refer to the 7th edition. If you are using different editions, chapter numbers may have changed slightly. Please use the title of the lecture to find the appropriate chapter.

I hope that you will enjoy and learn from this course. (Did I mention that readings should be completed prior to the class for which they are listed?)

Lecture 1 (Monday, August 28)
Topic: Introductions and Market Experiment
Today’s Readings: None
Course packet distributed

Lecture 2 (Wednesday, August 30)
Topics: Markets and Efficiency
Today’s Readings: Varian, Chapters 1, 15.1-15.10, and 16.1-16.5
Homework 1 distributed

Review Session 1 (Friday, September 1)
Math review
(You can use Varian’s Mathematical Appendix to prepare)

Monday, September 4
No classes – Labor Day!

Lecture 3 (Wednesday, September 6)
Topics: Firm Costs
Today’s Readings: Varian, Chapter 21

Review Session 2 (Friday, September 8)
Assignment due: Homework 1 covering Lectures 1-3

Lecture 4 (Monday, Monday, September 11)
Topic: Perfect Competition
Today’s Readings:  Varian, Chapters 22 and 23

Lecture 5 (Wednesday, September 13)
Topic: Monopoly and Monopolistic Competition
Today’s Readings  Monopoly – Varian, Chapter 24
Monopolistic Competition – Varian, Chapter 25.7-25.10

Homework 1 graded
Homework 2 distributed

Review Session 3 (Friday, September 15)
Quiz 1 covering Lectures 1-3

Lecture 6 (Monday, September 18)
Topic: Pricing and IT Costs
Today’s Readings  Shapiro and Varian, Chapters 1, 2, and 3
Varian, Chapter 25.1-25.6

Lecture 7 (Wednesday, September 20)
Topic: Game Theory
Today’s Readings:  Varian, Chapter 28
Game theory Handout (from course packet)

Quiz 1 graded

Review Session 4 (Friday, September 22)
Assignment due: Homework 2 covering Lectures 4-7

Lecture 8 (Monday, September 25)
Topic: Oligopoly
Today’s Readings:  Varian, Chapter 27
Oligopoly Handout (from course packet)

Lecture 9 (Wednesday, September 27)
Topic: Collusion
Today’s Readings:  Ethyl and Rapid Price Communication (from course packet)
Homework 2 graded
Homework 3 distributed

Review Session 5 (Friday, September 29)
Quiz 2 covering Lectures 1-7
Lecture 10 (Monday, October 2)
Topic: Strategic Behavior
Today’s Reading: Dupont and Computers (from course packet)

Lecture 11 (Wednesday, October 4)
Topic: Asymmetric Information
Today’s Reading: Varian, Chapter 37
Quiz 2 graded

Lecture 12 (Friday, October 6) [Note: this will be an actual lecture, not a recitation session]
Topic: Behavioral Economics
Today’s Readings: Varian, Chapter 30

Lecture 13 (Monday, October 9)
Topic: Lock-in and Switching Costs
Today’s Reading: Varian, Chapter 35.1-35.3
Shapiro and Varian, Chapters 5 and 6

Lecture 14 (Wednesday, October 11)
Topic: Externalities
Network Effects and Positive Feedback
Today’s Reading: Varian, Chapter 34
Varian, Chapter 35.4-35.7
Shapiro and Varian, Chapters 7, 8, and 9

Review Session 6 (Friday, October 13)
Assignment due: Homework 3 covering Lectures 8-14

Lecture 15 (Monday, October 16)
Topic: R&D

Final exam (October 18-20, date TBA)
Quiz 3 covering Lectures 1-14
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