

CARNEGIE MELLON UNIVERSITY

## 95-710 - ECONOMIC ANALYSIS

Summer 2024

**Distance Instructor:** Andre Ribeiro Cardoso ([acardoso@andrew.cmu.edu](mailto:acardoso@andrew.cmu.edu))

**Lecturer on Videos:** Prof. Alessandro Acquisti

**Teaching Assistants:** Lingwei Cheng ([lingweic@andrew.cmu.edu](mailto:lingweic@andrew.cmu.edu))

**Office Hours:** By Zoom (Instructor) on Monday 12:00pm to 1:20pm

By zoom (TA) TBD (will be announced on Canvas)

### 1. COURSE MATERIAL

#### **Textbooks:**

*Pindyck and Rubinfeld, Microeconomics, 7<sup>th</sup> edition*

*Varian, Intermediate Microeconomics, A Modern Approach, 8<sup>th</sup> edition*

#### **Complementary Textbook:**

*Nicholson and Snyder, Microeconomic Theory, 11<sup>th</sup> edition*

These two books are excellent references for intermediate-level microeconomics. Besides the course videos and posted slides, other readings may be suggested along the course. You do not need to obtain both books, any one of them should be adequate. You can find both books on Amazon.com.

Previous (but recent) editions contain very similar materials and should be sufficient for this course. However, as all the posted reading suggestions will be from the editions indicated above, you will be responsible for locating the corresponding sections if you decide to purchase a different edition.

The complementary textbook is another source of information for those willing to use more advanced material and extra exercises.

#### **Lecture videos:**

Links to all lecture videos can be found on Canvas and in the link below. This link gives you access to recorded videos from Prof. Alessandro Acquisti. You are required to watch the lecture videos and go through the lecture notes on a weekly basis.

<https://heinzcollege.mediasite.com/Mediasite/Channel/95-710-c1-economic-analysis/browse/null/title-az/null/0/null>

Lecture slides are available in PPT format on Canvas. Please note that the lecture slides may be slightly different from those that appear along with the videos, but the main content is the same (in most of the cases differences are just stylistic).

A detailed schedule is provided at the end of this syllabus. Although our course will closely follow the videos, our distance schedule and coverage might be slightly different. Whenever such differences occur, follow **this syllabus** and the **information on Canvas** instead of the videos.

**Additional Materials:** Other readings and notes might be posted on Canvas at the instructor's discretion.

**Office Hours:** Instructor Office hours are scheduled for **Monday, from 12:00pm to 1:20pm**. TA Office hours will be announced on Canvas.

Students are also encouraged to send questions as soon as they happen via Canvas, piazza, or by e-mail. In case you need extra assistance and cannot attend to any OH, please let us know in advance. On any e-mail, please always copy both the instructor (Andre) and the responsible TA, so we can make sure you'll get a reply asap. We'll work to optimize the time response for each message, trying to get you a reply within 24h during weekdays and up to 48h during weekends, so please don't leave your questions until the last minute before any assignment or quiz. On any e-mail message, please include in the subject "**Economic Analysis**".

## 2. COURSE DESCRIPTION

This is a course in microeconomics and its implications for management and strategy.

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. We will also examine interesting dynamics between information, agents and economic outcomes in the context of game theory.

### 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.**

### 4. GRADING, HOMEWORKS AND QUIZZES

There are two components of your grade. There will be **four homework assignments** and **two exams**. The weighting of these components is:

<b>a) Homework</b>	<b>60% (15% each)</b>
<b>b) Exams</b>	<b>40% (15% + 25%)</b>

Homework assignments may consist of numerical problems and open-ended questions (e.g., short essays or analysis questions). You will have to submit your homework assignments through Gradescope (link on Canvas), in an MS Word or pdf format.

The four homework assignments will be all made available during the first week of class along with their submission deadlines. This gives you a lot of time to plan your schedule and make sure to submit your homework on time. This also implies that extensions of submission deadlines **WILL NOT** be allowed.

For example, if you know that you will be traveling for work during a week when one of the homework assignments is due, please plan ahead of time and complete your homework on time.

The only cases in which extensions may be allowed include medical emergencies and similar, that will need to be confirmed by submitting an appropriate medical certificate to the instructor.

Please carefully check the schedule of the HWs in the latter part of this document. You can always submit your homework before the scheduled deadline (but NOT after).

There will be *two exams*: a midway course exam and a final exam. All exams will be take-home and open-book exams. You will need to have an Internet connection to submit your exams. You'll have 3 days to complete the midterm exam and 5 days to complete the final exam. Even though the exam is open-book, you shall not share your answers with peers or copy full sentences from any book or other sources. Instead, you should answer using your own words and make your calculations. Do not use ChatGPT or other IA tool to answer questions, either from assignments or exams. More often than expected, these tools provide wrong solutions or inconsistent responses and fake literature and sources.

The scheduled dates and times for the two exams are in the course schedule at the end of this syllabus. Please look at them carefully.

### *Final Grades Policy*

Heinz College recommends the mean grade for core Heinz classes (such as Economic Analysis) to be between 3.33 – 3.42. At the same time, a given class of students in any given year may perform differently from other classes in previous years and should be graded fairly and according to their own merits (or demerits). It is at the discretion of the instructor to decide when such situations occur. In addition, please note that your grade will be assigned on a curve: therefore, your final grade will depend on the average performance of the class.

## 5. COLLABORATION

Any homework should be done and submitted individually, although students are encouraged to discuss and collaborate among themselves. Discussion chats can be opened anytime on Canvas by the Instructor / TA, and students are free to discuss ideas, topics, and other relevant questions about the material or the homework. Solutions to the homework, however, should be written individually and not shared to other students.

When submitting an assignment (homework or calculation sheet from the exams), please put your name (or Andrew ID) on the submission, naming your file accordingly: **Homework\_#\_andrewid**).

The **take-home exams they are open book** but you are absolutely **NOT allowed to collaborate with your classmates** or with any other people outside the class. Moreover, you are **NOT** allowed to use you IA tools (e.g. chatGPT or similar) during the exams and you are **NOT** allowed to copy entire book sentences.

**Plagiarism and/or copying of another group's homework or another student's exams, or from previous years' homework and exams, or from your books/notes 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. Any violation of these rules or standards is considered a fundamental breach of trust and will result in failure of the course.

## 6. COMMUNICATION

The best way of communication between us will be through e-mail and the Discussions forum on Canvas. If you need to talk to me over phone/Skype, please send an e-mail and I will try my best to accommodate. Similarly, you can schedule an online meeting with the TAs. We'll also provide Zoom IDs for office hours on Canvas. For efficient communication, **always** write in the e-mail subject "**Economic Analysis 95-710**".

## 7. COURSE SCHEDULE

**A file with links for all lecture videos will be posted on Canvas.**

The topics studied each week and the recommended readings are listed below:

***Week 1 (June 24<sup>th</sup>) – Basics of Supply & Demand; Markets & Efficiency; Math Review***

### **Readings:**

Corresponding sections from the textbook by Varian (8th ed): Chapters 1, 15.1-15.10, and 16.1-16.5

Corresponding sections from the textbook by Pindyck and Rubinfeld (7th ed): Chapters 2.1-2.6 and 4.1-4.4

In addition, please make sure to **refresh some math concepts** that we will be using during the course by reading the Mathematical Appendix at the end of Varian's book. A pdf copy is also available on Canvas (folder Week 1 material). We will be working with functions (in most cases, linear functions) and you may be need to take derivatives or compute the minimum/maximum of a function.

***Week 2 (July 1<sup>st</sup>) – Firm Costs and Perfect Competition***

### **Readings:**

Corresponding sections from the textbook by Varian: Chapters 21, 22, 23  
Corresponding sections from the textbook by Pindyck and Rubinfeld (7th ed): 7.1-7.4  
and chapter 8.

*Homework #1 due Friday, July 5<sup>th</sup> by 23:59pm EST*

### **Week 3 (July 8<sup>th</sup>) – Monopoly, Monopolistic Competition; Pricing and IT Costs**

#### **Readings:**

Corresponding sections from the textbook by Varian: Chapters 24, 25.7-25.10; Chapter 25.1-25.6

Corresponding sections from the textbook by Pindyck and Rubinfeld (7th ed): Chapters 10.1-10.4 (Monopoly); 12.1(Monopolistic Competition); 11.1, 11.2; 11.5 (Pricing).

*Homework #2 due Friday, July 12<sup>th</sup> by 23:59pm EST*

*\*\*\*Exam 1 will be available from Friday, July 12<sup>th</sup> 12am until Sunday, July 14<sup>th</sup> 11:59pm EST\*\*\**

### **Week 4 (July 15<sup>th</sup>) – Game Theory and Oligopoly**

#### **Readings:**

Corresponding sections from the textbook by Varian: Chapters 27, 28

Corresponding sections from the textbook by Pindyck and Rubinfeld (7th ed): 13.1-13.6 (Game Theory); 12.2-12.5 (Oligopoly).

*Homework #3 due Friday, July 19<sup>th</sup> by 23:59pm EST*

### **Week 5 (July 22<sup>nd</sup>) – Collusion and Strategic Behavior**

#### **Readings:**

Corresponding section from the textbook by Varian: Chapters 28; 29.3; 37

Corresponding section from the textbook by Pindyck and Rubinfeld (7th ed): 12.6; 13.7; 17.1 – 17.4.

#### **Readings on Canvas:**

*Rapid Price Communication;*

*Dupont and Computers*

*Homework #4 due Friday, July 26<sup>th</sup> by 23:59pm EST*

**\*\*\*EXAM 2 will be available from Monday, July 29<sup>th</sup> until Friday, August 2<sup>nd</sup> 11:59pm EST.**

**\*\*\*SUMMARY of SUBMISSION DEADLINES**

**Homework #1 due Friday, July 5<sup>th</sup> by 23:59pm EST**

**Homework #2 due Friday, July 12<sup>th</sup> by 23:59pm EST**

**Homework #3 due Friday, July 19<sup>th</sup> by 23:59pm EST**

**Homework #4 due Friday, July 26<sup>th</sup> by 23:59pm EST**

**EXAM 1 will be available from Friday, July 12<sup>th</sup> until Sunday, July 14<sup>th</sup>, 11:59pm EST.**

**EXAM 2 will be available from Monday, July 29<sup>th</sup> until Saturday, August 2<sup>nd</sup>, 11:59pm EST.**