

ECON 445: Industrial Organization
University of North Carolina at Chapel Hill
Fall 2024 Syllabus

Instructor:	Andrew Capron
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Class time and location:	TuTh 3:30pm-4:45pm, Gardner Hall 007
Office hours:	Weds 1:30pm-3:30pm, ECON Aid Center (Gardner Hall 009) You can also email me to schedule a one-on-one meeting if needed.

Midterm exams:	Exam 1 – Sept 26 Exam 2 – Oct 31
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Final exam:	Dec 12, 4pm
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1 Course Overview

Prerequisites: ECON 400 and 410; a grade of C or better in ECON 400 and 410 is required.

This course covers the causes and consequences of firms' strategic behavior, focusing primarily on situations in which firms have market power. The main analytical tools are microeconomic theory and game theory. A focus of this class is to understand the different market forces at play and how they can affect agents such as firms and consumers.

The topics we will study include pricing strategy, game theory, imperfect competition, collusion and cartels, firm-to-firm supply relationships, and mergers (along with a few additional topics if time permits). Within each topic, we will consider the impact of firms' actions on others and on consumer welfare. We will also consider the motivation for and the impact of US antitrust law on these settings.

Economics is more a way of thinking rather than a collection of facts, and industrial organization (IO) is no exception. Our main objective is to develop the ability to use economic models to understand a broad range of problems. These models, when constructed well, can be both simple and powerful. Your ability to construct, analyze, and interpret models is best developed through practice, and our class meetings, assignments, and exams will focus on providing this practice.

2 Resources and Assignments

I will use Canvas to distribute and collect notes, readings, problem sets, etc. You will use Gradescope to submit your problem set responses.

Readings: There is no required textbook for this class. Your notes from class, together with lecture slides, will be sufficient to keep up with the course. However, if you would like to have an external reference, previous versions of this class used Introduction to Industrial Organization by Luis Cabral (2nd edition). Feel free to reference this resource for additional materials pertaining to each concept covered in class (see schedule below for the relevant chapter for each topic). I also encourage you to keep up with current economics-related events. Good popular press sources for economic content include the Economist, the Wall Street Journal, the Washington Post, and the New York Times, but you can find plenty of economic content in virtually any newspaper. There are also many online news sources and podcasts that are worth checking out: Planet Money, Freakonomics, FiveThirtyEight, amongst others.

Writings: We will often supplement the class notes with readings collected from popular media (newspapers, magazines, etc.) that are related to the topics covered in class. When assigned, these readings are **mandatory**. To help you build your economic intuition and argumentation, I will also assign writing projects that will be due on predetermined dates and submitted through Canvas. The text must not exceed two pages and contain the following: (i) a summary of what is being reported; (ii) what are the economic forces at play, and how the situation can be translated into what we have seen in class. You will receive full credit for (honestly) completing the assignment and no credit for missing work.

Problem Sets: I will post problem sets on Canvas to help you reinforce what is learned in class. Problem sets will be available at least one week before the scheduled due date. You must upload your solution before 11:59 pm of the due date using Gradescope. Collaboration (in groups of at most three students) is encouraged, as long as you submit your own work and indicate on your submission with whom you collaborated. Problem sets grades are based on a combination of completion and correctness. Half of the grading weight will be placed on each component. I will post solutions for each problem set on Canvas shortly after each assignment is due. As a consequence, *no late work will be accepted*. However, you will be allowed to drop your lowest problem set score. Please contact me ahead of time if you anticipate circumstances that will prevent you from turning in your work on time.

Math Requirement: I will require you to use basic calculus during this course. If you remember what a derivative is, its rules, and its application for optimization, you will not have any problems with the math that we use here. If you feel the need to review and/or reinforce your math skills to follow the lecture, contact me as soon as possible. I am happy to provide you with references and material for that.

3 Exams and Grading

Your grade will be based on (i) three exams, (ii) homework assignments, and (iii) class participation, using the following breakdown:

Course Grade Breakdown	
Midterm 1	20%
Midterm 2	20%
Final Exam	30%
Problem Sets & Written Assignments	25%
Classroom Participation	5%

- ↔ Exams will be closed books and notes, and cumulative: all material that has been covered in class up to that point is fair game.
- ↔ I will not reschedule exams other than for University Approved Absences (please refer to the Attendance policy section)
- ↔ You can think of the class participation grade as a score from 0 to 5, covering outcomes ranging from infrequent attendance and minimal participation (0) to frequent and constructive participation (5). At times, I will ask students to participate by coming to the board to complete questions from previous problem sets or new exercises. I do not care if the answer is right or wrong, just that you give your best effort. If there are extenuating circumstances that prevent you from solving questions in front of the class, please email me as soon as possible so that we can discuss making an exception. I will provide periodic feedback on class participation.
- ↔ All course grades will be stored and displayed on Canvas. It is your responsibility to ensure that the grades on this course page are accurate. Re-grade requests must be provided within one week of receiving your score, and accompanied by a brief written explanation of why you think you deserve a higher score. When you submit an assignment for a re-grade, everything will be re-scored and your grade may go up or down.

At the end of the course, I will sum up all the scores into a numerical percent score (rounded to the nearest integer) using the breakdown above. Grades will be curved so that course grades have a similar distribution to previous ECON 445 classes. The following table shows UNC's standard grading policy and any curve administered would only be to benefit students.

Course Letter Grade Scale											
Course Grade	A	A-	B+	B	B-	C+	C	C-	D+	D	F
Percent Range	93-100	90-92	87-89	83-86	80-82	77-79	73-76	70-72	67-69	60-66	<60

4 Policies and Expectations

Changes to syllabus: The instructor reserves the right to make changes to the syllabus including due dates and midterm dates. These changes will be announced as early as possible.

Classroom Etiquette: I expect you to arrive on time and prepared for the day's class. My goal is to maintain a classroom environment that provides a good learning environment for everyone. You may use a tablet to take notes. If you need to use a laptop, I ask that you sit near the back of the class.

Attendance policy: Engagement in the course (demonstrated through attention, comments, questions, active listening, and participation in in-class activities) is expected and part of the learning experience. While I understand that students may not be able to attend every class, students must likewise understand that an absence from class may result in missed information and, consequently, a lower grade. Repeated absences will adversely affect your participation grade unless they fall under one of the three categories of University Approved Absences:

1. Authorized University activities
2. Disability/religious observance/pregnancy, as required by law and approved by Accessibility Resources and Service and/or the Equal Opportunity and Compliance Office (EOC)
3. Significant health condition and/or personal/family emergency as approved by the Office of the Dean of Students, Gender Violence Service Coordinators, and/or the Equal Opportunity and Compliance Office (EOC).

Honor Code: All students are expected to follow the guidelines of the UNC honor code. In particular, students are expected to refrain from lying, cheating, or stealing in the academic context. If you are unsure about which actions violate that honor code, please consult honor.unc.edu.

Generative AI policy: Generative AI is an extremely useful and powerful tool; that said, unless provided with explicit permission for use on specific assignments, *it will not be a permissible tool for any work you submit in this course*. Violating this policy may be a reportable offense to the UNC Honor Court.

5 Course Outline

Date	Topic	Assignments	LC Chp (Optional)
Section 1: Introduction and Conceptual Foundations			
8/20	Course objectives and introduction		
8/22	Demand, production, and cost functions		2, 3
8/27	Perfect competition and monopoly		4.1-4.4, 5.3-5.5
Section 2: Price Discrimination			
8/29	Price Discrimination I: 3DPD		6.1-6.4
9/3	<i>No Class: Well-Being Day</i>		
9/5	Price Discrimination II: 1DPD		6.1-6.4
9/10	Price Discrimination III: 2DPD Part I	PS1 Due	6.1-6.4
9/12	Price Discrimination III: 2DPD Part II		6.1-6.4
Section 3: Static Oligopoly Theory			
9/17	Game Theory I: Simultaneous-move games		7.1-7.3
9/19	Game Theory II: Sequential-move games		7.1-7.3
9/24	Exam Review	PS2 Due	
9/26	Midterm 1		
10/1	Competition w/ homog. products I: Basic Cournot		8.2-8.3
10/3	Competition w/ homog. products II: Cournot Variations		8.2-8.3
10/8	Competition w/ homog. products III: Stackelberg		8.2-8.3
10/10	Competition w/ homog. products IV: Bertrand	PS3 Due	8.2-8.3
10/15	Competition w/ diff. products: Hoteling Part I		14.1-14.2
10/17	<i>No Class: Fall Break</i>		
10/22	Competition w/ diff. products: Hoteling Part II		14.1-14.2
10/24	Market Structure and Outcomes		
10/29	Exam Review	PS4 Due	
10/31	Midterm 2		
Section 4: Dynamic Oligopoly Theory			
11/5	Entry and Foreclosure		
11/7	Game Theory III: Repeated Games		7.3
11/12	Cartels and Collusion		9
11/14	Horizontal Mergers		11
11/19	Vertical Relationships		13.1-13.2
11/21	Platforms		
11/26	Misc. Topics	PS5 Due	
11/28	<i>No Class: Thanksgiving Break</i>		
12/3	Exam Review		

6 Student Support

Accessibility Resources and Services (ARS): The University of North Carolina at Chapel Hill facilitates the implementation of reasonable accommodations, including resources and services, for students with disabilities, chronic medical conditions, a temporary disability or pregnancy complications resulting in barriers to fully accessing University courses, programs and activities. Accommodations are determined through the Office of Accessibility Resources and Service (ARS) for individuals with documented qualifying disabilities in accordance with applicable state and federal laws. See the ARS Website for contact information: <https://ars.unc.edu> or email ars@unc.edu.

Counseling and Psychological Services (CAPS): If you or anyone you know is struggling with mental health, I encourage you to seek counseling. CAPS is strongly committed to addressing the mental health needs of a diverse student body through timely access to consultation and connection to clinically appropriate services, whether for short or long-term needs. Go to their website: <https://caps.unc.edu/> or visit their facilities on the third floor of the Campus Health Services building for a walk-in evaluation to learn more. Students can also call CAPS 24/7 at 919-966-3658 for immediate assistance.

Title IX Resources: Any student who is impacted by discrimination, harassment, interpersonal (relationship) violence, sexual violence, sexual exploitation, or stalking is encouraged to seek resources on campus or in the community. Reports can be made online to the EOC at <https://eoc.unc.edu/report-anincident/>. Please contact the University's Title IX Coordinator (Elizabeth Hall, titleixcoordinator@unc.edu), Report and Response Coordinators in the Equal Opportunity and Compliance Office (reportandresponse@unc.edu), Counseling and Psychological Services (confidential), or the Gender Violence Services Coordinators (gvsc@unc.edu; confidential) to discuss your specific needs. Additional resources are available at <https://safe.unc.edu>.

Diversity Statement: I value the perspectives of individuals from all backgrounds reflecting the diversity of our students. I broadly define diversity to include race, gender identity, national origin, ethnicity, religion, social class, age, sexual orientation, political background, and physical and learning ability. I strive to make this classroom an inclusive space for all students. Please let me know if there is anything I can do to improve. I appreciate your suggestions.