Industrial Competition & Monopoly (ECON 480):
Spring 2021: *Section A3/A4*:TR 11:00-12:20; Room: online
Department of Economics • UIUC
Syllabus

Class Compass Site: *https://compass2g.illinois.edu/*

There will be no face-to-face lectures. The lectures will be presented synchronously via Zoom and will be recorded and posted on the course's Compass site.

Instructor: Ali Toossi
Office: 205 David Kinley Hall
Phone: 333-6777
E-mail: toossi@illinois.edu
Office hours: *Wednesdays 3:00 -4:00 pm*.

(1) To set up an appointment during the office hours (or at other times if due to difference in time zone the office hour time is not appropriate for you), you must contact me in advance (by sending an email to toossi@illinois.edu). I will send you the Zoom link. In case there are more than one student we will have a group office hour.
(2) In order to make it easier for you to ask questions I have created a discussion board in compass with the following forums:
    a. a forum for your feedbacks about the lectures and for answering questions regarding the lectures and the lecture notes. I welcome any suggestions about improving the lectures.
    b. a forum to answer question about assignment and exams.
(3) The best way to contact me is to post a question in the discussion board. You can also send me an email at "toossi@illinois.edu". I will try to respond as soon as possible.

TA: Mohammad Ahmadizadeh; **Office hours:** Wednesdays 2:00-3:00 pm
The office hours are online. To set up an appointment during the office hours, you must contact Mohammad in advance (by sending an email to ahmadiz2@illinois.edu). He will send you the Zoom link. In case there are more than one student there will be a group office hour.

Objective: Industrial Organization, Industrial economics, Oligopoly, Imperfect Competition,… all these are well known labels to address one of the oldest problems in economics, namely what factors determine the structure of the market, how firms behave in the market when there are few competitors and what is their performance. We will develop the theoretical framework necessary for analyzing market structure, firm behavior & performance.

Prerequisites: I do not recommend you take this course unless you know:

1- **Microeconomics**: at the intermediate level
2- **Calculus**: differentiation, Constraint & unconstraint optimization

Textbook: The course does not have a required textbook. I suggest the following textbooks as a supplement to class material:

• *Jeffrey R. Church and Roger Ware,* **Industrial Organization: A Strategic Approach**. Free download available: https://works.bepress.com/jeffrey_church/23/

• *Oz Shy,* ***Industrial Organization: Theory & Application,*** MIT press. Here is the author's web site: http://www.ozshy.com/

Grades:

For students taking course for 3 credit hours grades will be based on homework assignments (20%) & three exams: midterm 1 (20%), midterm 2 (25%) and a cumulative final exam (35%).

For students taking course for 4 credit hours grades will be based on homework assignments (15%), three exams: midterm 1 (15%), midterm 2 (20%) and a cumulative final exam (35%). and a paper (15%).

Grades Cutoffs: I use a +/- scale. The cut-offs for +/- are as follows (there will be adjustments based on the performance of the class):

A+	A	A-	B+	B	B-	C+	C	C-	D+	D	D-
≥97%	≥93%	≥89.5%	≥87%	≥83%	≥79.5%	≥77%	≥73%	≥69.5%	≥67%	≥63%	≥59.5%

Homework:

(1) The assignment with the lowest grade will be dropped.
(2) I will post the assignments in Compass in the PDF format.
(3) You can do your work in whatever program you are comfortable with (e.g., Word) but all solutions must be submitted in PDF format.
(4) You can also complete the assignments on paper, scan them, save them as a PDF file, and submit them. If you choose to do your assignments on paper, they must be completed neatly, professionally, and legibly.
(5) Assignments should contain the following information on the **right-hand corner** of the first page: **your name**, assignment number, and the date.
(6) Use the following format to name your solution file: FIRST NAME LAST NAME-ASSIGNMENT##(SP21). The symbols ## stand for assignment number.
(7) Email your solutions to the this email address: econ480atUIUC@gmail.com by the announced deadline.

Exams:

(1) Exams are tentatively scheduled for the following dates and during the class times. We can move the exam time to the evening if it is more convenient.
Exam 1: Thursday March 4, During class time

Exam 2: Thursday April 15, During class time
Final Exam: *Monday May 10; 8:00 m -11:00 am*

(2) Here is the procedure how we will conduct the exams:

a. I will post the exam on Compass 10 minutes before the exam starts.
b. You must email the PDF file of your solution to the exam to the email address econ480atUIUC@gmail.com at most by 10 minutes after the exam end time.
c. It is preferable you download the exam, print it and answer the questions in the blank spaces provided.
d. If you do not have a printer, answer the questions on paper and then scan them. Make sure you CLEARLY specify the question number and part you are answering and that you complete the questions in the order they appear on the exam. Make sure that your handwriting is clear and readable.
e. PRINT your name and Netid in the space provided at the top of the first page of the exam (or on the paper you answer the questions).
f. Save your solutions as a PDF file (The pictures of your solution IS NOT ACCEPTED UNLESS IT IS CLEAR AND READABLE). Use the following format to name your solution file: FIRST NAME_ LAST NAME-EXAM #(SP21). The symbols # stand for exam number.

(3) If you cannot take a test because of illness, you have to provide me with a formal statement from a **doctor**, in addition to the note from the Emergency dean. The doctor's statement should explain why your particular illness prevents you from taking the test on the date specified below.

Attendance:
Attendance is required. If, for any reason you cannot attend the live sessions, you need to contact me to get my approval for not attending the live sessions.

Academic Integrity:
The University's rules of academic honesty will apply to all examinations and written assignments in this class. See the Code on Campus Affairs at:
http://studentcode.illinois.edu/article1_part4_1-401.html

Disability Accommodations:
To obtain disability-related academic adjustments and/or auxiliary aids, students with disabilities must contact the course instructor and the Disability Resources and Educational Services (DRES) as soon as possible. To contact DRES you may visit 1207 S. Oak St., Champaign, call 333-4603 (V/TTY), or e-mail a message to disability@uiuc.edu."

Term Paper (*This is only required from students taking the course for four credit hours.*)
The goal of this assignment is for students to connect the concepts they learn in the class to real-world events and observations. Note that it is not enough to choose a

general topic and write a summary of information about it. I expect you to pose a specific question. Your paper should explore the possible answers to that question using economic reasoning, evidence, and analysis. When I read your essay, I will be looking especially for appropriate use of the concepts and terms that we discussed in class - your explanations should provide sufficient background for a reader who has not taken the course.

- **Teamwork:** Students may work together on a single term paper that they submit as a group. These groups must not exceed two people.
- **Paper proposal**: due by **11:59 pm April 7.** Send it to econ480atUIUC@gmail.com
  In approximately one page, the proposal should:
  - Clearly identify the question that you plan to address.
  - Give some background on the question's context and explain why it is interesting.
  - Indicate at least two specific of information that you will use to answer the question.
- **Term Paper:** due by **11:59 pm May 5.** Send it to econ480atUIUC@gmail.com
  The final paper should clearly state a well-defined question or questions related to the course material, explain the context and significance of those questions, and discuss their possible answers.
- **Paper length**: I am more interested in the quality of your output than the quantity. However, I expect the paper to be at least 15 pages long.

Topics: I will cover the following topics. The subjects and sequence they are offered are subject to change.

Course Outline:
The course outline lists the dates each topic will be covered. The dates are approximate & could change.

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Lecture	Date	Topics Covered
1	January 26	Introduction: What is IO? Competitive model: Brief History of Industrial Organization Contemporary Issues in I.O.
2	January 28	Basic Assumptions & Principals Models Parametric Models Examples: *Consumer problem* *Firm problem* Maximizing net benefit

3	February 2	**Technology:** Production function, Marginal product of Labor & capital Returns to scale
4	February 4	**Cost:** opportunity cost, cost function, Fixed and sunk cost, Average and marginal cost AC and MC curves intersect at the minimum of AC, efficient scale of the firm Duality between production & cost function Economies of scope
5	February 9	**Technology, Cost, Demand:** Economies of scope: Ray Average cost **Demand:** price elasticity of demand, Total revenue, Average and Marginal revenue MR for linear demand MR & elasticity **Welfare economics:** Outcome Max total surplus ➔ efficient outcome Profit, normal profit
6	February 11	**Technology, Cost, Demand:** Profit = TR- TC, PS = TR-VC Total surplus + benefit to consumer + benefit to firm = utility gain + profit (or PS) Consumer surplus (CS) = Area under inverse demand above the price For quasi-linear utility function: utility gain = CS practice examples **Perfect competition:** Definition of perfect competition: Price taking behavior ≡ firm faces horizontal demand ≡ demand facing firm perfectly elastic Main Assumptions: same quality good, no asymmetric information, no search cost, no transaction cost, Firm's maximization problem (P = MC)
7	February 16	**Perfect Competition** (*Continued*) Shutdown problem Competitive industry: short run, long run

		Market equilibrium with heterogenous Firms No competitive equilibrium in presence of IRS technology Toughness of competition Desirability of PC equilibrium outcome First & second welfare theorems Deadweight loss Barriers to entry
8	February 18	**Perfect Competition**: practice examples
9	February 23	**Market Power** Sources of market power: structural barriers: increasing returns on the supply & demand side. Sunk expenditures of the entrant Absolute cost advantage Sunk expenditures by consumers and product differentiation Sources of market power: strategic behavior by incumbent ➔ credibility Sources of market power: Entry barriers created by government
10	February 25	**Monopoly** Monopoly & profit maximization Lerner index Monopoly & Deadweight loss Measuring market power
11	March 2	**Cartel & multiplant monopoly** **Price discrimination:** definition & necessary conditions Three types of Price discrimination
Midterm 1	**Thursday March 4**	**During class time**
12	March 9	**price discrimination** Perfect price discrimination (individual pricing) Two-part pricing Third degree price discrimination (group pricing)
13	March 11	**price discrimination** Second degree price discrimination (menu pricing) Versioning Bundling & mixed bundling

		Block pricing Coupons
14	March 16	**Monopoly & price discrimination:** practice examples
15	March 18	**Oligopolistic Competition** Normal form games Nash equilibrium Examples: Prisoner dilemma, Moral hazards in teams, Team synergy Multiple NE: Coordination games Mixed strategy: matching pennies game
16	March 23	**Oligopolistic Competition** Cournot Model of competition: Prisoner dilemma flavor of NE in Cournot game N firm games Measure of market power: Herfindahl index
17	March 25	**Oligopolistic Competition** Bertrand model Bertrand paradox Resolution of paradox: capacity constraint, product differentiation
18	March 30	**Product Differentiation** Horizontal vs vertical differentiation Modeling product differentiation: Non-address models (exogenous variety)
19	April 1	**Product Differentiation** Modeling product differentiation: Non-address models (endogenous variety) ➔ monopolistic competition
20	April 6	**Product Differentiation** Location models: Hotelling model Price competition: fixed location and linear transportation costs Location and price competition with linear transportation cost
21	April 8	**Oligopolistic competition:** practice examples
	Tuesday April 13	**BREAK DAY**
Exam 2	**Thursday April 15**	**During class time**

22	April 20	**Dynamic games** Subgame perfect equilibrium: backward induction Examples
23	April 22	**Repeated Games** Cournot Games: finitely & infinitely repeated games Bertrand Games: infinitely repeated games
24	April 27	**Dynamic games** Stackelberg model Accommodation of entry Deterrence of entry
25	April 29	**A More General Insight:** Strategic Value of Commitment A General Taxonomy of Entry Models Over & under investment
26	May 4	**Review**
Final Exam:	**May 10**	**8:00 am – 11:00 am**