

ECON 235: **Industrial Organization**

SYLLABUS

<u>Instructor:</u>	John Lazarev jlazarev@sas.upenn.edu Office 633 at PCPSE Office hours: by appointment
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<u>Lectures:</u>	Tuesdays and Thursdays, 10:30am-12pm in MCNB 150
<u>Midterm Exam:</u>	Tuesday, March 3, in class
<u>Final Exam:</u>	Tuesday, May 5, 12pm – 2pm (tentatively)

This syllabus is a working document and subject to change. Please note the date in the upper right-hand corner. Updated versions will be posted on Penn Canvas.

1. Course Description and Aims

The course is designed to familiarize students with a modern approach to industrial organization economics. The modern approach relies extensively on the use of game-theoretic tools to model strategic market behavior and the use of econometric methods for testing hypotheses regarding firm conduct and market performance. In particular, the course analyzes profit-maximizing business strategies of firms with market power, as well as strategic interactions among firms in various types of imperfectly competitive markets. The course addresses both static modes of competition as well as dynamic competition in research and development and product design. The course also examines the scope of effective public policies designed to improve market performance. Throughout the course, we will use mathematical-based models to develop the relevant concepts and test the pertinent theories of firm behavior.

2. Course Requirements

Prerequisites: Econ 101 (Intermediate Microeconomics) is required. Econ 103 (Statistics) is recommended.

Course Reading – Books (optional):

Shy, Oz. Industrial Organization. ISBN 9780262193665

Davis, Peter and Eliana Garces. Quantitative Techniques for Competition and Antitrust Analysis. ISBN 9780691142579

Course Reading – Handouts and News Articles: Additional readings in the form of handouts and news articles will occasionally be distributed by email or in class.

Home work assignments: See Penn Canvas for instructions.

Missed classes: Class attendance is not mandatory. However, I do not provide lecture notes to students and I will often present material that is not in the text. If you are unable to attend class, be sure to retrieve the assignment from the web site for the course, or ask another student to get an extra copy of any assignments passed out, and turn in any assignments due. To help you do this, get the contact information of one or two students who live near you, and do this *early* in the semester (i.e., don't wait until after you become ill and have to miss class).

3. Additional Course Materials/Resources

Web site: On Penn Canvas will be posted: the syllabus, homework assignments, office hours, special announcements, class handouts and other information as it comes up. When in doubt, please refer to it first for information or for course materials that may have been handed out in class.

4. Exams and Grading

There will be one midterm exam and one final exam. These will test (1) your basic mastery of the course material (as presented in the lectures, assigned reading, and homework assignments), and (2) your ability to apply this material to new problems. Anything that was assigned as reading or covered in the class is fair game. The final will be comprehensive.

Exam dates and times: The midterm exam will be given *in class* on the Tuesday before the spring break week. The final exam date and time are set by the university. The dates of both exams are listed at the top of the first page of this syllabus. Neither exam date can be changed. If you plan to take this class you will need to abide by these dates, so please plan your travel schedules around them.

Grading: Your *total score* in the course will be a weighted-average of the homework, the midterm, and the final:

Homework	20%	20%	
Midterm Exam	30%	or	0%
Final Exam	50%	80%,	whichever is greater.

Your final letter grade will be determined by your total score. Historically, I have followed the following curve: A- or A to the *top 29%* of the class (based on total score), and the grade of B-, B or B+ to the *next 40%*. The next 22% earns Cs. **Grades are based solely on the total score for the assigned work and exams.** No extra credit or additional work can be offered, and grades cannot be negotiated.

5. Course Ground-rules

(1) **CELL PHONES AND PDAs:** If you carry a cell phone, please turn it off before entering the classroom. Please do not use iPhones or Blackberries during the lecture – if you must engage in e-communication during the lecture, please step out of the classroom to do so.

(2) **INCOMPLETES AND MAKE-UPS:** Incompletes will not be granted except in cases of genuine emergencies, which must be documented and approved by the department's director of undergraduate studies. The appeal and documentation must be approved *before* the exam, not after. Do not assume that you can miss the midterm or final exam and make it up later. *No make-up exams can be given.* Please do not miss an exam!

(3) **CLASS ATTENDANCE:** Attendance is *not* mandatory. You are, however, responsible for everything covered in class. If you know in advance that you must miss class, you may try to appeal to the kindness of another student to turn in any work that is due, obtain any new assignments, and take careful notes for you. Please don't ask me to "fill you in" on what you missed or to give you lecture notes.

(4) **OFFICE HOURS:** if you have trouble with the course, please send me an email (email address above) noting your availability and we will arrange a mutually agreeable time to meet. Please do not drop by without an appointment, as it is unlikely that I will be able stop what I am doing to meet with you then. Note that coming to my office and asking questions will not affect your grade one way or another. Your grade is based solely on your exams and homework as stated above.

(5) **CALCULATORS ON EXAMS:** The use of calculators will be permitted on exams. The use of large-screen graphics calculators, however, will not be permitted. *Please obtain a small screen calculator for the exam and learn how to use it prior to the exam.* It is your responsibility to figure out how to work such a calculator before coming to the exam

(e.g., how to raise a number to a higher power). It is strongly recommended that you practice your homework problems using the calculator you will use on the exam, so that you become comfortable with it. If you bring a large-screen graphics calculator to the exam, you will be asked to put it away and use a small-screen calculator.

(6) **EXTRA CREDIT:** Your course grade will be based *solely* on the criteria outlined above (homework, exams, class participation). *Please understand that no extra work can be given, or additional credit assigned, to improve your grade.*

6. Tentative Schedule

The schedule below is tentative. Some topics may be cut if time is short.

Jan 16	Intro
Jan 21	Monopoly Model
Jan 23	Profit Maximization
Jan 28	Maximum Theorem and Monotone Comparative Static
Jan 30	Monopoly with Multiple Plants
Feb 4	Utility and Demand
Feb 6	Individual Demand and Market Demand
Feb 11	Consumer Surplus and Social Welfare
Feb 13	Direct Price Discrimination
Feb 18	Indirect Price Discrimination: Two-Part Tariffs, Nonlinear Pricing
Feb 20	Indirect Price Discrimination: Bundling, Dynamic Pricing
Feb 25	Concentration
Feb 27	Midterm Q&A
Mar 3	Midterm Exam
Mar 5	Competition in Quantities
Mar 17	Collusion
Mar 19	Commitment
Mar 24	Competition in Prices
Mar 26	Competition under Capacity Constraints
Mar 31	Price Leadership
Apr 2	Product Differentiation
Apr 7	Product Differentiation, cont
Apr 9	Entry
Apr 14	Vertical Chains and Vertical Integration
Apr 16	Antitrust and Merger Analysis
Apr 21	Advertising
Apr 23	Empirical Methods
Apr 28	Final Q&A

7. Frequently Asked Questions

Q: What is different about this class?

A: There are classes in which to get an A, you need to solve a set of standard problems or to remember a set of concepts. For example, the only way to learn the multiplication table is to memorize it and solve as many examples as you can until you master it. This class is not among them. No matter how many different examples you've solved, the exams will have problems that will allow me to test whether you understand the concepts or just remembered the examples. There will be a question for which tricks or twists that you have seen won't work. So, you'll have to come up with your own tricks. The goal of this class is to teach you how to think and not to teach you a set of tricks that you'll forget before the next semester starts.

Q: What's the best way to study for this class?

A: There are many good ways to study. Here is an option that has worked for some. Go over the problems discussed in class, homework assignments, practice midterms and finals. Copy each problem on a blank sheet of paper. Close all your notes. And then solve it. Justify each step. Explain to yourself what you do and what other options are available. Try to come up with multiple different ways to solve the problem. Try to see which way is faster and when. If X is given and you need to find Y, solve the opposite problem: assume that Y is given and you need to find X. You can try to explain these problems to your friend who didn't take this class but have seen microeconomics before. Don't try to remember how to do it. Try to understand why you do this and not that, how you choose your next step, and why it gets you closer to the solution.

Q: What's the worst way to study for this class?

A: Try to memorize all the posted solutions. It will get you nowhere.

Q: Is there a good textbook for this class?

A: Unfortunately, no.

Q: What is different about the exams?

A: The exams will have way more problems that anybody can solve given the time constraints. The best results are typically about 60-70% of the maximum score. You should keep that in mind and not worry about that. If you are still worried, think about long jump. If the organizers don't put enough sand, the best athletes can be seriously injured. There will be no injuries in this class.

Q: Can I reschedule the midterm exam?

A: No.

Q: What if I miss the midterm exam?

A: Your home assignments and your final will determine your final letter grade.

Q: Can I reschedule the final exam?

A: No.

Q: What if I miss the final exam?

A: Don't. You'll either fail or receive an "Incomplete." The only way to clear the incomplete grade is to take the final exam again next year.

Q: Has anybody ever failed this class?

A: Yes.

Q: Can I get more practice questions?

A: Problem sets and practice exams from the previous years are the best source of practice questions. They will be posted when we have enough material covered.