

INDUSTRIAL ORGANIZATION

Industrial Organization (IO) studies firm behavior and its consequences in settings where the assumptions of perfect competition do not hold. This includes studying the types of pricing and marketing strategies individual firms can use to increase profits; the effects of interactions between firms and their ability to coordinate on anti-competitive strategies; and public policy responses to firm behavior, including antitrust laws and regulation. The primary tools of IO are consumer and producer theory, and especially game theory. Studying IO is an ideal lead-in to careers in antitrust/litigation consulting, public policy, corporate finance marketing and strategy consulting. The aim of the course is to introduce you to the main issues in IO and show you how they matter in the real world.

While much of the material covered in the course will be theoretical, we will consider many real-world applications in particular industries ranging from electricity generation to pharmaceuticals, and from personal finance to airlines.

Assessment: will be based on weekly problem sets (10%, graded on a pass/fail basis; one problem set will be excluded from the calculation), class participation (10%), a midterm (30%) and a final exam (50%). When calculating the final score for the class I will take the maximum of your score based on this point distribution and $(10 \cdot \text{PS scores} + 10 \cdot \text{class} + 80 \cdot \text{final exam} - 10)$ i.e., the midterm score can be dropped for the loss of 10 points. If you fail to take the midterm (without meeting one of the rules laid down by the university that require a make-up) then the same rule will apply. We will hold some in-class discussions of antitrust cases that will contribute to your class participation score. Your participation score will not be affected if you miss the occasional class. However, if you are going to be missing a large number of classes you should let me know at the beginning of the semester. Bring a calculator to the exams, which will be closed book. A formulae sheet will be provided.

Pre-requisites: a C- in ECON 326 or 306. Familiarity with linear algebra, differentiation and basic game theory are required to do well in the course.

Academic Integrity: UMD students are expected to abide by the Honor Code, administered by the Student Honor Council. Please make yourself aware of the consequences of cheating, fabrication, and plagiarism.

Absences and Make-up Exams: Make-up exams will be granted only to those students whose excuse complies with University policy. The four valid excuses according to University policy are medical conditions, religious observances, participation in University events at the request of University authorities, and compelling circumstances beyond your control. If you believe you need a make-up, please inform me as far in

advance as possible by email and I will set up a face-to-face meeting. You should be ready to provide appropriate documentation. See the assessment section for what happens if you miss the midterm without approval.

Students who need accommodation: If you need accommodation for exams, please contact me as soon as possible. Students registered who provide documentation from the University's Disability Support Services will always be accommodated.

Contact details: my permanent office will be Tydings 3135, telephone number 301-405-8325. Until I move into it I will be in Tydings 4115C, but the telephone number should work.

Website & email: Materials will be available on ELMS: <http://www.elms.umd.edu> . I expect students to check ELMS regularly. I will post important announcements on ELMS and send them by email. If you send an email to me, please include ECON 460 in the subject line so that I can keep track of them. If I do not respond within 24 hours during the week (48 hours at the weekend), then send me another email in case I missed it.

Office hours: Tuesday 9:30-11, but we can make a separate arrangement if you have a well-defined question. Sometimes I may have to change office hours to a different time or day, so check ELMS. Problem sets will normally be due on Wednesdays. Ideally I would like to discuss problem set questions in class on Mondays, so that everyone can hear the question and the answer.

Materials: Lecture slides or handouts will be available prior to class. The theoretical material that I expect you to know will be on these slides/handouts. Papers/case materials that I expect you to know will be clearly indicated.

There is no required textbook. However, there are some useful books that you may want to look at.

Jeffrey Church and Roger Ware, *Industrial Organization: A Strategic Approach*, 2000 which is now freely available online (an electronic copy will be posted). This book is long and detailed, but it was the standard textbook for undergraduate courses at Harvard, Stanford etc.

Cabral, Luis, *Industrial Organization: An Introduction*, 2000, MIT Press. A compact book that is well-regarded, but is lacking some math. A good book to introduce yourself to a topic.

Carlton, Dennis and Jeffrey Perloff, *Industrial Organization*, 4th edition, 2005. A good book for empirical examples and intuition.

Jean Tirole, *The Theory of Industrial Organization*, MIT, 1987. This book is highly recommended for anyone who wants to do further study in IO.

Paul Belleflamme and Martin Peitz, *Industrial Organization: Markets and Strategies*, Cambridge University Press, 2010. A very nice Masters level textbook that is useful for post-Tirole theory.

Lynne Pepall, Dan Richards, George Norman, *Industrial Organization: Contemporary Theory and Empirical Applications*, 2008, Wiley. Widely used, idiosyncratic on some topics and pretty expensive.

I will distribute some chapters from various editions of:

J Kwoka and L White (eds.), *The Antitrust Revolution*, Oxford University Press. This book covers different antitrust cases with the chapters usually written by someone who participated as an expert witness or consultant in the case.

Michael Whinston, *Lectures on Antitrust Economics*, MIT, 2006. Excellent book covering a small number of specific topics; I'll distribute some material from it.

OUTLINE

The course will be divided into three parts. The first part looks firm pricing and marketing policies when the existence of competitors is ignored. The second part considers how competition affects outcomes, and how governments might act to preserve competition. The final part of the course consists of some more specialized topics, such as the design of auctions, as a way of encouraging competition, and the types of moral hazard and adverse selection problems that can occur in insurance markets.

Schedule

Part I: Monopoly Strategies

1	4-Sep	Introduction, motivating examples and the profit maximizing assumption
2	9-Sep	Monopoly pricing, consumer welfare and deadweight loss. Pricing of complements and substitutes.
3	11-Sep	Vertical pricing/double marginalization. Price discrimination.
4	16-Sep	Price discrimination.
5	18-Sep	Price discrimination and bundling.
6	23-Sep	Durable goods pricing
7	25-Sep	Exploiting imperfectly informed consumers
8	30-Sep	Advertising and its interpretation
9	2-Oct	Regulation of monopoly, incentives.

Part II: Oligopoly Competition

10	7-Oct	Game theory review. Quantity and price competition.
11	9-Oct	Competition with horizontal and vertical product differentiation.
12	14-Oct	Determinants of market structure: exogenous and endogenous sunk costs.
	15-Oct	Review
13	16-Oct	MIDTERM
14	21-Oct	Mergers and merger policy
15	23-Oct	Mergers and merger policy.
16	28-Oct	Mergers and merger policy.
17	30-Oct	Collusion, cartels, facilitating practices and their detection
-	4-Nov	NO CLASS
18	6-Nov	Collusion, cartels, facilitating practices and their detection
19	11-Nov	Collusion, cartels, facilitating practices and their detection
20	13-Nov	Strategic Firm Behavior: Entry Deterrence
21	18-Nov	Strategic Firm Behavior: Entry Deterrence
22	20-Nov	Strategic Firm Behavior: Predation

Part III: Advanced Topics

23	25-Nov	Auctions and Market Design
24	27-Nov	Auctions and Market Design
25	2-Dec	Asymmetric Information
26	4-Dec	Asymmetric Information
27	9-Dec	Network Competition or R&D
28	11-Dec	Network Competition or R&D
	18-Dec	Review
	19-Dec	Final Exam 1:30-3:30

Textbook References and Readings by Topic

In the following CW refers to Church and Ware, LC refers to Cabral, with the numbers as chapter references. Note that you do not have to read these textbook references unless I distribute them: I am including them for reference if you need them.

We'll add to the list as the semester progresses.

Introduction and Examples

LC 1,3; CW 1, 2.1, 3.4

S. Borenstein and N. Rose, "How Airline Markets Work...Or Do They? Regulatory Reform in the Airline Industry"

US Department of Justice Complaint Against the US Airways and American Airlines Merger (August 13, 2013)

Monopoly Pricing (and variants)

LC 5.1,11; CW 2, 22

Price Discrimination

LC 10; CW 5

F. Lichtenberg, Pharmaceutical Companies' Variation of Drug Prices Within and Among Countries Can Improve Long-Term Social Well-Being, *Health Affairs*, 30(8),2011,1539-1544 <http://content.healthaffairs.org/content/30/8/1539.full.html>

Durable Good Pricing

CW 4.3

J Chevalier and A Goolsbee (2009), "Are Durable Goods Consumers Forward-Looking? Evidence from College Textbooks", *QJE*, 124(4): 1853-1884

Imperfectly Informed Consumers/Behavioral Models

M. Armstrong and J. Vickers (2012), "Consumer Protection and Contingent Charges", *Journal of Economic Literature*, 50(2), 477-493

G Ellison and S Ellison (2009), "Search, Obsfuscation and Price Elasticities on the Internet", *Econometrica*, 77(2), 427-452

V. Stango and J. Zinman (2009), "What Do Consumers Really Pay on Their Checking and Credit Card Accounts? Explicit, Implicit, and Avoidable Costs", *AER*, 99(2), 424-429

Advertising

LC 13; CW 6.3, 17

Regulation

LC 5.2,5.3, CW 24-26

Quantity and Price Competition

LC 7; CW 8

Horizontal and Vertical Product Differentiation
LC 12; CW 11

Determinants of Market Structure
LC 14; CW 4.1, 8.2
Case studies from J Sutton, *Sunk Costs and Market Structure*

Mergers
LC 15.3, CW 23
M Whinston, *Lectures on Antitrust Economics*, chapter on horizontal mergers
Department of Justice and Federal Trade Commission (2010), *Horizontal Merger Guidelines*

Collusion
LC 8, CW
R Clark and J-F Houde, "Collusion with Asymmetric Retailers", mimeo, HEC Montreal

Strategic Firm Behavior
LC 15, CW 13-16, 20-21
G. Ellison and S. Ellison, "Strategic Entry Deterrence and the Behavior of Pharmaceutical Incumbents Prior to Patent Expiration", *AEJ Micro*, 3, 2011, 1-36

Auctions
S. Athey, J. Levin and Enrique Seira (2011), "Comparing Open and Sealed Bid Auctions: Evidence from Timber Auctions", *Quarterly Journal of Economics*, 126 (1): 207-257.

Asymmetric Information

Networks
LC 17

R&D
LC 16, CW 18