

NORTHWESTERN UNIVERSITY
Department of Economics

Spring 2003

Economics 349

INDUSTRIAL ECONOMICS

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Course Description: The course is an extension and an application of the techniques introduced in Economics 310 to competitive markets for many kinds of goods and services. In contrast to Economics 350 which deals with markets where there is limited competition and the possibility of monopoly power, this course deals with markets where firms actively compete with each other. The course considers how competitive firms will choose price, output, product variety and product quality. It will also consider strategic behavior in deterring entry of new firms, setting advertising budgets, and forming relationships with suppliers and/or retailers. The emphasis is on how economic models can be used to explain and predict actual market conditions in different industries. The course will also make use of econometric techniques to test the validity of market relationship predicted by theoretical models.

Prerequisites: Economics 281, 310-1 and 310-2.

Course Content: A syllabus of topics to be covered and a class schedule are attached.

Teaching Method: Two lectures a week on Mondays and Wednesdays from 12:30 to 2:00 in Parkes Hall 224, plus a weekly discussion section conducted by the Teaching Assistant held on Fridays from 12:30 to 2:00 in the same room.

<u>Office Hours:</u>	Mondays	2:30 to 4:00	Prof. Savage	Andersen 330
	Tuesdays	10 to 12	Fan Zhang	Andersen 328
	Wednesdays	10 to 11:30	Prof. Savage	Andersen 330
	Wednesdays	3 to 4:30	Fan Zhang	Andersen 328

You can arrange for an appointment at other times by e-mailing, telephoning or seeing us before or after the lectures or discussion sections.

Evaluation: Evaluation will be made on a final examination (40% of the total grade), two midterm examinations (25% each), and seven problem sets (10%). The midterm examinations will be held on Monday April 28 and Monday May 19, and the final examination from Noon to 2pm on Wednesday, June 11.

Problem Sets: There are six problem sets, which will be graded, and then discussed at the Friday sessions. **Copies of the problems sets are attached.** The completed problem sets should be returned to a box in the Economics Department Office (Andersen Hall 302) by 5 pm on the Wednesday prior to the relevance discussion section. Problem sets received late receive zero credit. The schedule for the problem sets is:

<u>Set #</u>	<u>Hand in by 5 pm on</u>	<u>Returned and Discussed</u>
1	9 April	11 April
2	16 April	18 April
3	23 April	25 April
4	7 May	9 May
5	14 May	16 May
6	29 May	4 June (Monday of Reading Week)

The discussion section on April 7 will be a lecture review of the relevant points you should have learned on perfect competition and monopoly in Economics 310-1. The discussion sections on May 2 and May 23 will be devoted to reviewing the midterm examinations. The discussion section on May 30 will be make up lecture due to the Memorial Day holiday on May 26. Problem Set 6 will be returned and reviewed in a discussion section on Monday June 4 at the start of Reading Week. As a result, the hand-in date for Problem Set 6 has been moved back one day to Thursday, May 29.

Text Book: Dennis W. Carlton and Jeffrey M. Perloff, *Modern Industrial Organization*, Third Edition, Addison Wesley Norman. The relevant chapters are noted in the attached syllabus. This book has been in widespread use for many years, so there should be a good supply of used copies. A used copy of the first or second edition would also be fine. The chapter numbers vary between editions, but it is quite obvious which chapters deal with which topics.

The lectures follow the contents of the book closely. We will cover about 11 of the 20 chapters. The book also includes material that is in taught in other classes at Northwestern: Economics 310-1 (chapter 9 on price discrimination), Economics 350 (parts of Chapter 2 and 16, and chapters 5, 19, 20 on mergers, patents, cartels, anti-trust laws and regulation) and Economics 361 (chapter 18). There are also a few topics that we are unable to cover in a quarter-length course as opposed to a semester-length course including tie-in sales (chapter 10), limited information on price (part of chapter 13), durability (chapter 15), innovation (Chapter 16), and market clearing (chapter 17).

SYLLABUS

Listed below are the topics covered in the course. At the end is a timetable showing when each subject will be covered. In parentheses after the initials "CP" are the relevant chapters in the third edition of the textbook.

PART 1: INTRODUCTION TO MARKET STRUCTURE

Development of the economics of industrial organization We initially review the origins of the study of industrial economics, and how the subjects discussed in this course are related to other courses offered by the department (CP chapter 1).

Origin and organization of firms Why firms exist, their objectives, and the types of organization structures that encourage management to act in the best interests of the owners of the firm (CP chapter 2 pages 11-18).

Market structure and performance We review the different categories of markets that economists commonly use: monopoly, oligopoly, perfect competition etc. The method of categorization typically being the amount of "market power" that individual firms have. We will also discuss some common measures used to assess market power. The performance of different sectors of the American economy will be compared to see if different market structures are reflected in prices and profitability (CP chapter 8).

PART 2: BASIC MODELS OF MARKET STRUCTURE

Perfect competition and monopoly We will very briefly revise the principal features of perfect competition, monopoly and the welfare costs of monopoly (CP chapter 2, pages 28-35, chapter 3, pages 56-74, and chapter 4, pages 87-98).

Dominant firm models We will first consider markets in which there is one dominant firm, surrounded by a large number of small competitors (CP chapter 4, pages 107-118).

Oligopoly In many markets there are a few large *oligopolistic* firms which control most of the output. These firms can either conspire as a *cartel* (mainly discussed in Economics 350) or they can compete very vigorously. We start our analysis by discussing the traditional static models proposed by Cournot, Bertrand, and von Stackelberg. In more recent times these models have been generalized by the use of *game theory*. We will discuss the static one-period games and the more complex models which allow competition to continue over many time periods (CP chapters 5 (quickly skim this chapter), and 6).

Choice of product variety Many markets are characterized by firms who sell a product slightly different from that of their competitors. The traditional model of *monopolistic competition* is used as a

starting point to discuss how much *product variety* should be, and is, supplied in the market (CP chapter 7).

Choice of product quality Other markets are characterized by firms that produce similar products but of differing quality. The problem in these markets is that consumers may not be fully informed about the quality on offer. We explore the effect this has on the market offerings, the incentives for firms to cheat the consumer, and how producers of high quality goods can signal to consumers that a high-quality product is on offer (CP chapter 13, pages 420-430)

PART 3: TOPICS IN INDUSTRIAL ECONOMICS

Entry deterrence Firms already in an industry have incentives to drive their current competitors out of the market, and in this way deter potential entrants.. This will only occur when markets are characterized by *barriers to entry* (CP chapter 3, pages 74-82). When barriers are present, firms may engage in strategies such as *predatory pricing*, *limit pricing*, *brand proliferation*, and *raising cost* (CP chapter 11, pages 333-361). Note that public policy concerning the legality of some of these strategies is the subject of Economics 350.

Advertising We will explore the economics of product advertising (CP chapter 14, pages 451-467).

Vertical integration and vertical restraint. We discuss why a manufacturing firm may wish to own either its suppliers or the retail outlets for its product, or influence how they do business (CP Chapter 12).

SCHEDULE

Week 1.	Development of the economics of industrial organization; Origin and organization of firms; Alternative market structures; Revision of Economics 310 (Friday).
Week 2.	Structure and performance; Dominant firm model; Static models of oligopoly.
Week 3.	Static and game theoretic oligopoly models.
Week 4.	Product variety.
Week 5.	Midterm examination I; Product quality.
Week 6.	Product quality; Entry deterrence.
Week 7.	Entry deterrence; Advertising.
Week 8.	Midterm examination II; Advertising
Week 9.	MemorialDay(Monday); Vertical integration (Wednesday) and vertical restraint (Friday).