

EBGN 401/598: Special Topics – Industrial Organization

Fall 2013

Instructor: Harrison Fell (hfell@mines.edu)

Where: CTLM B56

When: 12:30 – 1:45 T, TH

Office hours: 2:00 – 3:30 T, TH and by appointment

Office: Engineering Hall Room 117

Course Website: website will be managed through the given blackboard site.

Course overview:

Industrial organization (IO) is the study of market structures and the way firms compete with one another. In this course, we will primarily be examining non-competitive market structures (e.g. monopolies, duopolies, oligopolies...) and how firms behave in such settings. To be able to predict such behavior we will also review basic game theory concepts, models, and solution techniques. Finally, beyond assessing firm behavior in non-competitive settings we will also examine public policies aimed addressing potentially detrimental aspects of these market structures.

As this is a cross-listed upper-level undergraduate and graduate course, students are expected to have a solid grasp of at least intermediate microeconomic concepts. We will also be using calculus throughout the class, though I do not expect to be going much beyond simple derivatives and possibly basic integrals.

Reading:

Required Textbook - Shy, Oz. 1995. *Industrial Organization: Theory and Applications*. MIT Press, Cambridge, MA

Optional Textbook-

Beyond these texts, I will also occasionally supplement the material presented in the book with related journal articles. These articles will be assigned in class and are not given on the syllabus.

Grading:

The grade for the class will be determined by three deliverables – homeworks, a midterm, and a final. The weights of these are as follows:

Homeworks – 20%

Midterm – 35%

Final – 40%

Note these weights do not sum to 100%. The remaining 5% will be given at the instructor's discretion for class participation, attentiveness, punctuality and attendance.

Throughout the course of the semester there will be 4 homeworks given, 2 before the midterm and 2 after the midterm. These homeworks can be discussed among classmates, but all must turn

in their own assignments. Additionally, homeworks turned in late will not be accepted unless the student gets prior approval.

The midterm and final will be in-class, closed-note, and closed-book exams. The midterm will be given at the approximate mid-point of the semester. Students will be informed of the midterm's timing at least one week in advance. Consult the semester's final exam schedule to learn the date of the final exam.

Academic Integrity:

The Colorado School of Mines affirms the principle that all individuals associated with the Mines academic community have a responsibility for establishing, maintaining and fostering an understanding and appreciation for academic integrity. In broad terms, this implies protecting the environment of mutual trust within which scholarly exchange occurs, supporting the ability of the faculty to fairly and effectively evaluate every student's academic achievements, and giving credence to the university's educational mission, its scholarly objectives and the substance of the degrees it awards. The protection of academic integrity requires there to be clear and consistent standards, as well as confrontation and sanctions when individuals violate those standards. The Colorado School of Mines desires an environment free of any and all forms of academic misconduct and expects students to act with integrity at all times.

Academic misconduct is the intentional act of fraud, in which an individual seeks to claim credit for the work and efforts of another without authorization, or uses unauthorized materials or fabricated information in any academic exercise. Student Academic Misconduct arises when a student violates the principle of academic integrity. Such behavior erodes mutual trust, distorts the fair evaluation of academic achievements, violates the ethical code of behavior upon which education and scholarship rest, and undermines the credibility of the university. Because of the serious institutional and individual ramifications, student misconduct arising from violations of academic integrity is not tolerated at Mines. If a student is found to have engaged in such misconduct sanctions such as change of a grade, loss of institutional privileges, or academic suspension or dismissal may be imposed.

The complete policy is [online](#).

General Class Outline:

Below is a tentative outline for the class. I stress that this is a tentative schedule as some topics may take longer and other shorter than I anticipate. Please consult the blackboard page for this class frequently for updates on topics covered and required readings.

Week 1 – 2: Microeconomics Review

Topics:

- Production Function
- Cost Function
- Demand Function
- Competitive Equilibrium

- Monopolistic Equilibrium

Readings: Chapters 3 – 5

Week 3 – 4: Game Theory Basics

Topics:

- Normal Form Games
- Extensive Form Games
- Finitely Repeated Games
- Infinitely Repeated Games
- Games of imperfect information

Readings: Chapter 2

Week 5: Homogenous Good Oligopoly Models

Topics:

- Cournot Game
- Bertrand Game
- Collusion

Readings: Chapter 6

Week 6 – 7: Models of Differentiated Products

Topics:

- Price games with differentiated products
- Monopolistic Competition
- Location Models

Readings: Chapter 7

Week 8 – 9: Concentration and Barriers to Entry

Topics:

- Concentration measures
- Horizontal and vertical mergers
- Models of entry deterrence

Readings: Chapter 8

Week 10: Research and Development

Topics:

- Innovation Races
- Market failures in innovation
- Cooperation in R&D
- Patents

Reading: Chapter 9

Week 11: Quality, Durability, and Warranties

Topics:

- Quality and product differentiation
- Market structure and quality/durability
- Signaling models

Reading: Chapter 12

Week 12: Pricing Tactics

Topics:

- Two-part tariff
- Non-homogenous pricing
- Peak-load pricing
- Dynamic pricing models

Reading: Chapter 13

Week 13: Principal-Agent Models

Topics:

- Principal-agent problem
- Moral hazard models
- Adverse-selection models

Reading: Chapter 15

Week 14: Search Models

Topics:

- Price dispersion and searching
- Search theory

Reading: Chapter 16

Possible Additional Topics:

IO models in Electricity Markets

IO models in Environmental Economics

IO models in Energy Markets