

Economics 4340: Industrial Organization Fall 2012

Instructor: Dr. Vivek Ghosal
Office: 224 Old CE Building
Classes: Tuesdays and Thursdays from 12:05-1:25pm.
Office Hrs: Thursdays 3-4pm **and** by appointment.

The syllabus contains important details. It is your responsibility to be familiar with all the information provided here.

This is a **preliminary syllabus**. I am likely to make a few changes to the syllabus as we make progress during the semester. These will be conveyed to you via emails sent from GT's T-square site and announced in class. It is **your** responsibility to stay updated with class lectures and postings on the T-square site. It is **your** responsibility to make sure your email is working and the inbox is not full so that you can receive emails and attachments via T-square. Create a folder "Econ 4340 Fall 2012" in your email account inbox to store all class emails sent from T-square. Finally, the emails sent via T-Sqr will be sent **only to the email on file with GT**; so make sure GT has your correct email, as recorded in the Oscar account. I will only sent out emails via the class T-square site.

Course Overview

The objective of this course is to gain an understanding of the structure of markets for goods and services, and how different markets may imply different kinds of strategic behavior by firms. We will examine how markets populated with a few firms may show different pricing and production behavior as compared to the competitive or monopoly cases. We will also examine a variety of issues related to product differentiation, collusion between firms, strategic investment behavior, research and development expenditures, and some aspects of public policy related to antitrust and regulations. The course has much to offer in terms of understanding the behavior of firms, business strategies, anti-competitive conduct, R&D and advertising strategies, among other areas. The materials in several of the chapters are quite complex and will require you to put in work systematically, and pay attention to the details of how to solve the models.

Calculus and algebra: We will use differential calculus and algebra throughout the course. To make sure you are comfortable with the material, please see Chapter 9 (p. 204-219), Chapter 10 (p. 224-238 and p. 226-239), and Chapter 11 (p. 246-257); these will give you an indication of the level of difficulty of the materials. If you need to refresh your math skills, you should look through a college help book on calculus (e.g., published by Harcourt Brace College Series, among others). I will spend no time on this in class and you are expected to take care of the math and calculus basics yourself. (See "General Comments" section at the end of the syllabus.)

Specific Learning Objectives

Knowledge

- Understanding how firms choose prices, production quantities, physical capital investment amounts, R&D expenditures, and other key decision variables
- Working knowledge of the models of oligopolistic behavior
- Understanding market outcomes under alternative forms of competition
- Working knowledge of antitrust enforcement and anticompetitive behavior
- Understanding the effects of Governmental policies and regulations on firms' competitive and innovation outcomes

Skills

- Graphical and mathematical analysis
- Use of algebra and calculus to solve problems and models
- Problem solving methods as applied to industrial organization and firm strategy
- Ability to apply various analytical and quantitative tools to economic concepts and ideas
- Ability to analytically and quantitatively analyze current affairs related to industrial policies, antitrust laws and enforcement, and regulatory interventions
- Critical thinking and logic

Perspectives

- Understanding the extent of strategic interdependency between firms and resulting decision-making choices
- Understanding of the functioning of markets and industries
- Appreciation for the costs and benefits of alternative decision-making choices by firms
- Understanding the effects of Governmental intervention in markets as it pertains to firms' competitive and innovative strategies

Required Textbook

Industrial Organization: Contemporary Theory and Practice, by Lynne Pepall, Dan Richards and George Norman, **4th ed., 2008**. Since this book has been out for 3-4 years, there should be ample supply of used books online as well as in the GT B&N bookstore.

Comments:

1. Please do NOT buy older edition of this text as the materials are different.
2. Please do NOT buy the 2010 edition as it is not much different and costs a lot more.

Class Lectures and Attendance

Attending class is important as I will deviate from the posted lecture slides and textbook material on many occasions. The course materials are not easy in will require a fair amount of work, understanding of key concepts and proficiency in basic math (differentiation, solving sets of equations, algebra). It is your responsibility to attend class and be current with the material. **If you miss class and material from that class shows up on the test, good luck!** By necessity, the class lectures will be quite condensed; you will have to rely on the textbook for details. The best strategy for you will be to take only the essential notes during class. I will post the class lecture slides on the T-Sqr site. The slides will only provide the basic information – the details and discussion will be done in class. Take notes on which chapter, topic and the main points, and fill in the details from the textbook later. This will enhance your understanding of the material. Class lectures and textbook should be used as complements and not substitutes.

If you miss class, talk to another student who attended class regarding what we covered. This is your responsibility. **If you miss class, I will not go over the material with you on an individual basis.**

Tests and Grades

There will be **THREE** 70 minute tests (including the final). **All tests are mandatory.** Each test will be worth 50 points. All tests will start at 12:05pm and end at 1:15pm. Do not be late for the test as there will be **NO extra time provided.** Without exception, all students will have to turn in answer sheets at 1:15.

The questions will be problem-solving oriented, and a mix of multiple-choice and short-answer questions, based on the materials covered in class, lecture slides, textbook and supplementary materials. The tests will be **cumulative** containing all materials covered for the previous test plus all the new materials. For example, Test 3 will contain all the materials covered for Tests 1 and 2 plus all the new materials done after Test 2. Similarly for Test 2. The material for each test will be announced in class one week before the test. I will post the scores for each test about 14 days after the test (given the number of students, it will take me time to go through all the tests).

VERY IMPORTANT: There is NO makeup test.

If you miss a test for health reasons or official GT events:

1. Your score on that test is **zero**.
2. Your score on the next test, will count as double. For example, if you missed Test 1 and your score on Test 2 is 40/50, then your score for Test 1 is 40/50 and Test 2 is also 40/50.
3. **This option is available for only one missed test.** For example, if you miss two tests, your score on one test will be **zero** and the other will be entered based on your score on the scheme noted above.
4. To avail of this option – that is, miss a test and have the next test count double – you will need to show the following documentation:

(a) If you are ill – the accompanying doctor's note must say that **you cannot (or could not) take the test**. If the doctor's note does not state this clearly, your score on the missed test will be zero and the next test will not count as double. Merely producing a

note saying that you visited the GT health center does not count as a valid reason; the note must specifically state that **you were in no position to take the test.**

(b) For GT official activities that you have to participate in. You will have to produce the relevant official GT documentation noting this fact. The activity that you participate in has to be significant – e.g. you are on a GT team with an official participation date that is the same day as the exam day. Social or personal events of any sort do not count as valid reason to have the next test count as double. In these circumstances, your score on the missed test is zero and the next test will not count as double.

To be fair to all students in the class, there will be no exceptions to the policy stated above.

Curve

If the class mean on a particular test falls below 76%, I will add a curve to bring it up to 76%. For example, if the class mean on a test is 73%, I will add a 3% curve to that test. This protects you from tests that may be somewhat more difficult than others. If there is a curve, it will be posted on the class T-square site when the test scores are posted. Only individual tests are curved **if necessary. There is no additional curve at the end of the semester.**

Test Dates

* Dates will be included once the final syllabus is distributed the first day of class.

Letter grade cutoffs

A: 90% B: 80% C: 70% D: 60% F: Below 60%

NOTE: the cutoffs are strict. That is, 89.9% is a B, 79.9% is a C, 69.9% is a D and 59.9% is an F. This scale is firm and **please do not send me emails or ask questions about this.**

If you picked a **P/F** or a **S/U** option, you will have to get a letter grade of C to get P or S. Letter grade of D counts as F/U. There will be no exceptions to this rule.

IMPORTANT: There is no additional assignment, makeup test, makeup quiz, extra-credit problems. The 3 (Three) mandatory tests are the only items that count towards your grade.

Textbook Chapters

Notes:

1. Lectures: For some topics I will follow the textbook closely. For other topics I will add material from other sources. And, for some of the material, I will provide an alternative way of interpreting the model and results. All of this implies that you need to pay careful attention to class lectures. If you miss class, please ask other students regarding the material that was a covered. This is your responsibility. As I noted above, I will not go over missed class lectures on an individual basis.

2. Most chapters contain a lot of text based details. I will only briefly cover these in class and you are expected to read these yourself. In the lectures, after providing the motivation, I will mainly focus on the mathematical and graphical materials.

3. Unless specified, skip the material in the Appendix.
4. If no page numbers are specified, the full chapter is relevant.

A. Foundations

* I will move quickly through these sequence of chapters as a lot of it is fairly basic.

Ch.1: Industrial Organization: What, How and Why? (Read this material yourself.)

Ch.2: Some Basic Microeconomic Tools. (Most of this is from Econ 2100 or 2106. You are expected to read this material yourself.)

Ch.3: Market Structure and Market Power.

Ch.4: Technology and Cost. (The initial part of this material, sans the algebra, is similar to Econ 2100 or 2106. Plus it introduces several key concepts we'll use repeatedly during the semester.)

B. Game Theory and Oligopoly Markets

Ch.9: Static Games and Cournot Competition.

Ch.10: Price Competition.

Ch.11: Dynamic Games and First and Second Movers.

C. Analysis of Mergers

Class notes only. I will provide handouts on merger theory which will rely on the materials and techniques covered in part B above. Plus I will distribute handouts on examining specific mergers that were investigated (and some blocked) by the U.S. Department of Justice and the U.S. Federal Trade Commission.

D. Anticompetitive Strategies

Ch.14: Price Fixing and Repeated Games. (Pages will be announced later.)

Ch.15: Collusion in Practice.

E. Industry Regulations and Firm Strategy

* I will provide more details soon. We will examine issues related to when the Government may set regulatory standards in an industry (e.g., pollution) and then examine how the firms in the market respond to this in terms of their competitive and innovative strategies. I will distribute presentation slides and selected papers via T-Square. We will rely on the materials and techniques covered in parts A and B above.

General Comments

Look through the problems and solutions for chapters 2, 3 and 4 in advance. As noted in the syllabus (posted on T-sqr), these chapters are part of the basic foundation material and I expect you to read through this material yourself. All of this is relevant material for the test. In the event some of you get the time to work ahead of class, you may want to look through Chapter 9

material and the back of chapter problems. Later, I will post the solutions to the back-of-chapter problems in the Econ 4340 T-Sqr course site, in the “Resources” area.

As noted in the syllabus, we will use basic calculus and algebra in the course. I expect everyone to be familiar with the concepts as I will not cover them in class.

To get a perspective of the **level of difficulty of the course**, please see the material in:

- (1) Chapter 9, pages 204-219;
- (2) Chapter 10, pages 224-238 and pages 226-239;
- (3) Chapter 11, pages 246-257.

While this may not seem like a lot of material, for actual classroom teaching and tests, this material will be the focal point in deriving equilibrium outcomes related to firms' prices, quantities, profits, investments, and R&D expenditures.

In terms of the back-of-chapter problems, you will **not** be required to turn them in. If you do the problems and get the solutions right on your own, the chances of doing better on the tests will be improved. As we cover the chapters, I will inform you of which problems you should focus on in particular.

Class Attendance Policy

I will periodically take class attendance. If your attendance falls below 66% in my sample (that is, on average you miss one in three classes), I will deduct 15% from your cumulative class score (from the 4 tests). Absence due to medical reasons will require a letter from your attending physician: the doctor's note must say that you cannot (or could not) attend class. This rule is for real and strict. I will put in a lot of time and effort into creating a class that is interesting. It is imperative that you make every effort to attend class. **If you cannot commit to attending, this is not a class you should enroll in.**

Email Policy

Due to the large number of students (about 300 in my two classes), it will **not** be possible for me to reply to emails. The best thing for you would be to stop by my office hours, or set up an appointment to see me. Please do not send me emails regarding material for the tests and class lectures – it is your responsibility to attend class and be up to date with all the information posted on the class T-square site and the emails sent to you via T-square.