

# INTRODUCTION INTO THE INFORMATION SOCIETY

Course manual

Course manual EBC2018

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Department of Economics

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# 1 Introduction

This course is an extension of the (standard) first year Microeconomics course with a focus on information goods. The term “information goods” is very broad and includes in principle everything that can carry information, such as books, databases, music, movies, web pages, etc. In order to understand how these markets function, we use standard analytical tools. Hence, the first part of the course, is devoted to introducing the basic tools of game theory that are commonly used to model strategic interaction. Then, in the second part of the course, we are going to use these tools to systematically study particular characteristics of markets of information goods.

It is expected that the students who take this course have a solid background in Microeconomics at the level of having passed the first-year course *Microeconomics* (EBC1010). It is also recommended that the students have prior knowledge of basic calculus and probability theory, which roughly speaking corresponds to a minimum level of familiarity with the topics covered in *Quantitative Methods I* (EBC1006) and *Quantitative Methods II* (EBC1034).

Though the course is demanding, it is structured in a way such that a student can be successful by regularly attending the lectures and the tutorials, and studying according to the schedule described below. A rough estimate of the minimum self-study time needed to pass the course is about 14-16 hours per week.

## 2 Course structure

As it has been already mentioned above, the course consists of two parts. During **Part I**, which consists of 2 tutorial meetings, students are going to revisit some basic concepts from Game Theory. During **Part II**, which consists of 12 tutorial meetings and is the main part of the course, students will cover some basic topics from the literature on the economics of information goods. The teaching method will mostly rely on presentations that the students will do in groups. There will be 7 working groups per tutorial group, randomly formed at the beginning of the course. Each working group will do 4 presentations during the entire course.

### 2.1 Tutorial meetings

There are three different types of tutorial meetings. The structure of each type of meetings is presented in detail below. Each theory session is chaired by a **discussion leader** who is responsible for coordinating the discussion in a professional manner. The discussion leader for each meeting will be assigned during the first meeting. In case the discussion leader cannot be present at the corresponding meeting, he/she should inform the tutor at least 24 hours in advance, in order to appoint a replacement discussion leader. If the discussion leader is absent without prior notification,

he/she fails the participation requirement of the course (see below). It is extremely crucial that all students actively participate in the discussion. Note that participation in the tutorial meetings is compulsory (see also the section on grading below).

- **Game Theory:** These correspond to the first 2 meetings.
  - Before every theory session each student is expected (i) to have carefully studied the designated literature, and (ii) to have tried to solve a problem set. The solutions of the problems are included in the book (see literature section below), but they should only be used as a hint. Quickly scanning the material is *not* sufficient preparation.
  - At the beginning of each theory session the students will have the chance to ask questions about the literature, which will be then discussed in the group. Consequently some selected problems will be discussed. Students will be asked to go the board to present their solution.
- **Theory of information goods:** These correspond to the last 12 meetings and constitute the main part of the course. These 12 meetings are divided into 4 blocks (of tutorials), each corresponding to a different topic. A block begins with a tutorial meeting called the “Theory” and continues with additional tutorial meetings called “Applications”. The teaching method will be based on presentations made by the students (in working groups).
  - **Theory:** The aim of these meetings is to review the theory on the main topic of the block. This will be done by means of a 45 min presentation (by one working group), followed by a short discussion. Then, after a short break, the remaining working groups must each come up with some concrete real-life examples where the theory applies. The students are expected to have prepared these examples before the tutorial meeting, meaning that everybody must read the corresponding literature and not just the working group that presents.
  - **Applications:** The aim of these meetings is twofold: on the one hand to introduce the students to the fine details of the theory; on the other hand to train the students interpret the conclusions of advanced scientific articles for a wider audience. This will be done by means of presentations (again in working groups). Each presentation will last 35 min (including discussion), followed by a 5 min break. Once again, everybody must read the corresponding literature and not just the working group that presents.

## 2.2 Literature

The **textbooks** for this course are:

BONANNO, G. (2015). *Game Theory*. Open access textbook (free download).

- SHAPIRO, C. & VARIAN, H. (1999). *Information Rules: A Strategic Guide to the Network Economy*. Harvard Business School Press.
- VARIAN, H., FARRELL, J. & SHAPIRO, C. (2004). *The Economics of Information Technology*. Cambridge University Press..
- Moreover, the presentations will be based on the following **articles**, all of which can be downloaded with our university's licenses:
- ACQUISTI, A. & VARIAN, H. (2005). Conditioning Prices on Purchase History. *Marketing Science* 24, 367–381.
- ARMSTRONG, M. (1999). Price Discrimination by a Many-Product Firm. *Review of Economic Studies* 66, 151–168.
- AUSUBEL, L. (1991). The Failure of Competition in the Credit Card Market. *American Economic Review* 81, 50–81.
- BAKOS, Y. & BRYNJOLFSSON, E. (2000). Bundling and Competition on the Internet. *Marketing Science* 19, 63–82.
- BAYE, M., MORGAN, J. & SCHOLTEN, P. (2004). Price Dispersion in the Small and in the Large: Evidence from an Internet Price Comparison Site. *Journal of Industrial Economics* 52, 463–496.
- BESEN, S. & FARRELL, J. (1994). Choosing How to Compete: Strategies and Tactics in Standardization. *Journal of Economic Perspectives* 8, 117–131.
- BRYNJOLFSSON, E. & SMITH, M. (2000). Frictionless Commerce? A Comparison of Internet and Conventional Retailers. *Management Science* 46, 563–585.
- CHEN, P. & HITT, L. (2002). Measuring Switching Costs and the Determinants of Customer Retention in Internet-Enabled Businesses: A Study of the Online Brokerage Industry. *Information Systems Research* 13, 255–274.
- ELLISON, G. & ELLISON, S. (2009). Search, Obfuscation, and Price Elasticities on the Internet. *Econometrica* 77, 427–452.
- GILBERT, R. & KATZ, M. (2001). An Economist's Guide to U.S. v. Microsoft. *Journal of Economic Perspectives* 15, 25–44..
- GOOLSBEE, A. & KLENOW, P. (2002). Evidence on Learning and Network Externalities in the Diffusion of Home Computers. *Journal of Law and Economics* 45, 317–343.
- FARRELL, J. & SALONER, G. (1992). Converters, Compatibility, and the Control of Interfaces. *Journal of Industrial Economics* 40, 9–35.
- FUDENBERG, D. & TIROLE, J. (2000). Customer Poaching and Brand Switching. *RAND Journal of Economics* 31, 634–657.
- KATZ, M. & SHAPIRO, C. (1985). Network Externalities, Competition, and Compatibility. *Amer-*

- ican Economic Review* 75, 424–440.
- (1986a). Product Compatibility Choice in a Market with Technological Progress. *Oxford Economic Papers* 38, 146–165.
- (1986b). Technology Adoption in the Presence of Network Externalities. *Journal of Political Economy* 94, 822–841.
- KLEMPERER, P. (1987). Competition when Consumers have Switching Costs: An Overview with Applications to Industrial Organization, Macroeconomics, and International Trade. *Review of Economic Studies* 62, 515–539.
- (1995). Markets with Consumer Switching Costs. *Quarterly Journal of Economics* 102, 375–394.
- NALEBUFF, B. (2000). Competing against Bundles. *Working paper*.
- OI, W. (1971). A Disneyland Dilemma: Two-Part Tariffs for a Mickey Mouse Monopoly. *Quarterly Journal of Economics* 85, 77–96.
- ROHLFS, J. (1974). A Theory of Interdependent Demand for a Communications Service. *Bell Journal of Economics and Management Science* 5, 16–37.
- SCHMALENSEE, R. (1981a). Monopolistic Two-Part Pricing Arrangements. *Bell Journal of Economics* 12, 445–466.
- (1981b). Output and Welfare Implications of Monopolistic Third-Degree Price Discrimination. *American Economic Review* 71, 242–247.
- THOMPSON, G. (1954). Intercompany Technical Standardization in the Early American Automobile Industry. *Journal of Economic History* 14, 1–20.

## 2.3 Schedule

The schedule of the course is structured as follows:

### 1. Game Theory I

Bonnano (Ch. 1, Exercises 1-23 in Appendix 1.E)

### 2. Game Theory II

Bonnano (Ch. 2, Exercises 1-13 in Appendix 2.E)

### 3. Theory on Product and Price Differentiation

Shapiro & Varian (Ch. 1-3); Varian, Farrell & Shapiro (Ch. 5)

### 4. Presentations on Product and Price Differentiation I

Brynjolfsson & Smith (2000); Schmalensee (1981b); Fudenberg & Tirole (2000)

5. **Presentations on Product and Price Differentiation II**

Acquisti & Varian (2001); Baye et al. (2001); Ellison & Ellison (2001)

6. **Presentations on Product and Price Differentiation III**

Bakos & Brynjolfsson (2000); Armstrong (1999); Nalebuff (2000)

7. **Theory on Switching Costs and Lock-in**

Shapiro & Varian (Ch. 5-6); Varian, Farrell & Shapiro (Ch. 6)

8. **Presentations on Switching Costs and Lock-in I**

Klemperer (1987); Klemperer (1995); Ausubel (1991)

9. **Presentations on Switching Costs and Lock-in II**

Chen & Hitt (2002); Oi (1971); Schmalensee (1981a)

10. **Theory on Network Externalities**

Shapiro & Varian (Ch. 7); Varian, Farrell & Shapiro (Ch. 8)

11. **Presentations on Network Externalities I**

Golsbee & Klenow (2002); Rohlfs (1974); Katz & Shapiro (1985)

12. **Presentations on Network Externalities II**

Katz & Shapiro (1986a); Katz & Shapiro (1986b); Gilbert & Katz (2001)

13. **Theory on Standards**

Shapiro & Varian (Ch. 8-9); Varian, Farrell & Shapiro (Ch. 9)

14. **Presentations on Standards**

Farrell & Saloner (1992); Thompson (1954); Besen & Farrell (1994)

### 3 Performance assessment

The final grade will be calculated based on the performance in the following tasks:

- **Final exam:** This task will account for 20% of the final grade.
- **Participation:** This task will account for 20% of the final grade. The students need to be physically present in at least 11 of the 14 meetings (no exceptions made) and actively participate in the discussions.

- **Presentations:** This task will account for 60% of the final grade. The difficulty of the topic will be taken into account. In case one of the two group members did not contribute at all to the presentation, this should be reported to the course coordinator.

In order to pass the course, you need 50% in each of the previous tasks. Moreover, if a group fails to show up in one of their own presentations, they both fail the course.

The final grade will be on a scale 1 – 10, rounded to the nearest half point. To pass the course one needs an unrounded grade of at least 5.5. That is, 5.3 and 5.4 are downgraded to 5 and therefore do not suffice to pass the course.

For the students who fail the course, there will be a resit exam organized by the school. In order to take the resit, the student must have passed the other two tasks (participation and presentations).

After the final exam the course coordinator will announce an inspection date during which students can see their exam. Inspection outside the designated times cannot be guaranteed. The same applies to the resit.

## 4 Contact information

For any further information regarding the course, please contact the course coordinator:

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