

Ecole Polytechnique Fédérale de Lausanne
College of Management of Technology

SYLLABUS
(Version: 22/02/17)

MGT 431 Information: Strategy and Economics
Wed 9h-noon, Spring 2017
MA A1.10

Instructor

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Course Website

<http://econspace.net/MGT-431.html>

Summary. This course serves as an introduction to the economics of information and its strategic ramifications. The main objectives are

- to use economic theory to understand strategic interactions in the presence of uncertainty and estimate the value of information;
- to analyze competitive strategy in an information economy.

Required Text. There is no required textbook for this course. Current required and background readings will be posted on the course website. A list of standard references is provided at the end of this syllabus. We will most closely follow the following books, written by economists:

MCAFEE, R.P. (2002) *Competitive Solutions*, Princeton University Press.

SHAPIRO, C., VARIAN, H. (1998) *Information Rules*, HBS Press.

Assessment. Students need to complete three problem sets. There will also be a midterm exam as well as a team project.

The final examination covers the whole of the course. The course grade is computed as follows:

$$\text{Grade} = 0.2 (\text{Problem Sets}) + 0.3 (\text{Midterm}) + 0.4 (\text{Team Project}) + 0.1 (\text{Participation}).$$

For all *problem sets* I strongly encourage cooperation. Since some of the analysis can be demanding in terms of the new intuition required, discussing the problems with others is very important. Solutions need to be written up and handed in individually.

Course Website. Go to <http://econspace.net/MGT-431.html> and log in using the username and password provided in class. Since the course is being taught for the first time this semester, the course materials will become available gradually over time.

For all *problem sets* I strongly encourage cooperation. Since the questions are designed to be both interesting and challenging, discussing them with others is essential for mastering the concepts. Note that solutions need to be written up and handed in individually (see also the sections on *Homework* and *Honor Code* below).

- **Problem Sets.** Homework will be assigned about other week in the form of a problem set and/or a project deliverable. Homework is due at the beginning of class in MA A1.10 on its due date. No late homework will be accepted and there is no makeup homework! Graded homework assignments will be handed out in class once they are graded and thereafter can be picked up from the course assistant.
- **Exams.** There will be a *midterm exam* on May 3, in class. The exam is closed book, but you are allowed to bring two sheets with your notes (A4, double-sided). You are expected to take the midterm on the date given. **There is no makeup exam!** If you have a justified scheduling conflict, you will have to make an arrangement with the teaching staff before Wednesday, March 22. Any requests made after that day (other than documented emergencies) may or may not be granted.
- **Class Participation.** Your presence and participation in class are essential for gaining mastery of the material. At first sight it might seem to you that the concepts in this course are easy and might be quickly “crammed” before an exam. Experience shows that this first impression is more often than not incorrect, and in this course we therefore require your attendance and participation. From time to time there may be a mini-quiz in class. The results will enter into your class participation grade.

Re-grading Policy. Questions and concerns regarding grading (of problem sets, exams, quizzes) must be submitted in writing along with the entire assignment to the teaching assistant. Any resubmission of the assignment will result in the *entire* assignment being re-graded. This means that your score after re-grading can be above or below your original score. *Re-grading requests will only be accepted within one week of the date of return of the graded item in question.*

Honor Code.¹ The Honor Code is the EPFL's statement on academic integrity. It articulates the school's expectations of students and faculty in establishing and maintaining the highest standards in academic work:²

“EPFL has the mission of generating, sharing and utilizing knowledge. It encourages development of the critical sense and spirit of innovation in a climate of collaboration, respect and mutual confidence among all its members.

- *Favor constructive dialogue at EPFL, particularly via active involvement in the various EPFL consultative and participative bodies.*
- *Approach faculty-student interactions with a positive attitude.*
- *Strengthen relations between colleagues in a spirit of friendship, support and collaboration.*

I assume the ethical responsibilities and duties of academic and professional training by:

- *Acknowledging and respecting the value of the titles conferred by EPFL.*
- *Refusing to indulge in cheating.*
- *Refusing to indulge in plagiarism. I undertake to cite and clearly reference all sources of aid or information.*
- *Respecting all members of the EPFL community and the work they accomplish.*
- *Respecting the institution's infrastructures and its environment.*
- *Using resources provided by EPFL, particularly IT facilities, in an appropriate fashion.*

Through my actions and commitment to this Honor Code, I contribute to the impact and reputation of EPFL and thus enhance the value of my diploma.”

Specifically, adhering to the EPFL Honor Code implies that all work in exams and quizzes must be done individually. For homework, students may consult with the teaching assistant(s) and with other students, but must write up solutions independently based on their own understanding. All references and sources (e.g., in the team project) must be clearly identified and properly referenced. Lastly, *if you work with other students on a problem set, you must acknowledge their names on the front page of your submission.*

Team Project. The team project is an integral part of the course and complements the course material. It should be carried out in teams of two or three students. Each team should submit a report of at most 15 pages. Specifically, the project should analyze the competitive strategy of a business (think of Facebook or Ebay, but smaller and ideally local) which in a major way depends on information or involves information products. The analysis can be either backward- or forward-looking. Specifically the team should describe competitors, substitutes and complements, the nature of uncertainty, the competitive advantage of the firm, the appropriability of the firm's business idea, and derive actions the firm could take to make its competitive advantage sustainable over the next few years. Ideally the each team would choose a small innovative startup business and take the perspective of an investor. At least one aspect of the course, such as moral hazard and incentives, or intermediaries (see session headings in schedule on the next page), should be discussed in depth for the firm under consideration.

¹ For more information, see <http://jahia-prod.epfl.ch/site/polylex/ethics>

² http://polylex.epfl.ch/files/content/sites/polylex/files/recueil_pdf/ENG/2.3.1_ch_code_honor_en.pdf

Topics. Following is a tentative schedule of topics for this semester. Reading

Tentative Schedule

Session 1 (February 22): Competition and Market Power

Session 2 (March 1): Product Differentiation

Session 3 (March 8): Pricing Methods I

Session 4 (March 15): Pricing Methods II

Session 5 (March 22): Externalities and System Effects

Due: Team-Project Idea (1 page per idea)

Session 6 (March 29): Moral Hazard and Incentives

Session 7 (April 5): Markets and Intermediaries I

Session 8 (April 12): Markets and Intermediaries II

Due: Team-Project Proposal (3 pages)

Easter Holidays (April 19): No Class

Session 9 (April 26): Imperfect Competition: Search Markets I

Session 10 (May 3): MIDTERM EXAM

Session 11 (May 10): Imperfect Competition: Search Markets II

Session 12 (May 17): Auctions & Bargaining

Session 13 (May 24): Sharing Markets

Session 14 (May 31): Team Project Presentations

Due: Team Project

Background Reading. Although we posted course readings as our main reference, I recommend a couple of other useful books and articles for occasional background reading if you would like to flesh out the material using complementary texts. *These sources are completely optional. You might want to refer to this list after the course has finished, as you become interested in studying specific aspects of supply-chain analysis and information systems in greater detail.*

BERGER, J. (2013) *Contagious: Why Things Catch On*, Simon & Schuster.

BOLTON, P., DEWATRIPONT, M. (2005) *Contract Theory*, MIT Press.

FUDENBERG, D., TIROLE, J. (1991) *Game Theory*, MIT Press.

GLADWELL, M. (2002) *Tipping Point*, Back Bay Books.

GOLLIER, C. (2001) *The Economics of Risk and Time*, MIT Press.

HAX, A.C., MAJLUF, N.S. (1995) *The Strategy Concept and Process (2nd Edition)*, Prentice-Hall.

HEATH, C., HEATH, D. (2007) *Made to Stick: Why Some Ideas Survive and Others Die*, Random House.

HIRSHLEIFER, J., RILEY, J.G. (1992) *The Analytics of Uncertainty and Information*, Cambridge University Press.

KAHNEMAN, D. (2013) *Thinking, Fast and Slow*, Farrar, Strauss and Giroux.

KRISHNA, V. (2002) *Auction Theory*, Academic Press.

LAFFONT, J.-J. (1989). *The Economics of Uncertainty and Information*, MIT Press.

LAFFONT, J.-J., MARTIMORT, D. (2002) *The Theory of Incentives: The Principal-Agent Model*, Princeton University Press.

MILGROM, P., ROBERTS, J. (1992) *Economics, Organization and Management*, Prentice-Hall.

PINDYCK, R.S., RUBINFELD, D.L. (2009) *Microeconomics (7th Edition)*, Prentice-Hall.

ROBERTS, J. (2004) *The Modern Firm*, Oxford University Press.

SALANIÉ, B. (1999) *The Economics of Contracts*, MIT Press.

STERN, C.W., DEIMLER, M.S. (2006) *The Boston Consulting Group on Strategy: Classic Concepts and New Perspectives*, Wiley.

SHY, O. (2001) *The Economics of Network Industries*, Cambridge University Press.

TIROLE, J. (1988) *The Theory of Industrial Organization*, MIT Press.

VIVES, X. (1999) *Oligopoly Pricing*, MIT Press.

WILSON, R.B. (1993) *Nonlinear Pricing*, Oxford University Press.

Some other relevant WWW resources:

- BCG Strategy Institute (http://www.bcg.com/about_bcg/strategyinstitute)
- CyberEconomics (<http://ingrimayne.com/econ/>)
- Economics of Networks (<http://www.stern.nyu.edu/networks>)
- intrade (example of a prediction market) (<http://www.intrade.com>)
- Investopedia (<http://www.investopedia.com>)
- McKinsey Quarterly (<http://www.mckinseyquarterly.com>)
- Search Engine Watch (<http://www.searchenginewatch.com>)
- Social Science Research Network (<http://www.ssrn.com>)