Advanced Microeconomic Analysis (NEKN21)
Syllabus - Fall 2017

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Course description. This course aims to delve deeper into the main principles of microeconomic behavior that are introduced at the undergraduate level. It will lay down the theoretical foundations required for a rigorous and formal study of economic behavior of consumers and firms when they are acting individually as well as when they are interacting with other economic agents in both certain and uncertain (risky) environments. The ultimate goal will be to apply the theory to study concrete examples of economic activity, make predictions, and recommend policies.

The course will also introduce examples from the economic literature on how the theoretical advances studied in the course can instruct and guide both policy-makers and business ventures.

To further stress the applied purpose of the theories and method learned in the course, one important learning objective is communicating the content of the course clearly and concisely. The concrete consequence of this specific focus is that in both the written exam and the home assignment we will consider the clarity of answers as determinants for part of the final grade.

Course prerequisites: A1N, Second cycle, has only first-cycle course/s as entry requirements

Material:

- Microeconomic Analysis (third edition), by Hal R. Varian, W. W. Norton & Company
- Game Theory for Applied Economists, by Robert Gibbons, Princeton University Press

Course assessment: The assessment of the course is designed to allow any student to reach 100 points in each retakes. The grades awarded will follow the usual convention: A for ≥ 85 points, B for between 75 and 84 points, C for between 65 and 74 points, D

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for between 55 and 64 points, E for between 50 and 54 points, F (fail) for less than 50 points.

1. **Home assignments:** There will be two voluntary (but strongly recommended) home assignments, awarding a maximum 10 points each. These points will be valid for all exams/retakes in the year.
2. **Written exam:** Student competences and learning outcomes will be assessed mainly through a closed-book written exam. Exam material are lecture notes and required readings. The recitation sessions are designed to help students to prepare for the exam, and will thus focus on solving similar exercises and problems. A minimum of 40/80 (or 40/85 for the first-take exam; please see point 3 below) points need to be scored in the written exam in order to pass the course.
3. **Incentive points:** To incentivize students to prepare as the course proceeds, students taking the written exam in the first take will be able to receive 5 extra points by answering a short question. This makes a total of 85 exam points available to them. There will be no extra points available to students taking the exam in the first and in the second (and final) retake.

TA and recitation sessions: There will be a total of five recitation sessions held by **Pol Campos** (Room 261, EC1 Building; Email: pol.campos@nek.lu.se) devoted to solving a selective set of the exercises.

Mail policy instructions: The lecturers will NOT answer content questions by email. Emails are to be used for administrative and organizational purposes only. If you need help with a concept or topic, please come to our office, preferrably during office hours. Alternatively, you can contact us by mail to schedule an appointment.

Office hours:

- **Rigos:** Tuesdays 11:00 – 12:00
- **Martinello:** Mondays, 13:30 – 14:30
- **Campos:** Tuesdays 09:00 – 10:00

Course topics and reading list

1 Introduction (Martinello and Rigos)

The first part of the lecture will cover the course requirements and assignments and introduce the content and structure of the course. The second part of the introduction will recall concepts as utility and (un)constrained maximization that will turn handy over the rest of the course.

- **Required readings:**

- Varian: 7.1, 7.2

2 Decision making under uncertainty (Martinello)

These lectures will formally introduce consumer choice in a risky environment. We will show how lotteries can be used to represent such a risky environment, how we can formalize choices among lotteries, and introduce useful concepts as risk aversion and certainty equivalents.

- **Required readings:**
  - Varian: 11
- **Optional readings:**
  - Druedahl, J. and Alessandro Martinello. 2017. "Long-Run Saving Dynamics: Evidence from Unexpected Inheritances" WP
  - Calvet, Laurent E., John Y. Campbell, and Paolo Sodini. 2007. "Down or Out: Assessing the Welfare Costs of Household Investment Mistakes." Journal of Political Economy 115 (5): 707-47.

3 Monopoly and price discrimination (Martinello)

These lectures will describe the difference in the behaviors of a rational competitive firm with those of a rational monopolistic firm, and their consequences for the aggregage economy. We will consider case where monopolists can endogenously choose not only quantity but also quality, and discriminate on price.

- **Required readings:**
  - Varian: 13.1-13.7
  - Varian: 14
- **Optional readings:**
  - TBD

4 Elements of Game Theory (Rigos)

During these lectures the core concepts of (non-cooperative) game theory are going to be introduced. We will see how simple (and not-so-simple) economic (and other) interactions can be formulated as non-cooperative games (in *normal* and *extensive form*) and try to make predictions about the behavior of agents using different concepts. In particular, we will look at *(strictly and weakly) dominated strategies*, *Nash equilibrium* and *Bayesian Nash equilibrium*, and what requirements each imposes on the agents'

rationality and knowledge (*mutual* and *common knowledge*). We will also introduce some basic *equilibrium refinements* such as *subgame perfection* that allow us to make more accurate (more plausible) predictions in games.

- **Required readings:**
  - Gibbons: Chapters 1 – 3
- **Optional readings:**
  - TBD

5 Applications of Game Theory: Oligopoly (Rigos)

In this set of lectures, we are going to use our theoretical armory to study market behavior of firms under imperfect competition. Among others, we are going to study the models of *static oligopoly* proposed by *Cournot* (quantity competition) and *Bertrand* (price competition). Then, we are going to turn to *dynamic oligopoly* and study the *Stackelberg* model of quantitiy competition as well as models of price leadership and pre-competition investment for the reduction of costs. We will also try to address how these concepts are used to identify market behavior in the real-world.

- **Required readings:**
  - Gibbons: 1.2.A, 1.2.B, 2.1.B
  - Varian: Chapter 16
- **Optional readings:**
  - TBD

6 Asymmetric Information (Martinello)

These lectures will recall the familiar concepts of moral hazard and adverse selection, and delve deep into market consequences of principal-agent problems with imperfect information in both a competitive and monopolistic market. We will consider signaling (e.g., in the educational context) and statistical discrimination as special cases of asymmetric information problems.

- **Required readings:**
  - Varian: 25
- **Optional readings:**
  - TBD