CERGE-EI

Charles University in Prague
Center for Economic Research and Graduate Education
and
the Economic Institute of the Academy of Sciences of the Czech Republic

Course Book for the Academic Year 2013-2014

Summer and Preparatory Semester

MA/PhD Study Affairs Office

Prague, April 2014

Printed version of this Course Book is subject to possible updates available
athttps://iweb.cerge-ei.cz/phd/prog_details/coursebook/

CONTENS

I. THE STRUCTURE OF PH.D. STUDIES IN ECONOMICS AT CERGE

The Center for Economic Research and Graduate Education (CERGE) is a research and educational institute of Charles University. In close cooperation with the Economics Institute (EI) of the Academy of Sciences of the Czech Republic, CERGE offers a Ph.D. program in Economics, accredited by the Ministry of Education, Youth and Sport of the Czech Republic, to students from the Czech Republic and other Central and Eastern European (CEE) and former Soviet Union countries. Economic research is an integral part of CERGE activities.

A. Contents and Organization of Graduate Study at CERGE

The basic mission of CERGE is to perform graduate studies in Economics and to train future university faculty and researchers and public administration representatives. The main idea of establishing the doctoral program curriculum is to transfer the modern Western system of Ph.D. study in Economics, as it is applied in the United States and some Western European countries, to the local environment and incorporate it into the structure of Czech university education within Charles University. The program offers economic education at a level comparable with world standards directly at Charles University, without the necessity of more expensive study abroad. Besides this fact, the best students may be offered the opportunity to visit (for up to one academic year) an appropriate university in the United States or Western Europe. This experience may enlarge their scope of knowledge significantly.

During the first two years of study courses are taught by the local and visiting faculty. Studies are conducted entirely in English. The duration of the doctoral study is four years. The first two years offer primarily systematic knowledge of theory; for the latter two years the students work on their dissertation. The transfer from study to independent research work is gradual and begins during the second year of study.

Further details on the program can be found in the handbook for graduate students.

B. Core Study – The First Two Years

In the first year of study the students follow a common curriculum designed to provide a strong foundation in Microeconomic Theory, Macroeconomic Theory, Statistics and Econometrics, and Academic Writing. This curriculum is standard for the PhD study in Economics. The study is divided into three semesters: the fall semester (FS), the spring semester (SS), and the summer semester (SuS). In view of the fact that many newly recruited students do not have an extensive background in modern Economics equivalent to "western" standards, and also that their knowledge of Mathematics and English are frequently at different levels, a preparatory semester is organized for potential students. It allows CERGE to provide the students with some basic tools as an introduction to the program and to achieve a standard level of competence.

The second year of formal study at CERGE provides students with the opportunity to investigate more specific fields of interest. Several courses (usually five) are offered each of the two semesters, and the second year students must enroll for a minimum of three, plus a course in English. The students participate in a seminar series and are now expected to begin their own research.

Having completed both the first and second years, students must pass a General (comprehensive) examination. After the first year, the students must pass Microeconomic Theory, Macroeconomic Theory, and Econometrics; after the second year they must show proficiency in at least two specialized fields by passing General (field) exams in their chosen areas of interest.

During the first two years of study the students do not have a special supervisor; rather, they rely on the advice of the Deputy Director of Graduate Studies, who is also one of the CERGE faculty members. The program and organization of graduate study is regulated by a CERGE's Graduate Council (GC).

C. Specialized Study – Third and Fourth Years

During the spring semester of the second year and the fall semester of the third year, the students have to choose the topic of their dissertations. A tentative chair as a supervisor is then assigned. By the middle of the third year (at the latest), they formulate a thesis proposal and public defense is required together with state doctoral examination. For students who passed all General examinations with distinction, the main importance will be placed on the defense of the thesis proposal. Those with less than distinctive examination results can also expect additional detailed questions from respective fields. After having successfully defended the proposal, a three-member dissertation committee is appointed which guides and supervises the study and research work.

At least one member of the dissertation committee has to be an employee of CERGE or EI, and at least one of the members has to be a professor from some other university. Under the guidance of this committee the student works on his or her dissertation. In the fourth year the students present their third year work at the Dissertation workshop and prepare for the defense of the dissertation. The study is concluded by the public defense of the doctoral dissertation.

D. Study Program

Here we present the courses designed for the preparatory semester, the first, second and third year of study. (One lecture/exercise unit is 45 minutes long.)

Preparatory semester

Subject	(Lecture hours / exercise hours)
Macroeconomics 0	4/2, Exam
Microeconomics 0	4/2, Exam
Mathematics	4/2, Exam

***Notes**: Upon completion of the preparatory semester, the final selection of students is made to enter the doctoral program in the fall, based on final exam results.*

First year

Subject	Fall	Spring	Summer
Microeconomics I, II, III	4/2, Exam	4/2, Exam	4/2, Exam
Macroeconomics I, II, III	4/2, Exam	4/2, Exam	4/2, Exam
Statistics /Econometrics I, II	4/2, Exam	4/2, Exam	4/2, Exam
Academic Writing I	---	4/0 Credit	---

Notes:
After completing the first year, each student must pass the General examination in the fields of Microeconomics, Macroeconomics and Econometrics.

Second Year

Subject	Fall	Spring	Summer
Econometrics III, IV	4/2, Exam	4/2, Exam	---
Industrial Organization I, II	4/2, Exam	4/2, Exam	---
Financial Markets I, II, III	4/2, Exam 4/2, Exam	4/2, Exam	---
Empirical Methods	4/2, Exam	---	---
Experimental Economics	---	4/2, Exam	---
International Trade	4/2, Exam	---	---
Labor Economics	---	4/2, Exam	
Macro Topics I, II	4/2, Exam	4/2, Exam	---
Academic Writing II	4/0, Credit	---	---
Research Method Seminar	Mandatory	Mandatory	Mandatory
Combined Skills I	---	4/0, Credit	---
Research Seminars	0/2, Credit	0/2, Credit	---
Directed Research	---	---	0/2, Credit
Combined Skills II – M.A.	---	---	0/2, Credit

Notes:
* Second-year students choose at least three (exam-ended) courses per semester. The courses cannot be from the same field. Courses offered may differ slightly from year to year, depending on the faculty in residence.
* The credits for English courses, the Research Seminars and Directed Research are mandatory.
* The credit for Research Method Seminar will be awarded based on individual consultations with the instructors and based on individual written work.
* After completing the second year each student must pass General exam in two fields. Upon agreement of CERGE, a student may complete part of his/her study at another university - this is valid not only for individual courses, but also for a whole study year.
* Topic courses are one semester courses not forming two semester sequence and do not cover comprehensively all material needed for Field General Exam.
* Combined Skills II – M.A. is for M.A. students only, a paper or report appropriate for the MA-degree writing requirement.

Third year

Subject	Fall	Spring	Summer
Combined Skills II – Ph.D.	Credit	---	---

Notes:
Normally, students must pass the 2-year MA program first as a pre-requisite for registering in CSII-Ph.D.

II. SYLLABI OF THE SUMMER AND PREPARATORYSEMESTER COURSES

A. First year courses

MICROECONOMICS III

Lecturer:

Fabio Michelucci

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Teaching assistants:

Myroslav Pidkuyko

(Myroslav.Pidkuyko@cerge-ei.cz)

Zurab Abramishvili

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Office hours:

TBA

Course information

This is the third course in the micro core sequence. The emphasis of this course is on informational asymmetries, auction theory and mechanism design.

Requirements and grading

Final (100%).

The course will be accompanied by exercise sessions in which the TAs will either go over problem set solutions or do a review of some selected course material.

Reading list

Principal textbooks
Geoffrey Jehle, and Phil Reny, *Advanced Microeconomic Theory*, Prentice Hall.

Krishna, Vijay (2010), *Auction Theory*, Academic Press. Second Edition.

Mas-Colell, A., M. Whinston and J. Green (1995), *Microeconomic Theory*, Oxford University Press (henceforth, MWG).

Salanie, Bernard (2005), *The Economics of Contracts: A Primer,* 2nd Edition, MIT Press.

Recommended and supplementary textbooks
Bolton, P. and M. Dewatripont (2005), *Contract Theory*, MIT Press.

Fudenberg, Drew and Jean Tirole (1991), *Game Theory*, MIT Press (henceforth, FT).

Gibbons, R. (1992), *Game Theory for Applied Economists*, Princeton University Press.

Kreps, D. (1990), *A Course in Microeconomic Theory*, Princeton University Press.

Laffont, Jean-Jacques and Martimort, David (2001), *The Theory of Incentives: The Principal-Agent Model*, Princeton University Press.

Topics & Readings
This is a suggestive outline of what we will cover in the course. Not all material will be covered. Items marked with an * are required readings. Others are recommended.

1. Applications of Game Theory to Static Models of Oligopoly
✓ Cournot Model
✓ Stackelberg Model
✓ Bertrand Model

   * MWG: 12.C

2. Information Asymmetries
✓ Adverse Selection
✓ Signaling
✓ Screening

  *MWG: 13
  *JR: 8.1
  *Salanie 2
  Varian: 25

  Akerlof, G. (1970), "The Market for Lemons: Quality and the Market Mechanism," *Quarterly Journal of Economics*, 84, pp. 488-500.

  Crawford, V. P. and J. Sobel (1982), "Strategic Information Transmission," *Econometrica*, 50, pp. 1431-1451.

  Milgrom, P. (1981), "Good News and Bad News: Representation Theorems and Applications," *Bell Journal of Economics*, 12: pp. 380-391.

  Rothschild M. and J. Stiglitz (1976), "Equilibrium in Competitive Insurance Markets: An Essay on the Economics of Imperfect Information," *Quarterly Journal of Economics*, 90, pp. 629-649.

  Spence, A. M. (1973), "Job Market Signaling," *Quarterly Journal of Economics*, 87, pp. 355-374.

  Spence, A. M. (1974), *Market Signaling*, Cambridge University Press.

  Wilson, C. (1980), "A Model of Insurance Markets with Incomplete Information," *Journal of Economic Theory*, 16, pp. 167-207.

3. Principal-Agent Problem
✓ Hidden Actions (Moral Hazard)
✓ Hidden Information

  *MWG: 14
  *JR: 8.2

  Baron, D. and R. Myerson (1982), "Regulating a Monopolist with Unknown Costs," *Econometrica*, 50, pp. 911-930.

Grossman, S. and O. Hart (1983), "An Analysis of the Principal-Agent Problem," *Econometrica*, 51, pp. 7-45.

Hart and Holmstrom, (1987), "The Theory of Contracts, Part I," in *Advances in Economic Theory, 5ᵗʰ World Congress*, editor T. Bewley, Cambridge University Press.

Hart and Holmstrom, (1987), "The Theory of Contracts, Part II," in *Advances in Economic Theory, 5ᵗʰ World Congress*, editor T. Bewley, Cambridge University Press.

Maskin, E. and J. Riley (1984), "Monopoly with Incomplete Information," *Rand Journal of Economics*, 15, pp. 171-196.

4. Auction Theory
✓ Private Value Auctions
✓ Revenue Equivalence
✓ Auctions with Interdependent Values
✓ Linkage Principle
✓ Extensions:
  o Risk-Averse Bidders
  o Budget Constraints
  o Asymmetric Bidders
  o Resale
  o Collusion
  o Sequential Auctions

* Krishna: 2, 3, 4, 6, 7, 12

Ausubel, L. (1999), "A Generalized Vickrey Auction," mimeo, University of Maryland.

Che, Y-K.and I. Gale (1998), "Standard Auctions with Financially Constrained Bidders," *Review of Economic Studies,* 65, pp. 1-22.

Engelbrecht-Wiggans, R., Milgrom, P. and R. Weber (1983), "Competitive Bidding and Proprietary Information", *Journal of Mathematical Economics* 11, pp. 161-169.

Klemperer, P. (2002), "What Really Matters in Auction Design," *Journal of Economic Perspectives*, 16, pp. 169-190.

Klemperer, P. (2003), "Why Every Economist Should Learn Some Auction Theory," in *Advances in Economics and Econometrics*, editors M. Dewatripont, L. Hansen and S. Turnovsky, Cambridge University Press.

McAfee, R.P. and J. McMillan (1987), "Auctions and Bidding," *Journal of Economic Literature*, 25, pp. 699-738.

McAfee, P. and J. McMillan (1992), "Bidding Rings," *American of Economic Review*, 82, pp. 579-599.

Milgrom, P. (1981), "Rational Expectations, Information Acquisition, and Competitive Bidding," *Econometrica*, 49, pp. 921-943.

* Milgrom, P. and R. Weber (1982), "A Theory of Auctions and Competitive Bidding," *Econometrica*,50, pp. 1089-1122.

Milgrom, P. and R. Weber (2000), "A Theory of Auctions and Competitive Bidding II," in *The Economic Theory of Auctions*, editor P. Klemperer, Edward Elgar - Cheltenham.

Vickrey, W. (1961), "Counterspeculation, Auctions, and Competitive Sealed Tenders," *Journal of Finance*, 93, pp. 675-689.

5. Mechanism Design
   - ✓ Mechanisms
   - ✓ Revelation Principle
   - ✓ Optimal Mechanisms
   - ✓ Efficient Mechanisms
   - ✓ Applications
     - o Auctions
     - o Nonlinear Pricing
     - o Bilateral Trading

FT: 7
* Krishna: 5
MWG: 23

Armstrong, M. (2000), "Optimal Multi-Object Auctions," *Review of Economic Studies*, 67, pp. 455-481.

Bergemann, D. and J. Välimäki (2002), "Information Acquisition and Efficient Mechanism Design," *Econometrica*, 70, pp. 1007-1033.

Bulow, J. and P. Klemperer (1996), "Auctions versus Negotiations," *American Economic Review*, 86, pp. 180-194.

Bulow, J. and J. Roberts (1989), "The Simple Economics of Optimal Auctions," *Journal of Political Economy*, 97, pp. 1060-90.

d'Aspremont, C. and L. Gerard-Varet (1979), "Incentives and Incomplete Information," *Journal of Public Economics*, 11, pp. 24-45.

Dasgupta, P. and E. Maskin (2000), "Efficient Auctions," *Quarterly Journal of Economics*, 115, pp. 341-388.

Engelbrecht-Wiggans, R. (1993), "Optimal Auctions Revisited," *Games and Economic* Behavior, 5, pp. 227-239.

Groves, T. (1973), "Incentives in Teams," *Econometrica*, 41, pp. 617-631.

Harris, M. and A. Raviv (1981), "Allocation Mechanisms and the Design of Auctions," *Econometrica*, 49, pp. 1477-1499.

Harris, M. and R. Townsend (1981), "Resource Allocation under Asymmetric Information," *Econometrica*, 49, pp. 1477-99.

Holmstrom, B. and R.Myerson (1983), "Efficient and Durable Decision Rules with Incomplete Information," *Econometrica*,51, pp. 1799-1820.

Krishna, V. and M. Perry (1998), "Efficient Mechanism Design," mimeo, Penn State University and Hebrew University of Jerusalem.

Maskin, E. (2003), "Auctions and Efficiency," in *Advances in Economics and Econometrics*, editors M. Dewatripont, L. Hansen and S. Turnovsky, Cambridge University Press.

Maskin, E. and J. Riley (1984), "Optimal Auctions with Risk Averse Buyers," *Econometrica*, 52, pp. 1473-1518.

McAfee, R.P. (1991), "Efficient Allocation with Continuous Quantities," *Journal of Economic Theory*, 53, pp. 51-74.

McAfee, R.P. (1993), "Mechanism Design by Competing Sellers," *Econometrica*, 61, pp. 1281-1312.

Myerson, R. (1979), "Incentive Compatibility and the Bargaining Problem," *Econometrica*, 47, pp. 61-74.

Myerson, R. (1981), "Optimal Auction Design," *Mathematics of Operations Research*, 6, pp. 58-73.

Myerson, R. (1982), "Optimal Coordination Mechanisms in Generalized Principal-Agent Problems," *Journal of Mathematical Economics*, 10, pp. 67-81.

Myerson, R. and M. Satterthwaite (1983), "Efficient Mechanisms for Bilateral Trading," *Journal of Economic Theory*, 28, pp. 265-281.

Perry, M. and P. Reny (2002), "An Efficient Auction," *Econometrica*, 70, pp. 1199-1212.

Riley, J. and W. Samuelson (1981), "Optimal Auctions," *American Economic Review* 71, pp. 381-392.

MACROECONOMICS III / Part I

Lecturer:

Byeongju Jeong

(Byeongju.Jeong@cerge-ei.cz; office 321, phone 233)

Teaching assistant:

Mykola Babiak

(Mykola.Babiak@cerge-ei.cz)

Office hours:

TBA

Course information

We will study some macro topics. Listed below are the main references in the order of discussion. You are strongly adivised to read the chapters in advance of lectures since the lectures will build on the basic understanding of the contents of the chapters.

Requirements and grading

The grade is based on the midterm exam (two-thirds) and occasional home problems (one-third).

Reading list

Shimer, R. (2005), "The Cyclical Behavior of Equilibrium Unemployment and Vacancies," *American Economic Review* 95(1): 25- 49.

Christiano, L., Motto, R., and Rostagno, M. (2014), "Risk Shocks," *American Economic Review* 104(1): 27-65.

Karabarbounis, L. and Neiman. B. (2014), "The Global Decline of the Labor Share,"*Quarterly Journal of Economics* 129(1): 61-103.

Conesa, J., Kitao, S., and Krueger, D. (2009), "Taxing Capital? Not a Bad Idea After All," *American Economic Review* 99(1): 25-48.

Caballero, R., Farhi, E., and Gourinchas, P. (2008), "An Equilibrium Model of "Global Imbalances" and Low Interest Rates," *American Economic Review* 98(1): 358-393.

MACROECONOMICS III / Part II

Lecturer:
Filip Matějka
(Filip.Matejka@cerge-ei.cz; office 302, phone 154)
Teaching assistant:
Nikoloz Kudashvili
(Nikoloz.Kudashvili@cerge-ei.cz)
Office hours:
TBA

Course information

The course will focus on the implications of imperfect information in macroeconomics. We will review models of signal extraction, sticky information and rational inattention. If time permits, we will also discuss sticky-price models and the fiscal theory of price level.
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Requirements and grading

The grade is based on the final exam (two-third) and occasional home problems (one-third).

Reading list

Calvo, G. Staggered prices in a utility-maximizing framework. Journal of Monetary Economics, 1983.

Lucas, R.E.:Some International Evidence on Output-Ination trade-O_s. American Economic Review, 1973.

Mankiw N.G., Reis R.: Sticky Information Versus Sticky Prices: A Proposal to Replace the New Keynesian Phillips Curve. Quarterly Journal of Economics,2002.

Sims, C.A.: Implications of Rational Inattention. Journal of Monetary Economics, 50, 2003.

Sims, C.A.: Rational Inattention: A Research Agenda. 2005.

ECONOMETRICS II

Lecturer:

Nikolas Mittag

(Nikolas.Mittag@cerge-ei.cz, office 304, phone 128)

Dragana Stanišić

(Dragana.Stanisic@cerge-ei.cz, office 322, phone 227)

Teaching assistants:

Jelena Plazonja

(Jelena.Plazonja@cerge-ei.cz)

Gega Todua

(Gega.Todua@cerge-ei.cz)

Office hours:

Tuesday 16:30-18:30 or by appointment.

Course homepage:

To be announced at the beginning of the semester.

Course information

This course is the third part of the three-semester Statistics-Econometrics sequence. It will build on the knowledge acquired in Econometrics I and expand it. New topics will include the econometrics of panel data and the limited dependent variable models. For each topic, we will start with the underlying econometric model and its properties, learn the appropriate estimation and testing methods, and study examples of their empirical applications. The goal of this course is to equip students with basic understanding of the standard econometric methods, as well as with estimation skills and experience with empirical analysis.

The necessary prerequisites are the preceding two courses of the first-year sequence, i.e., Statistics and Econometrics I.

Course outline

<u>Additional Topics in Cross-Sectional Estimation</u>
- ✓ Review of the Basics
- ✓ Omitted Variable Bias and Proxy Variables
- ✓ Properties of OLS under Measurement Error
- ✓ IV Solutions and Indicators
- ✓ Missing Data and Nonrandom Samples

<u>Panel Data Methods</u>
- ✓ Pooling Cross Sections across Time
- ✓ Fixed Effect Models
- ✓ Random Effect Models
- ✓ Hausman Test
- ✓ Non-spherical Disturbances and Robust Covariance Estimation
- ✓ Repeated Cross Sections, Pseudo Panels, Differences-in-differences Method
- ✓ Application to Other Data Structures

<u>Limited Dependent Variable Models and Sample Selection</u>
- ✓ Maximum Likelihood Estimation
- ✓ Binary Outcome Models
- ✓ Ordered Multinomial Models
- ✓ Unordered Multinomial Models
- ✓ Censored and Truncated Regression
- ✓ Sample Selection Models

Requirements and grading

Midterm exam (40%)
Final exam (40%)
Theoretical and empirical assignments (20%)

Software

Students may use any software they like when solving the empirical assignments, but the official course's software will be STATA, so that most of the in-class examples and assignment solutions will be in STATA.

Reading list (selected chapters)

Cameron, A.C. and P.K. Trivedi, <u>*Microeconometrics: Methods and Applications,*</u> Cambridge University Press, 2005.

Greene, W.H. *Econometric Analysis*, 5th edition, Prentice Hall, 2003.

Wooldridge, J.M. *Introductory Econometrics: A Modern Approach*, 2nd ed, Thomson/South-Western, 2003.

Wooldridge, J.M. *Econometric Analysis of Cross Section and Panel Data,* Massachusetts Institute of Technology, 2002.

Exercise Session: to be announced.

Important dates & deadlines:

Midterm Exam: May 27, during the Tuesday's class (15:00-16:30).
Final Exam: July 15, during the Tuesday's class (15:00 - 16:30).

B. Second year courses

RESEARCH METHODOLOGY SEMINAR

Lecturer:

Jakub Steiner

(jakubsteiner77@gmail.cz; office 316, phone 182)

Nikolas Mittag

(Nikolas.Mittag@cerge-ei.cz, office 304, phone 128)

Office hours:

TBA

Course information

The Research Methodology is designed to help you prepare for research through consultations and presentation during the second year of your study.

Consultations

Students should identify one (or more) CERGE-EI faculty who could supervise their thesis and have regular conversations with them.

Progress Report

Due July 21. Students are asked to submit a 1-page summary of what they have done so far, what they are planning to do, which CERGE-EI faculty is involved and what feedback the student has received so far on his/her projects.

Presentations

During the first week of fall semester, students will give a talk on their research proposal or paper and receive feedback from RMS coordinators and others.

One-page Project Proposal (for students enrolling in Combined Skills II – MA)

By Friday, May 30th, students must submit a one-page proposal outlining and motivating the paper they would like to produce for approval. Unless otherwise agreed upon, contact Nikolas Mittag regarding MA papers.

Types of MA papers (for students enrolling in Combined Skills II – MA)

Replication and discussion or extension of a published empirical paper.
Public policy paper summarizing contemporary economic research and relating it to an important current policy debate.
Original research paper. Note: given the time needed to write an original research paper, students should only opt for this project if they have demonstrated substantial progress by the end of June.
Case analysis or targeted economic report.
Other by prior agreement with instructor/s.

Deadlines for final MA papers (for students enrolling in Combined Skills II – MA): September 15, 2014, by 23.59.

COMBINED SKILLS II – MA

Lecturer:

Robin-Eliece Mercury

(Robin-Eliece.Mercury, office 311, phone 189)

Office hours:

TBA

Course information:

CS2 MA is designed to support students writing extended graduate-level papers in English.

Class Meetings

The course begins with one full-class meeting. Students will be assigned to small working teams for ongoing peer input into development of their papers.

Consultations

Consultations form the majority of the course. They should be planned in advance with the instructor, and it is the students' responsibility to prepare and bring their specific questions regarding the work to each consultation.

Submissions:

One-page Project Proposal (for students enrolling in Combined Skills II – MA) by June 23rd, students must submit a one-page proposal outlining and motivating the paper they would like to produce. Unless otherwise agreed upon, contact Nikolas Mittag regarding the content of MA papers. The proposal must be submitted to both Robin-Eliece Mercury and Nikolas Mittag.

Progress Report: due July 21. Students are asked to submit a 1-page summary of what they have done so far, what they are planning to do, which CERGE-EI faculty are involved and what feedback the student has received so far on his/her project.

Final Papers: due September 15, 2014, by 23.59.

Types of MA papers (for students enrolling in Combined Skills II – MA)

Replication and discussion or extension of a published empirical paper.
Public policy paper summarizing contemporary economic research and relating it to an important current policy debate.
Original research paper. Note: given the time needed to write an original research paper, students should only opt for this project if they have demonstrated substantial progress by the end of June.
Case analysis or targeted economic report.
Other by prior agreement with instructors.

III.   SYLLABI OF THE PREPARATORY SEMESTER COURSES

MICROECONOMICS 0

Lectures:

Fabio Michelucci

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Teaching assistants:

Jana Cahlíková

(Jana.Cahlikova@cerge-ei.cz)

Vojtěch Bartoš

(Vojtech.Bartos@cerge-ei.cz)

Office hours:

TBA

Course information

This course is intended to provide a fast-paced coverage of basic and intermediate microeconomics. We will develop intuitive concepts and tools that economists use to explain a wide range of social phenomena.

Requirements and grading:

Problem Sets 15%, Final 85%.

Problem sets will be assigned regularly and will be due on the exercise sessions. At the sessions, teaching assistants will discuss answers to problem sets and solve additional problems.

Course outline

We will cover selected topics from those below, following closely the related chapters from Varian's book:

- ✓ How economists think and the basic market model.
- ✓ Budget constraints, preferences, utility.
- ✓ Choice, demand curve, consumer surplus.
- ✓ Intertemporal choice and interest rates.
- ✓ Choice under Uncertainty.
- ✓ Production: technology, profit minimization, cost curves.
- ✓ Firm and industry supply.
- ✓ Market equilibrium and comparative statics.

- ✓ Externalities and public goods.
- ✓ Basics of game theory.
- ✓ Monopoly and regulation.
- ✓ Exchange and comparative advantage.
- ✓ Asymmetric information.

Reading list

Main textbook
Varian, Hal R: *Intermediate Microeconomics – a modern approach*. (6th edition), Norton & Co. 2003.

Further suggested readings:
Friedman, David: Price theory – an intermediate text (2nd edition), Southwestern Publishing Co, 1990 (chapters 1 and 2 are required).

Perloff, Jeffrey (2004), Microeconomics (3rd edition), Pearson Education Inc.

Exercise sessions: TBA

MACROECONOMICS 0

Lecturers:

Byeongju Jeong

(Byeongju.Jeong@cerge-ei.cz; office 321, phone 233)

Teaching assistant:

TBA

Office hours:

TBA

Course information

We will study select chapters of *Macroeconomics* by Matthias Doepke, Andreas Lehnert, and Andrew W. Sellgren. This manuscript is freely available at:

http://faculty.wcas.northwestern.edu/~mdo738/book.htm

Below are the chapters of the book that will be covered. You are strongly advised to read the chapters in advance of lectures since the lectures will build on the basic understanding of the contents of the chapters. Additional chapters will be covered if there are remaining lecture slots after covering these chapters.

Reading list

02. Work Effort, Production, and Consumption
03. The Behavior of Households with Markets for Commodities and Credit

04. The Demand for Money
05. The Market-Clearing Model
06. The Labor Market
08.Inflation
11. Economic Growth
12. The Effect of Government Purchases
13. The Effect of Taxation
14. The Optimal Path of Government Debt

Requirements and grading

The grade is based on the final exam (two-thirds), and occasional home problems (one-third).[1]

MATHEMATICS 0

Lecturer:

Sherzod Tashpulatov

(stashpul@cerge.cz; office 105, phone 131)

Teaching assistant:

TBA

Office hours:

TBA

Course webpage:

http://home.cerge-ei.cz/tashpulatov/

Course information

This course is designed to make you familiar with basic mathematical tools, concepts and techniques used in modern economic analysis, and discuss a variety of applications you may encounter in your further economics studies.

Course outline

1. **Linear Algebra ([Ch 4, 5, 11], [SB 6-9, 16, 23, 26], [SHSS 1], [Tu 1-4], [V 1.1-1.5]).**[1]
   ✓ types of matrices and properties/laws of matrix operations
   ✓ linear (in)dependence of vectors and the rank of a matrix;
   ✓ the definition of determinant and Laplace expansion theorem;

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[1]Hereafter the figures in brackets denote the corresponding chapter(s) in principal textbooks. Presentation of the material may vary from text to text, thus you can choose the one that fits you best. As a rule of thumb, the author of **[Tu]** believes that **[Tu]** and **[Ch]** are set at a similar level, while **[SB]** and **[SHSS]** are more advanced as compared to **[Tu]**.

- ✓ methods of solving systems of linear equations: Cramer's rule, Gauss method, the inverse matrix method;
- ✓ quadratic forms;
- ✓ linear mapping; eigenvalues and eigenvectors; diagonalization of a quadratic form;
- ✓ tests for sign definiteness.

2. **Calculus and Unconstrained Optimization ([Ch 6-9, 11, 13], [SB 2-5, 12-15, 17, 20, 29, 30, A1], [SHSS 2-4, 12, 13, A1], [Tu 5-8], [V 2.1-2.8])**.
- ✓ basics of mathematical logic and set theory;
- ✓ the concept of limit, operations with limits, limit theorems, L'Hopital rule;
- ✓ the derivative and the slope of the curve; continuity and differentiability of a function (one variable case);
- ✓ concavity and convexity, tests for concavity and convexity; Jensen's inequality (one variable case);
- ✓ extreme values of a function (one variable case);
- ✓ Taylor series (one variable case);
- ✓ fixed point theorem; contractionary mapping;
- ✓ the derivative of implicit function;
- ✓ partial differentiation and Jacobian determinants;
- ✓ differentials, total differentials and total derivatives;
- ✓ extreme values of a function of two or more variables; first and second order conditions;
- ✓ indefinite integrals, rules of integration;
- ✓ the concept of measure; definite integrals; improper integrals.

3. **Constrained Optimization ([Ch 12, 19-21], [SB 18-19], [SHSS 3], [Tu 6-7], [V 3])**.
- ✓ equality constrained optimization; Lagrangian, Lagrange multiplier method; second-order conditions;
- ✓ comparative static analysis in optimization problems; envelope theorem;
- ✓ quasiconcavity and quasiconvexity;
- ✓ linear programming; nonnegativity/inequality constraints; feasible region; gradient;
- ✓ nonnegativity/inequality constrained optimization; Kuhn-Tucker conditions;
- ✓ constraint qualification test;
- ✓ Kuhn-Tucker and Arrow-Enthoven sufficiency theorems.

4. **Dynamics ([Ch 14-18], [SB 24, 25], [SHSS 5-12], [Tu 9-11], [V 4])**.
- ✓ differential equations: an overview;
- ✓ linear differential equations with constant coefficients;
- ✓ systems of linear differential equations; phase diagrams;
- ✓ linear difference equations;
- ✓ higher order difference equations; characteristic equation;
- ✓ systems of difference equations;
- ✓ introduction into optimal control theory, dynamic optimization;
- ✓ continuous time vs. discrete time; function vs. functional;
- ✓ law of motion; Hamiltonian; transversality condition (TVC); inequality constraints (continuous case)
- ✓ law of motion; Lagrangian; transversality condition (TVC) (discrete case).

5. **Basics of Probability Theory (Lecture notes)**.
- ✓ random outcomes; trials; random variable; classical probability; probability distribution
- ✓ conditional probability; total probability; Bayes rule;
- ✓ Bernoulli trials, uniform distribution; normal distribution; discrete vs. continuous random variable;
- ✓ calculation of expected value and variance; economic examples (electricity prices; risk/uncertainty; collusion);
- ✓ application of uniform distribution: Monte Carlo simulation in calculating definite integrals (MatLab);
- ✓ Markov chains; states; graph and matrix representations; stationary probability distribution.

Requirements and grading

Grades will be based on student's performance in quizzes, written assignments, midterm exam, and final exam:

Quizzes	8%
Written assignments	12%
Midterm exam	30%
Final exam	50%

On the first lecture students will write placement exam. Students with excellent grades (A+, A, A-) will be exempted from quizzes, written assignments, midterm exam, participation in lectures and seminars. However they will be asked to write the regular final exam in the end of the course.

Reading list

Principal Texts
Chiang A.C. Fundamental Methods of Mathematical Economics. **[Ch]**

Simon C., and Blume L. *Mathematics for Economists*.**[SB]**

Sydsæter K., Hammond P., Seierstad A., and Strøm A. *Further Mathematics for Economic Analysis*.**[SHSS]**

Turkington D.A. Mathematical Tools for Economists. **[Tu]**

Reference Text
Vinogradov V. A Cook-Book of Mathematics (Recipes for Economists).

Vinogradov V. *Mathematics for Economists made simple*. Karolinum Press, 2010. **[V]**

Additional Reading
Chiang A.C. *Elements of Dynamic Optimization.*

Intrilligator M.D. *Mathematical Optimization and Economic Theory*.

Kamien M.I., and Schwarz N.L. *Dynamic Optimization.*

Leonard D., and Ngo V.L. *Optimal Control Theory and Static Optimization in Economics.*

Takayama A. *Analytical Methods in Economics*.

Yamane T. *Mathematics for Economists.*

IV. PROFESSORS AND LECTURERS TEACHING IN THE SUMMER AND PREPARATORY SEMESTER 2014

Byeongju Jeong, Ph.D.
Mellon Endowment Associate Professor with Tenure

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Byeongju Jeong is the Mellon Endowment Associate Professor with tenure at CERGE-EI (under US permanent charter) and a member of the Executive and Supervisory Committee of CERGE-EI since 2003. He is also an Assistant Professor at CERGE, Charles University and a Researcher at the Economics Institute of the Academy of Sciences of the Czech Republic (EI) since 1997. He served as the Deputy Director for Graduate Studies at CERGE and EI from 2010 to 2012. Graduated from the University of Texas with a B.A. degree in Economics in 1991.Received a M.A. in Economics from the University of Minnesota in 1994, and a Ph.D. in Economics from the University of Minnesota in 1996.Lecturer at Pennsylvania State University from 1996 to 1997.Visiting professor at Universitat Pompeu Fabra in Barcelona from 2003 to 2004.

Research orientation:

Growth and development, macro labor, international macro.

RNDr. Filip Matějka, Ph.D.
Assistant Professor

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Filip Matějka is an Assistant Professor at CERGE-EI (under US permanent charter) since September 2011, an Assistant Professor at CERGE, Charles University (since September 2011) and a Researcher at the Economics Institute of the Academy of Sciences of the Czech Republic (since January 2010). He received his M.S. and Ph.D. degrees in applied mathematics from Princeton University in 2007 and 2010. He graduated from Charles University in Physics in 2004.

Research orientation:

Macroeconomics, information economics (mostly rational inattention) and behavioral economics. More specifically, he is interested in price rigidities, monetary economics, decisions of agents with limited abilities to process information, and in their implications for market structures and industrial organization.

Robin-Eliece Mercury, B.A. (Hons), M.Ed.
Academic Skills Center

Email: Robin-Eliece.Mercury@cerge-ei.cz

Graduated in 1995 from the Faculty of Education at McGill University, Montréal, Canada. Her degree is in Education in Second Languages specializing in academic writing and rhetoric, and in Canada,

she taught in Vancouver, at Capilano University in its Intensive ESL Programme (January 2002 – September 2003). In addition to her eight years at CERGE-EI (September 2004 – to the present), Robin-Eliece Mercury's experience includes teaching in the Far East – academic writing and critical thinking at International Christian University, Tokyo (April 1999 – March 2001) and academic writing and communications at Kanda University of International Studies, Chiba, Japan (April 1995 – March 1999). Linguistics research areas of interest include critical thinking: from theory to practice and the language learning effects of sustained content teaching. Robin-Eliece's amateur interests have also resulted in her attaining the final level of professional qualification at the Wine and Spirit Educational Trust, London, the UK. Having completed her Level-5 diploma requirements, she is qualified to research in the marketing, production, and policy-making/legal sectors of the alcoholic beverage industry.

Fabio Michelucci, Ph.D.
Assistant Professor

Email:Fabio.Michelucci@cerge-ei.cz

Webpage:http://www.fabiomichelucci.com/

Fabio Michelucci is an Assistant Professor at CERGE-EI (under US permanent charter) and at CERGE, Charles University and a Researcher at the Economics Institute of the Academy of Sciences of the Czech Republic since 2009. Earned his B.A. degree in Economics, summa cum laude (2000), from the University of Florence, Italy; M.Sc. degree in Economics (2001) from the Universitat Pompeu Fabra, Spain; Ph.D. degree in Economics (2007) from University College London, United Kingdom. From 2002 until 2006 he was working as a Teaching Assistant at the University College London, United Kingdom. In 2006 he was also working as a Researcher (Assegnista di Ricerca) at Bocconi University, Italy. From 2007 to March 2009 he was a Post-doctoral Scholar at the Division of the Humanities and Social Sciences, California Institute of Technology, USA. He is a holder of Mario Landi Award, Amici di Villa Favard, University of Florence (2001-2002), and also a holder of Instituto Valenciano de Investigaciones Economica Award for the paper "Second Best Efficiency in Auctions" (2005). He obtained a Bank of Italy scholarship, Bonaldo Stringher (2001–2003), and an Ente Luigi Einaudi Scholarship (2003–2004).

Research orientation:

Economic theory, industrial organization, mechanism design, auction theory, and experimental economics.

Nikolas Mittag, Ph.D.
Assistant Professor

Email: Nikolas.Mittag@cerge-ei.cz

Nikolas Mittag has been an Assistant Professor at CERGE-EI (under U.S. permanent charter) as of September 2013 and an Assistant Professor at CERGE, Charles University, since July 2013. He has also worked as a Researcher at the Economics Institute of the Academy of Sciences of the Czech Republic from September 2013. He received his B.A.degree in Philosophy & Economics from the University of Bayreuth (2007) and his Ph.D. in Public Policy Studies from the Harris School of Public Policy at the University of Chicago. He was a fellow (Program on Political Institutions) at the Harris School of Public Policy in 2009 and received a dissertation fellowship from the U.S. Census Bureau, USA (2011-2013).

Research orientation:

Applied econometrics, microeconomics, public economics, program evaluation.

Dragana Stanišić, Ph.D.
Junior Researcher

Email: Dragana.Stanisic@cerge-ei.cz

Dragana Stanišić received her Ph.D. in Economics in 2013 from CERGE-EI and has been a Junior Researcher at Economic Institute since 2009. She was a visiting researcher at Columbia University, and has been engaged in researchprojects at Princeton University. Since 2010, she has been a CERGE-EI Teaching Fellow. She also has working experience from the United Nations and local NGOs in Serbia, and currently, she is an external collaborator for CEVES (Center for Advanced Economic Studies), a Serbian non-partisan think tank that analyzes policies for the growth of small and medium enterprises.

Research orientation:

Her research interests are in the area of security studies, international finance and development economics. Her recent work focuses on the effect of public opinion on the occurrence of terrorism, the effect of terrorist attacks on international flow of capital, and growth factors for SMEs in Serbian economy.

Mgr. Sherzod Tashpulatov, M.A.
Junior Researcher

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Sherzod Tashpulatov is a Ph.D. student working on his dissertation on energy markets liberalization under the supervision of Doc. Ing. LubomírLízal, Ph.D. Two chapters of his dissertation research have been published in top field international journals.

Research orientation:

Prior to coming to CERGE-EI, he studied at Lomonosov Moscow State University in Russia, specializing in mathematical methods in economic analysis. His research interests include energy economics, applied microeconomics, dynamic modeling and optimization, and mathematical methods in economic analysis.

V. ACADEMIC CALENDAR 2013/2014

Academic Calendar for MA/PhD Program 2013/2014 (last update: 6 February 2014)

Category	September	October	November	December	January	February	March	April	May	June	July	August
1st year students	H	Fall Semester — M *	Fall Semester	F / Holidays / *		Spring Semester — M	Spring Semester — F	H / *	Summer Semester — M / *	Summer Semester		G G / H
2nd year students	A/D*	Fall Semester — M *	Fall Semester	F / Holidays / *	U / A/D	Spring Semester — M	Spring Semester — F	H / *	Summer Semester — G / *	RMS	F	U U / H
3rd and 4th year students	H	Research Seminar Series	Research Seminar Series — DPW	Holidays / *		Research Seminar Series		H / *	P DW / *	Research Seminar Series		H
Preparatory semester												Preparatory Semester — F

Weeks:
- September: 2-6, 9-13, 16-20, 23-27, 30-4
- October: 7-11, 14-18, 21-25, 28-1
- November: 4-8, 11-15, 18-22, 25-29
- December: 2-6, 9-13, 16-20, 23-27, 30-3
- January: 6-10, 13-17, 20-24, 27-31
- February: 3-7, 10-14, 17-21, 24-28
- March: 3-7, 10-14, 17-21, 24-28, 31-4
- April: 7-11, 14-18, 21-25, 28-2
- May: 5-9, 12-16, 19-23, 26-30
- June: 2-6, 9-13, 16-20, 23-27, 30-4
- July: 7-11, 14-18, 21-25, 28-1
- August: 4-8, 11-15, 18-22, 25-29

Legend:

A/D	add / drop period
G	general-exams week
F	final-exams week
M	midterm-exams week
U	make-up general-exams week
P	graduation ceremony
H	official CERGE holiday
DPW	dissertation proposal workshops week
DW	dissertation workshops week
*	public holidays (all official public holidays in the Czech Republic) - classes supposed to take place in these days will be re-scheduled:

- 28 September - Czech Statehood Day (Saturday)
- 28 October - Establishment of the Czechoslovak Republic (Monday)
- 17 November - Freedom and Democracy Day (Sunday)
- 24 December - Christmas Eve (Tuesday)
- 25 December - Christmas Day (Wednesday)
- 26 December - Christmas Day (Thursday)
- 1 January - New Year's Day (Wednesday)
- 21 April (Easter Monday)
- 1 May - Labor Day (Thursday)
- 8 May - Liberation from Fascism (Thursday)
- 5 July - Cyril and Methodius (Saturday)
- 6 July - Burning at Stake of Jan Hus (Sunday)

VI. TEACHING SCHEDULE SUMMER AND PREP SEMESTER 2014

The schedules are subject to change.
Most recent versions are at https://iweb.cerge-ei.cz/phd/prog_details/coursebook/

A. SUMMER SEMESTER - 1st YEAR STUDENTS

	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY
08:30 – 10:00					
10:00 – 10:30			Coffee Break		
10:30 – 12:00	Microeconomics III *Michelucci* 320	Microeconomics III *Michelucci* 320	Czech Language *Chopard-Pištorová* 12		Czech Language *Chopard-Pištorová* 12
12:00 – 13:30			Lunch Break		
13:30 – 15:00					
15:00 – 16:30	Econometrics II *Mittag/Stanišić* 320	Econometrics II *Mittag/Stanišić* 320	Macroeconomics III *Jeong/Matějka* 320	Macroeconomics III *Jeong/Matějka* 320	Research Seminars
16:30 – 18:00	Research Seminars	Macro III *Jeong/Matějka* 320		Research Seminars	

B. PREPARATORY SEMESTER (July 21st – August 29th, 2014)

	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY
08:30 – 10:00	Mathematics 0 *Tashpulatov* 320	Mathematics 0 *Tashpulatov* 320	ES Mathematics 0 *Tashpulatov, TBA* 320		Mathematics 0 *Tashpulatov* 320
10:00 – 10:30			*Coffee Break*		
10:30 – 12:00	Microeconomics 0 *Michelucci* 320	Microeconomics 0 *Michelucci* 320			
12:00 – 13:30			*Lunch Break*		
13:30 – 15:00			ASC Testing* *Downing* 7		
15:00 – 16:30	Macroeconomics 0 *Jeong* 320		ASC Testing* *Downing* 7	Macroeconomics 0 *Jeong* 320	
16:30 – 18:00					

* August 6th