**CERGE-EI**

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

# Course Book for the Academic Year 2015-2016

# Fall Semester

PhD Study Affairs Office

Prague, September 2015

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

# CONTENTS

# 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, 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 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.

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 and the first and second 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 |
|---|---|---|---|
| Cross-Sectional Econometrics I, II | 4/2, Exam | 4/2, Exam | --- |
| Energy Economics | 4/2, Exam | --- | --- |
| Experimental Economics | --- | 4/2, Exam | --- |
| Financial Markets I, II | 4/2, Exam | 4/2, Exam | --- |
| Industrial Organization | 4/2, Exam | --- | --- |
| Advanced Game Theory | --- | 4/2, Exam | --- |
| Labor Economics | 4/2, Exam | 4/2, Exam | |
| Macro Topics | 4/2, Exam | --- | |
| Time Series | --- | 4/2, Exam | --- |
| Academic Writing II | 4/0, Credit | --- | --- |
| Research Methodology 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 FALL SEMESTER COURSES

### A. *First year courses*

## MICROECONOMICS I

**Lecturer:**

Jan Zápal

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**Teaching assistants:**

Gega Todua

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Dali Tsintskiladze

(Dali.Tsintskiladze@cerge-ei.cz)

**Office hours:**

see the office door

**Course objectives**

This is the first course in the microeconomics sequence. The objective of the sequence in general and of the course in particular is to i) provide students with firm knowledge of the basic microeconomic theory, ii) provide students with grasp of relevant (micro)economic concepts on intuitive and formal level and iii) equip students with tools and techniques allowing them to conduct their own independent research.

The course is based on 24 90-minutes lectures and 12 90-minutes classes (exercise sessions). Two lectures and one class take place in any given week.

12 weekly problem sets are integral part of the course. Students are required to complete one problem set per week and hand it in before each class (details to be specified). The classes will be devoted to the discussion of problem set solutions. Team-work on the problem sets is encouraged. Free-riding on the effort of team-mates is not … work on the problem sets is essential for grasping the course material and for exam preparation.

**Course outline**

1. Consumption
- Preference & Choice (MWG 1)
- Consumer Choice (MWG 2)
- Classical Demand Theory (MWG 3)
- Choice under Uncertainty (MWG 6)

2. Production
- Production (MWG 5)

3. Markets

- Competitive Markets (MWG 10)
- Externalities and Public Goods (MWG 11)
- Market Power (MWG 12)

**Requirements and grading**

Grades will be based on final exam only. The final exam will take place in week 13 (details to be specified). There will be midterm exam in week 6 or 7 (details to be specified) with structure similar to the final exam and hence indicative of students' standing in the course. In addition students are required to hand in 12 weekly problem sets.

**Readings**

Principal textbook:

Mas-Colell, Andreu; Michael D. Whinston and Jerry R. Green. Microeconomic Theory. Oxford: Oxford University Press, 1995.(henceforth MWG)

Reference (not required) books:

Microeconomic:

Jehle, Geoffrey A. and Philip J. Reny. Advanced Microeconomic Theory. Essex: Pearson Education Limited, 2011.

Varian, Hal R. Microeconomic Analysis. London: W. W. Norton & Company, 1992.

Mathematical:

Aliprantis, Charalambos D. and Kim C. Border. Infinite Dimensional Analysis: A Hitchhiker's Guide. Berlin: Springer, 2007.

Border, Kim C. Fixed Point Theorems with Applications to Economics and Game Theory. Cambridge: Cambridge University Press, 1989.

Dixit, Avinash K. Optimization in Economic Theory. Oxford: Oxford University Press, 2002.
Duggan, John. Basic Concepts in Mathematical Analysis.
https://dl.dropboxusercontent.com/u/17516137/RapidWeaverSite/resources/lecturenotes/MathHandbook13.pdf, 2013.

Chiang, Alpha C. Fundamental Methods of Mathematical Economics. London: McGraw-Hill, 1984.
McLennan, Andrew. Advanced Fixed Point Theory for Economics.
http://cupid.economics.uq.edu.au/mclennan/Advanced/advanced_fp.pdf, 2014.

Simon, Carl P. and Lawrence Blume. Mathematics for Economists. London: W. W. Norton & Company, 1994.

Takayama, Akira. Mathematical Economics. Hinsdale, IL: Dryden Press, 1974.Huang, Chi-fu and Robert H. Litzenberger, Foundations for Financial Economics, North-Holland, 1988.

Game theory:

Fudenberg, Drew and Jean Tirole. Game Theory. London: MIT Press, 1991.

Maschler, Michael; Eilon Solan and Shmuel Zamir. Game Theory. Cambridge: Cambridge University Press, 2013.

Myerson, Roger B. Game Theory: Analysis of Conflict. London: Harvard University Press, 1991.

Osborne, Martin J. and Ariel Rubinstein. A Course in Game Theory. London: MIT Press, 1994.

# MACROECONOMICS I / Part I

**Lecturer:**

Sergey Slobodyan

(Sergey.Slobodyan@cerge-ei.cz; office 330, phone 211)

**Teaching assistants:**

Kamil Kovář

(Kamil.Kovar@cerge-ei.cz)

**Office hours:**

TBA

### Course information

The first part of the first course in the macroeconomic theory sequence will concentrate on developing the tools and concepts necessary to understand the modern macroeconomic theory — discrete time dynamic programming and continuous time optimal control. The study of specific models will take a back seat to mastering the techniques. We will make use of MATLAB to utilize basic numerical methods of solving the problems.

### Grading

About 30% of the total score for this part will be based on homework and class participation, with the rest determined at the midterm exam.

### Reading List and Course Outline

Major Textbooks

B       D. Bertsekas: *Dynamic Programming and Optimal Control*, Athena Scientific, 2005.

LS      Ljungquist, Lars, and Thomas J. Sargent: *Recursive Macroeconomic Theory, 2nd ed.*,Cambridge: MIT Press, 2004.

M       George McCandles: *The ABCs of RBCs: An Introduction to Dynamic Macroeconomic Models.* Cambridge: Harvard University Press, 2008.

### Additional Textbooks

AC      Ada, Jerome and Russell Cooper. Dynamic Economics. MIT Press, 2003.

BF      Blanchard, O. and S. Fisher: *Lectures on Macroeconomics*. MIT Press, 1989.

SL      Stokey, Nancy L., Robert E. Lucas, Jr., and Edward C. Prescott: *Recursive Methods in Economic Dynamics*. Cambridge: Harvard University Press, 1989.

0.        Overview of the Macroeconomics (for bedtime reading).
- Blanchard, O., "What Do We Know About Macroeconomics that Fisher and Wicksell Did Not?" QJE, November 2000, 115:4, 1375-1410.
- Blanchard, O., "The State of Macro", NBER WP 14259.
- Woodford, M., "Revolution and Evolution in Twentieth-Century Macroeconomics," Available at http://www.columbia.edu/~mw2230/macro20C.pd.

I.        Discrete Time Dynamic Programming: Finite and Infinite Horizon
- B  Volume 1, Chapter 1.
- SL Chapters 1-4, LS Chapters 3-4.

II.      Numerical Solution Methods
IIa. Value Function Iteration
- LS Chapter 4.

Applications:
Consumption and Savings – discrete time.
- M Chapter 3.

One-Sector Model of Economic Growth
- SL Chapter 5.1, 5.4, 5.7, LS Chapter 11.

IIb. Policy Function Iteration
- LS Chapter 4.

Application:
Search Model.
- LS Chapter 6.3.

IIc. Log-Linearization, Method of Undetermined Coefficients, Blanchard-Kahn
Application:
- RBC Model
- M Chapters 1, 6.

IId. Linear-Quadratic Problem
- LS Chapter 5, M Chapter 7

Application:
- Monetary Policy

III.     Time Inconsistency
- TI

## MACROECONOMICS I / Part II

| Lecturer: |
|---|
| TBA |
| **Teaching assistant:** |
| TBA |
| **Office hours:** |
| TBA |

## STATISTICS

| Lecturers: |
|---|
| Patrick Gaulé |
| (patrickgaule@gmail.com, office 318, phone 191) |
| **Teaching assistants:** |
| Vojtěch Kuna |
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| Jelena Plazonja |
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| **Office hours:** |
| Monday 3:00pm – 4:30pm |

**Course information**

This course is the first course in the econometrics PhD sequence. The emphasis of this course is on the principles of probability theory and statistics inference with the goal of forming a solid background for econometrics analysis. No prior knowledge of probability or statistics is required. However, the course will proceed at a fast pace and students without strong prior training are advised to work very regularly to avoid falling back on the material.

**Course outline**

- Introduction to probability theory, set concepts and operations, probability set functions, counting rules, conditional probability and independence, Bayes' rule.
- Random variables, cumulative density functions, probability density functions.
- Expectations of random variables, moments and moment generating functions.
- Uniform distribution, Binomial distribution, Poisson distribution, Normal distribution.
- Systems of random variables, random vectors, joint cumulative density function, joint probability densitity functions, marginal probability density functions, expectations transformation of variables, conditional distributions, independence, covariance and correlation.
- Introduction to asymptotic theory, convergence in probability and distribution, law of large numbers, central limit theory.
- Bivariate normal distribution, t distribution, chi-squared distribution, F distribution

- Introduction to inferential statistics, random sampling, unbiasedness and consistency, confidence intervals, mean square error.
- Methods of moments.
- Introduction to hypothesis testing.
- Maximum likelihood estimation.
- Maximum likelihood tests, Wald and Score test.
- (time permitting) Ordinary Least Square estimation.

**Requirements and grading**

Problem Sets and Written Assignments (10%), Midterm Exam (40%), Final Exam (50%).

The following grading scale will be used: 94% of points or more=A+, 88-94%=A, 83-88%=A-,77-83% B+, 72-77%=B, 66-72%=B-, 61-66%= C+, 55-61%=C, 50-55% C-, less than 50%=F.

**Readings**

Hogg, R.V., McKean J. and A. T. Craig (2012). *Introduction to Mathematical Statistics*, Prentice Hall, 7th edition.

Casella, G., and R.L.Berger (2002). *Statistical Inference*, Duxbury Press, Belmont

B. *Second year courses*

## CROSS-SECTIONAL ECONOMETRICS I

**Lecturer:**

Stepan Jurajda

(Stepan.Jurajda@cerge-ei.cz, office 326, phone 139)

**Teaching assistant:**

Olga Bychkova

(Olga.Bychkova@cerge-ei.cz)

**Office hours:**

TBA

**Course information**

The emphasis of the course is twofold: (i) to extend regression models in the context of cross-section and panel data analysis, (ii) to focus on situations where liner regression models are not appropriate and to study alternative methods. The course prepares you to discuss the estimation of causal parameters and program evaluation in the second part of the sequence. Examples of applied work will be used throughout the course.

**Course outline**

I *Introduction*
1 Causal Parameters and Policy Analysis in Econometrics
2 Reminder
        2.1 Note on Properties of Joint Normal pdf
        2.2 Testing Issues.
3 Deviations from the Basic Linear Regression Model

II *Panel Data Regression Analysis*
4 GLS with Panel Data
        4.1 SURE
        4.2 Random Coefficients Model
        4.3 Random Effects Model
5 What to Do When $E[u|x]$ is not 0?
        5.1 The Fixed Effect Model
        5.2 Errors in Variables
6 Testing in Panel Data Analysis
        6.1 Inference with Clustered Data and in "Difference in Differences
        6.2 Hausman test
        6.3 Using Minimum Distance Methods in Panel Data
                6.3.1 The Minimum Distance Method
                6.3.2 Arbitrary Error Structure
                6.3.3 Testing the Fixed Effects Model
7 Simultaneous Equations
8 GMM and its Application in Panel Data
9 Dynamic Panel Data Models

III *Qualitative and Limited Dependent Variables*
9 Qualitative response models

9.1 Binary Choice Models
     9.1.1 Linear Probability Model
     9.1.2 Logit and Probit MLE
     9.1.3 The WLS-MD for Multiple Observations
     9.1.4 Panel Data Applications of Binary Choice Models
     9.1.5 Choice-based Sampling
     9.1.6 Relaxing the distributional assumptions of binary choice models
9.2 Multinomial Choice Models
     9.2.1 Unordered Response Models
     9.2.2 Ordered Response Models
     9.2.3 Sequential Choice Models
9.3 Models for Count Data
9.4 Threshold Models
10 Duration Analysis
     10.1 Hazard Function
     10.2 Estimation Issues
          10.2.1 Flexible Heterogeneity Approach
          10.2.2 Left Censored Spells
10.2.3 Expected Duration Simulations

**Requirements and grading**

20% problem sets, 30% midterm, 50% final, *both exams are open-book, open-notes.*

**Readings**

The main textbook for the class is *Econometric Analysis of Cross Section and Panel Data*, J.M. Wooldridge, MIT Press, 2002. Additional references will be provided for the various topics.

# INDUSTRIAL ORGANIZATION

| |
|---|
| **Lecturer:** |
| Avner Shaked |
| (avner.shaked@gmail.com; office 113, phone 162) |
| Jakub Steiner |
| (Jakub.Steiner@cerge-ei.cz; office 316, phone 182) |
| Krešimir Žigić |
| (Kresimir.Zigic@cerge-ei.cz, office 306, phone 245) |
| **Teaching assistant:** |
| Ludmila Matysková |
| (Ludmila.Matyskova@cerge-ei.cz) |
| **Office hours:** |
| TBA |

**Course information**

The first part of the course focuses on the role of information in economic modeling. We will read and discuss papers featuring informational asymmetries, and study their consequences on both micro and macroeconomic behavior. On the theoretical level, the course will introduce you to the modeling framework of global games, and beauty contest games. On the level of applications, we will see bank runs, debt pricing, financial bubbles, issues of central banking, and some other applications related to industrial organization.

The second part of the course (Introduction to IO) is (broadly) about the economic study of firm behaviour and market structure. The goal is to familiarize students with the major topics in IO, notably core oligopoly theory and in parallel, to illustrate methodological tools for conducting research. The main focus will be on theoretical issues. We will cover several subjects like the introduction to the oligopoly theory, as well as the idea of product differentiation, advertising and choice under bounded rationality.

**Requirements and grading**

The course will be accompanied by exercise sessions. The course grade will be based on a performance on both parts of the course; there will be an exam for each part of the course, and each exam counts as 50% of the total grade.

**Readings**

1st part:

Morris, Stephen and Shin, Hyun S. *"Global Games: Theory and Applications."* In: Dewatripont, M., Hansen, M., Turnovsky, S. (Eds), Advances in Economics and Econometrics (Proceedings of the Eighth World Congress of the Econometric Society), Cambridge University Press, 2003.

Morris, Stephen and Shin, Hyun S. *"Unique Equilibrium in a Model of Self-Fulfilling Currency Attacks."* American Economic Review, 1998, 88 (3), 587–597.

Stephen Morris, and Hyun Song Shin, *Contagious Adverse Selection,* American Economic Journal: Macroeconomics 2012, 4(1): 1–21.

Goldstein, Itay and Pauzner, Ady. *"Demand Deposit Contracts and the Probability of Bank Runs."* Journal of Finance, 2005, 60 (3), 1293–1327.

Sakovics J. and J. Steiner, *Who Matters in Coordination Problems?,* The American Economic Review, forthcoming.

F. Heinemann, R. Nagel, and P Ockenfels, *The theory of global games on test: experimental analysis of coordination games with public and private information,* 2004, Econometrica 72, 1583–1599.

Morris S.; Shin H.S. 2002, *Social Value of Public Information,* The American Economic Review 92, 1521-1534.

A. Bosch-Domènech, J. G. Montalvo, R. Nagel and A. Satorra, *One, Two, (Three), Infinity, ... : Newspaper and Lab Beauty-Contest Experiments,* The American Economic Review 92, 1687-1701.

Abreu, Dilip, and Markus K. Brunnermeier. *"Bubbles and crashes."Econometrica* 71.1 (2003): 173-204.

Philippe Jehiel, *Analogy-Based Expectation Equilibrium*

Philippe Jehiel, Milo Bianchi, *"Financial reporting and market efficiency with extrapolative investors"* (with) - July 2012

Eyster, E. and M. Piccione (2011). *An approach to asset pricing under limited understanding.*

2<sup>nd</sup> part:

**Principal textbooks:**
Tirole, Jean: *The Theory of Industrial Organization*, MIT Press, 1989 (henceforth, Tirole, 1989).

Belleflamme, P., and M. Peitz: *Industrial Organization—Markets and Strategies,* Cambridge University Press, 2010 (henceforth, Belleflamme and Peitz, 2010).

Osborne, J. M. and A. Rubinstein: *Bargaining and Markets*, Academic Press, 1990.

Etro, Federico: *Competition, Innovation and Antirust, A Theory of Market Leaders and Its Policy Implications*, Springer Verlag, 2007. (henceforth, Etro, 2007).

**Recommended and supplementary textbooks:**
Binmore, Ken: *Fun & Games*, D.C. Heath, 1992.

Fudenberg, Drew and Jean Tirole: *Game Theory*, MIT Press, 1991

*Handbook of Industrial Organization Vol. I and II*, eds. R. Schmalensee and R. Willig, Amsterdam: North-Holland, 1989.

*Handbook of Industrial Organization Vol. III*, eds. M. Armstrong and R. Porter, Amsterdam: North-Holland, 2007.

Martin, Stephen: *Advanced Industrial Economics*, Blackwell, 1993.

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

Shy, Oz: *Industrial Organization, Theory and Applications*, The MIT Press, 1996.

Spiegler, R., *Bounded Rationality and Industrial Organization,* Oxford University Press, 2011.

Sutton, John: *Sunk Costs and Market Structure: Price Competition, Advertising, and the Evolution of Concentration*, MIT Press, 1991.

Vives, Xavier, Oligopoly Pricing; old ideas and new tools, The MIT Press, 2000, (henceforth, Vives, 2000).

Vives, Xavier, *Information and Learning in Markets: The Impact of Market Microstructure,* Princeton University Press, 2010

**TOPICS:** (this is a **tentative** outline of what we plan to cover in the Fall semester)

**Product Differentiation, Advertising and Choice under Bounded Rationality**
Belleflamme and Peitz, 2010, Chapter 6.

Spiegler, R., Bounded Rationality and Industrial Organization (2011), Oxford University Press, chapter 6.

Tirole, 1989, chapter 7.

Butters, R.G. (1977), "Equilibrium Distributions of Sales and Advertising Prices",
*Review of Economic Studies*, 44, 465-491.

d'Aspremont, C., J. J. Gabszewicz and J.-F. Thisse (1979), "On Hotelling's Stability in Competition,"
*Econometrica*, 47, 1145-1150.

Hotelling, H. (1929), "Stability in Competition," *Economic Journal*, 39, 41-57.

Salop, S. (1979), "Monopolistic Competition with Outside Goods," *Bell Journal of Economics*, 10, 141-156.

Shaked, A. and J. Sutton (1982), "Relaxing Price Competition through Product Differentiation," *Review of Economic Studies*, 49, 3-13.

Shaked , A. and J. Sutton (1983), "Natural Oligopolies," *Econometrica*, 51, 1469-1483.

**Models of Oligopolistic Competition**
Etro, 2007; Chapters, 1-3

Tirole, 1989; Sections 5.1, 5.2, 5.4, 8.2.1.

MWG, 1995; Section 12.C.

Belleflamme and Peitz, 2010, Chapters, 3-4

Etro, F. (2006), "Aggressive Leaders," *Rand Journal of Economics*, 37, 146-154.

Novshek, W. (1985), "On the Existence of Cournot Equilibrium," *Review of Economic Studies*, 52, 85-98.

Etro, F. 2008, Stackelberg Competition with Endogenous Entry, *The Economic Journal*, Vol. 118, 531 (October), pp. 1670-97.

Shapiro, C. (1989), "Chapter 6: Theories of Oligopoly Theory," in: *Handbook of Industrial Organization Vol. I.*

Vives, 2000 Chapters 3, 4 and 5

# FINANCIAL MARKETS I

**Lecturer:**

Michal Pakoš

(Michal.Pakos@cerge-ei.cz; office 327, phone 121)

**Teaching assistant:**

TBA

**Office hours:**

Thursdays 18.9., 2.10. and 16.10.; 2-4pm

## Course information

This course studies asset pricing theory, emphasizing a discount-factor and GMM approach. The discount factor is a unifying framework: p=E(mx) covers everything, stocks, bonds, options, real investments, discrete time, continuous time, asset pricing, portfolio theory, etc.

There is one required text: Asset Pricing, Princeton University Press.

## Course outline

You need to be comfortable with:

1. time series mechanics. Start with the Appendix on Continuous time in Asset Pricing, p.489-496. Read the Continuous-time review notes from John Cochrane for a quick refresher on dz and dt.

2. Asset Pricing Ch1-2 and Ch 21.1 for equity premium

Lucas, Robert E. Jr, 1978, "Asset Prices in An Exchange Economy" Econometrica 46, 1429-1455.

3. Contingent claims, state-space representation and existence of a discount factor, Asset Pricing Ch. 3-4

(Optional, reference) Hansen, Lars Peter and Scott F. Richard, 1987, "The Role of Conditioning Information in Deducing Testable Restrictions Implied by Dynamic Asset Pricing Models" Econometrica 55, 587-613.

4. Mean-variance frontier, beta representations, conditioning information, Asset Pricing Ch 5-8.

5. Factor pricing models.; CAPM, ICAPM, APT, Asset Pricing Ch.8-9.

6. Generalized Method of Moments, Asset Pricing Ch 10-11.

Hansen, Lars Peter, 1982, "Large Sample Properties of Generalized Method of Moments Estimators" Econometrica 50, 1029-1054.

Hansen, Lars Peter, and Kenneth J. Singleton, 1982, "Generalized
Instrumental Variables Estimation of Nonlinear Rational Expectations Models" Econometrica 50,
1269-1286.;

7. Regression tests, GRS, and GMM, Asset Pricing Ch 12-16

8. a) Option pricing and b) Term structure definitions, expectations hypothesis and factor structure,
Asset Pricing Ch 17

9. Asset pricing and macro. Alternative utility functions: multiple goods, aggregation, habits, durable
goods, labor, recursive utility, long run risks, endowment and general equilibrium models, Asset
Pricing Ch 21.2

**Requirements and grading**

1 midterm and 1 final exam, homeworks and classes attendance. Grading is based on 40% midterm
40% final and 20% homeworks

# ENERGY ECONOMICS

**Lecturer:**

*1st part*

Sherzod Tashpulatov

(Sherzod.Tashpulatov@cerge-ei.cz; office 105, phone 131)

**Teaching assistant:**

Sherzod Tashpulatov

(Sherzod.Tashpulatov@cerge-ei.cz)

**Office hours:**

after appointment (use e-mail)

*2nd part*

Silvester van Koten

(slvstr@gmail.com); mobile +420 776 125 053)

**Teaching assistant:**

TBA

**Office hours:**

TBA

**Course objectives**

The Energy Economics course consists of two parts. Part 1 is taught by S. Tashpulatov and Part 2 of
this course is taught by Silvester van Koten. The course does not require prior knowledge related to
energy.

Part 1 starts with topics on energy data and demand. Then we study the structure and functioning of different kinds of energy markets. In particular, we analyze markets and economics of fossil fuels, renewable energy sources, and electricity. The focus will also be given on quantitative analysis of different energy markets.

Part 2 focuses on topics on the electricity economics, climate change and climate policy, and the economics of oil and gas and renewables.

## Course outline – 1<sup>st</sup> part

- Energy and energy economics. Energy data, balance, and demand.
- The theory of energy economics: cost-benefit and market structure analyses.
- Coal markets.
- Oil markets.
- Natural gas markets.
- Hotelling's economics of exhaustible resources.
- Renewable energy sources.
- Electricity markets.

## Course outline – 2<sup>nd</sup> part

- Overview of electricity, generation, and transmission.
- An applied and a formal, computational framework.
- Market design issues, market power and climate policy.

## Grading

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

1<sup>st</sup> part

| | |
|---|---|
| Four quizzes for the 1<sup>st</sup> part | 40% |
| Four homework assignments for the 1<sup>st</sup> part | 20% |
| Exam for the 1<sup>st</sup> part | 40% |

2<sup>nd</sup> part

| | |
|---|---|
| Homework assignments for the 2<sup>nd</sup> part | 25% |
| Exam for the 2<sup>nd</sup> part | 75% |

## Readings – 1<sup>st</sup> part

Required readings
Bhattacharyya, Subhes C. 2011. *Energy Economics: Concepts, Issues, Markets and Governance*. Springer. (Bhattacharyya).

Dahl, Carol A. 2004. *International Energy Markets: Understanding Pricing, Policies and Profits*. PennWell. (Dahl).

Evans, J. and L.C. Hunt. 2009. *International Handbook on the Economics of Energy*. Edward Elgar Publishing Limited. (Evans and Hunt).

Tashpulatov S. 2014. *Network Industry Liberalization: The Case of the England and Wales Electricity Market*. Dissertation. Accessible at http://www.cerge-ei.cz/dissertations/tashpulatov-sherzod (Tashpulatov).


Supplemental readings

Bosselman, F., J. Rossi, and J.L. Weaver. 2000. *Energy, Economics and the Environment: Cases and Materials.* Foundation Press. (BRW).

Kirschen, D., and G. Strbac. 2004. *Fundamentals of Power System Economics*. John Wiley & Son. (KS).

Carlton D.W., J.M. Perloff. 2000. *Modern Industrial Organization*. (3rd Ed.) World Student Series. (CP).

Serletis A. 2007. *Quantitative and Empirical Analyses of Energy Markets*. World Scientific Series on Energy and Resource Economics. (Serletis)


Additional references for lectures and ex-sessions

Adelman, M.A. and G.C. Watkin. 2008. Reserve Prices and Mineral Resource Theory. *Energy Journal* (Special Issue to Acknowledge the Contribution of Campbell Watkins to Energy Economics): 1–16.

Asche, F., O.B. Nilsen, and R. Tveterås. 2008. Natural Gas Demand in the European Household Sector. *Energy Journal* 29(3): 27–46.

Benthem, A. and M. Romani. 2009. Fuelling Growth: What Drives Energy Demand in Developing Countries? *Energy Journal* 30(3): 91–114.

Borenstein, S. 2002. The Trouble with Electricity Markets: Understanding California's Restructuring Disaster. *Journal of Economic Perspectives* 16(1): 191–211.
Accessible at: http://dev.wcfia.harvard.edu/sites/default/files/Borenstein2002.pdf

Brown S.P.A. and M.K. Yücel. 2008. What Drives Natural Gas Prices? *Energy Journal* 29(2): 45–60.

Doane, M.M. and D.F. Spulber. 1994. Open Access and the Evolution of the U.S. Spot Market for Natural Gas. *Journal of Law and Economics* 37(2): 477–517. Accessible at http://www.jstor.org/stable/725740

Dreher, A. and T. Krieger. 2008. Do Prices for Petroleum Products Converge in a Unified Europe with Non-Harmonized Tax Rates? *Energy Journal* 29(1): 61–88.

DUKES, 2014. Department of Energy & Climate change. *Digest of United Kingdom Energy Statistics 2014*. Accessible at Dreher, A. and T. Krieger. 2008. Do Prices for Petroleum Products Converge in a Unified Europe with Non-Harmonized Tax Rates? Energy Journal 29(1): 61–88.

EIA (U.S. Energy Information Administration). 1999. Petroleum: An Energy Profile. Accessible at ftp://ftp.eia.doe.gov/pub/oil_gas/petroleum/analysis_publications/petroleum_profile_1999/profile99v8.pdf

Hamilton, J. 2009. Understanding Crude Oil Price. *Energy Journal* 30(2): 179–206. Accessible at https://relooney.fatcow.com/SI_Routledge-Oil/Oil-Prices_2.pdf

Hartley, P.R., K.B. Medlock, and J.E. Rosthal. 2008. The Relationship of Natural Gas to Oil Prices. *Energy Journal* 29(3): 47–65.

Heal, G. 2010. The Economics of Renewable Energy in the United States. *Review of Environmental Economics and Policy* 4(1): 139–154. Accessible at http://reep.oxfordjournals.org/content/4/1/139.abstract

Hughes, J., C.R. Knittel, and D. Sperling. 2008. Evidence of a Shift in the Short-run Price Elasticity of Gasoline Demand. *Energy Journal* 29(1): 93–114. Accessible at http://web.mit.edu/knittel/www/papers/gas_demand_final.pdf

Livernois, J. 2009. On the Empirical Significance of the Hotelling Rule. *Review of Environmental Economics and Policy* 3(1): 22–41. Accessible at http://reep.oxfordjournals.org/content/3/1/22.short

Mauritzen, J. 2012. Dead Battery? Wind Power, the Spot Market, and Hydropower Interaction in the Nordic Electricity Market. *Energy Journal* 34(1): 103–123.

Metcalf, G.E. 2008. An Empirical Analysis of Energy Intensity and Its Determinants at the State Level. *Energy Journal* 29(3): 1–26.

Nesbitt, D.M. and J.N. Scotche. 2009. Spatial Price and Quantity Relationships in World and Continental Commodity Markets. *Energy Journal* (Special Issue. World Natural Gas Markets And Trade: A Multi-Modeling Perspective): 21–37.

Ramberg, D.J. and J.E. Parsons. 2012. The Weak Tie Between Natural Gas and Oil Prices. *Energy Journal* 33(2): 13–35.

Wadud, Z., D.J. Graham, and R.B. Noland. 2010. Gasoline Demand with Heterogeneity in Household Responses. *Energy Journal* 31(1): 47–74.

**Part 1**

Detailed schedule

| Lectures | Readings |
|---|---|
| Energy and energy economics. Energy data, balance, and demand | Bhattacharyya Ch. 1; 2; 3; 4<br>Evans and Hunt Ch. 1; 5.5; 5.6; 6.1; 6.2<br>Metcalf (2008); Benthem and Romani (2009); Wadud *et al.* (2010) |
| The theory of energy economics: cost-benefit and market structure analyses | Evans and Hunt Ch. 2.1; 2.2; 2.7; 2.8; 2.9; 21.3 |
| Coal markets | Bhattacharyya Ch. 16<br>Dahl Ch. 3<br>BRW Ch. 5<br>Nesbitt and Scotche (2009) |
| Oil markets | Bhattacharyya Ch. 14<br>BRW Ch. 6, 16<br>Hamilton (2009); Dreher and Krieger (2008) |
| Natural gas markets | Bhattacharyya Ch. 15<br>Dahl Ch. 7, 10, 11<br>Hughes *et al.* (2008); Asche et al. (2008); Doane and Spulber (1994); Brown and Yücel (2008); Hartley *et al.* (2008); Ramberg and Parsons (2012) |
| Hotelling's economics of exhaustible | Bhattacharyya Ch. 9 |

| resources | Evans and Hunt Ch. 3 |
|---|---|
| | Livernois (2009); Adelman and Watkin (2008) |
| Renewable energy sources | Bhattacharyya Ch. 11 |
| | BRW Ch. 11 |
| | Heal (2010); Mauritzen (2012) |
| Electricity markets | Bhattacharyya Ch. 10 |
| | BRW Ch. 13 |
| | KS Ch. 1, 3–4 |
| | Tashpulatov (2014) |
| | Borenstein (2002) |

During ex-sessions in addition to material discussed during lectures we will cover the following topics:
Market structure: perfect competition, monopoly, cartel, dominant firm with competitive fringe (CP)
Imports, exports, and prices in Alberta's deregulated power market (Serletis Ch. 10)
Cointegration analysis of power prices in the Western North American markets (Serletis Ch. 11)
Case study: England and Wales electricity market (Tashpulatov)

**Part 2**
***Detailed schedule***

| Week | | |
|---|---|---|
| | **A. Transmission markets** | |
| 5 | Fundamentals | Shively-E Ch.1, 2, 4, 5, 6, 7. Biggar Ch. 2 |
| | Nodal pricing: counterintuitive flows and prices. *(exercise session on nodal pricing)* | Stoft 390-399 Kirschen Ch.6 |
| 6 | Nodal pricing: general (formal) methods and computational tools (GAMS). | Van Koten-Cookbook DC-flow calculations Biggar Ch. 6 *McCalley* *Rosenthal 2015* |
| | **B. Generation markets** | |
| | Fundamentals | Shively-E Ch. 4. Edwards p.93-112 +117 (California) |
| 7 | Optimal investment: optimal shortage, screen curves, load duration curve. | Stoft p.33-45, 123-129 Biggar Ch. 9 |
| | Generation-only trading simulation LT & ST *(DOUBLE LECTURE IN THE COMPUTER LAB)* | Edwards p.259-271 Stoft p.33-45, 123-129 |
| 8 | Missing money & capacity payments and subsidies | ACER 2013 Stoft p.33-45, 123-129 Biggar Ch. 10 |
| | Optimal investment: general (formal) methods. *(exercise session on optimal investment pricing)* | Biggar, p.134-135, p.154-155, Ch. 9.1. Ch. 9.2 |
| 9 | Optimal investment: general (formal) methods and computational tools (GAMS). | Biggar ,Ch. 9.3. 10.1 |
| | Energy-only market: Reliability and competitive electricity markets) *(exercise session on general (formal) methods)* | Joskow 2007 Borenstein |
| | **C. Institutions of the electricity market** | |
| 10 | Organization of the electricity market. Day-ahead market, intraday market and balancing markets. Anciliary services | Biggar Ch.3, Ch. 4.9 Kirschen Ch.1, Ch.3, Ch.5 |

| | | |
|---|---|---|
| | Zonal/nodal pricing<br>*(exercise session on Zonal pricing)* | Biggar, Ch.19<br>Harvey |
| 11 | Guest lecture of Martin Palkovský, market design specialist at ČEPS (the Czech TSO) | TO BE ANNOUNCED |
| | **D. Market design issues** | |
| | Market power<br>- Ex-ante and ex-post regulation<br>- Forward markets and vertical integration | Brattle 2007<br>Allaz & Vila<br>Van Koten 2008<br>Van Koten 2013<br>Bushnell |
| 12 | Environmental regulation | Fisher<br>Cramton 2010<br>Hirth 2015<br>Marcantonini<br>Boehringen 2009<br>Boehringen 2010 |
| | - green paradox<br>- miracles and disasters: what will the future bring?<br>*(exercise session on environmental regulation)* | Smil 2010<br>Smil 2014<br>Wilson<br>Morris |

## Readings – <u>2nd part</u>

All literature is available in the library or will be provided.
*(The literature in italics is <u>not obligatory</u>, but given as reference literature.)*

<u>A. Transmission markets</u>

Biggar            Biggar, D.R., Hesamzadeh, M.R. 2014. The Economics of Electricity Markets.

Shively-E         Shively, B., Ferrare, J. Understanding today's electricity business. Enerdynamics Corp.

Stoft             Stoft, S. 2002. Power system economics: designing markets for electricity. IEEE Press: Wiley.

VanKoten          Cookbook DC-flow calculations.

*Green             Green, R.2007.  Nodal pricing of electricity: how much does it cost to get it wrong? The Journal of Regulatory Economics 31, p.125-149.*

*Grimm             Grimm,V. Martin, A., Weibelzahl, M, Zoettl,G. 2014. Transmission and generation investment in electricity markets: the effects of market splitting and network fee regimes. Discussion Paper No. 460. FAU Erlangen–Nuremberg.*

*Joskow 2000       Joskow P, Tirole J, Transmission rights and market power on electric power networks, RAND Journal of Economics, 31(3), 2000, 450–487.*

*Joskow 2005       Joskow, P., Tirole, J. 2005. <u>Merchant Transmission Investment</u>, <u>Journal of Industrial Economics</u>, 53(2), pages 233-264, 06.*

*Leuthold          Leuthold, F., Weigt, H., von Hirschhausen, C. 2008. Efficient pricing for European electricity networks - The theory of nodal pricing applied to feeding-in wind in Germany, Utilities Policy 16(4), p. 284-291.*

*McCalley          McCalley, J.D. Lecture Notes " DCPowerFlowEquations". Iowa State University.*

*MIT               The future of the electric grid. (p.243-245.*

*NVE*          *NVE, 2010. The introduction to a Day-Ahead market - market design, monitoring and surveillance.*

*Oren 1995*    *Oren, S.S., Spiller, P.T., Varaiya, P., Wu, F. 1995. Nodal prices and transmission rights: A critical appraisal. The Electricity Journal, 8(3), p. 24-35.*

*Oren 1998*    *Oren, S. S. 1998. Transmission pricing and congestion management: efficiency, simplicity and open access. In Proceedings of the EPRI Conference on Innovative Pricing, Washington DC, 19.*

*Reader*       *Reader with a selection of articles (news articles and research reports) on renewables, cap-and-trade, UNCOP & climate change negotiations, and  energy density considerations.*

*Rosenthal 2015Rosenthal, R.E. 2015. GAMS, A User's Guide.*
               *http://www.gams.com/dd/docs/bigdocs/GAMSUsersGuide.pdf*

*Schweppe 1988Schweppe, F. C., Tabors, R. D., Caraminis, M. C., & Bohn, R. E. (1988). Spot pricing of electricity.*

### B. Generation markets

ACER 2013      ACER. 2013. Capacity remuneration mechanisms and the internal market for electricity.

Borenstein     Borenstein, S., & Holland, S. (2005). On the Efficiency of Competitive Electricity Markets with Time-Invariant Retail Prices. RAND Journal of Economics, 469-493.

Biggar         Biggar, D.R., Hesamzadeh, M.R. 2014. The Economics of Electricity Markets.

Edwards        Edwards, D. 2010. Energy trading & investing: trading, risk management, and structuring deals in the energy Markets. New York: McGraw-Hill.

Helm           Helm, D. 2005. The assessment: the new energy paradigm. Oxford review of economic policy, vol. 21, no. 1.

Hogan 2005     Hogan, W.W. 2005. On an "energy only" electricity market design for resource adequacy. Mimeo.

Joskow 2007    Joskow, P., Tirole, J. 2007. Reliability and competitive electricity markets. RAND Journal of Economics 38(1), pp. 60–84.

Shively-E      Shively, B., Ferrare, J. Understanding today's electricity business. Enerdynamics Corp.

Stoft          Stoft, S. 2002. Power system economics: designing markets for electricity. IEEE Press: Wiley.

*Joskow 2008*  *Joskow, P.L. 2008. Capacity payments in imperfect electricity markets: Need and design. Utilities Policy.*

### C. Institutions of the electricity market

Biggar         Biggar, D.R., Hesamzadeh, M.R. 2014. The Economics of Electricity Markets.

Harvey   Harvey, S.M., Hogan, W.W. 2000. Nodal and Zonal Congestion Management and the Exercise of Market Power.

Kirschen   Kirschen, D., Strbac, G. 2004. Fundamentals of power system economics. John Wiley & Sons Ltd: Chichester. Chap.1


D. Market design issues

Brattle 2007  The Brattle Group, 2007. Review of PJM's Market Power Mitigation Practices in Comparison to Other Organized Electricity Markets. p. 1-66.

Allaz   Allaz, B., & Vila, J. L. (1993). Cournot competition, forward markets and efficiency. Journal of Economic theory, 59(1), 1-16.

Biggar   Biggar, D.R., Hesamzadeh, M.R. 2014. The Economics of Electricity Markets. Ch 1, 15,16,17.

Boehringen 2009  Böhringer, C., Rosendahl, K,E, 2009. Green serves the dirtiest. Discussion Papers No. 581, April 2009 Statistics Norway, Research Department.

Boehringen 2010  Böhringer, C., Rosendahl, K,E, 2010. Green promotes the dirtiest: on the interaction between black and green quotas in energy markets. Journal of Regulatory Economics 37, 316–325.

Borenstein 2012  Borenstein, S. 2012. The Private and Public Economics of Renewable Electricity Generation, Journal of Economic Perspectives, 26(1), p.67-92.

Bushnell 2008 Bushnell, Erin T. Mansur, and Celeste Saravia. 2008. Vertical Arrangements, Market Structure, and Competition: An Analysis of Restructured US Electricity Markets American Economic Review 98(1), 237–266.

Cramton 2010 Cramton, P., Stoft, S. 2010. Price is a better climate commitment. The Economists'Voice.

Fisher   Fisher, A.C. 2008 (1981). Resource and Environmental Economics. Chapter 6, p.164-174.

Hirth 2015  Hirth, L. 2013. The optimal share of variable renewables. How the variability of wind and solar power affects their welfare-optimizing deployment. The Energy Journal (FEEM Working Paper 90.2013).

Joskow 2011 Joskow, P.L. 2011. Comparing the costs of intermittent and dispatchable electricity generating technologies. American Economic Review: Papers & Proceedings 2011, 100:3, 238–241.

Marcantonini Marcantonini, C., Ellerman, D. 2014. The Implicit Carbon Price of Renewable Energy Incentives in Germany. EUI Working Paper RSCAS 2014/28.

Morris   Morris, E. 2007. From horse power to horsepower. Access 30.

Smil 2010  Smil. V. 2010. Power Density Primer. From http://www.vaclavsmil.com/wp-content/uploads/docs/smil-article-power-density-primer.pdf

Smil 2014  Smil, V. 2014. The long slow rise of solar and wind. Scientific American 282 (1):52-57. **PDF**

Taylor   Taylor, G., Tanton, T. 2012. The hidden cost of wind electricity. American tradition institute. http://www.atinstitute.org/wp-content/uploads/2012/12/Hidden-Cost.pdf

VanKoten 2008  Van Koten, S., & Ortmann, A. 2008. The unbundling regime for electricity utilities in the EU: A case of legislative and regulatory capture?. Energy Economics, 30(6), 3128-3140.

VanKoten 2013  Van Koten, S., Ortmann, A. 2013. Structural versus behavioral remedies in the deregulation of electricity markets: An experimental.

Wilson  Wilson, R. 2013. The future of energy: why power density matters. The Energy Collective: http://theenergycollective.com/robertwilson190/257481/why-power-density-matters

*Abbink*  *Abbink, K., Brandts, J., & McDaniel, T. 2003. Asymmetric demand information in uniform and discriminatory call auctions: an experimental analysis motivated by electricity markets. Journal of Regulatory Economics, 23(2), 125-144.*

*MacKay*  *MacKay, D.J.C. 2009. Sustainable energy – without the hot air.*

*Sinn 2008*  *Sinn. H-W. 2008. Public policies against global warming: a supply side approach. International Tax and Public Finance 15, p.360–394.*

*Sinn 2012*  *Sinn. H-W. 2012. The green paradox. The MIT PRess.*

*Tietenberg*  *Tietenberg, T. & Lewis, L. 2012. Environmental & natural resource economics.*

*Van Koten 2011*  *Van Koten, S., Merchant interconnector projects by generators in the EU: effects on profitability and allocation of capacity. Energy Policy 41, 748–758.*

*Van Koten 2012*  *Van Koten, S., Legal unbundling and auctions in vertically integrated (utility) markets. The European Journal of Law and Economics.*

# MACRO TOPICS

**Lecturer:**

Byeongju Jeong

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

**Teaching assistant:**

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**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 advised to read the papers/chapters in advance of lectures since the lectures will build on the basic understanding of the papers.

**Requirements and grading**

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

**Readings**

Karabarbounis, L. and Neimanm, B. (2015), "Declining Labor Shares and the Global Rise of Corporate Saving, " Manuscript. (http://faculty.chicagobooth.edu/loukas.karabarbounis/research/index.html)

Azzimonti, M., De Francisco, E., and Quadrini, V. (2014), "Financial Globalization, Inequality, and the Rising Pubic Debt," *American Economic Review* 104: 2267-2302.

Kumhof, M., Ranciere, R., and Winant, P. (2015), "Inequality, Leverage, and Crises," *American Economic Review* 105: 1217-1245.

Maarten, G., Manning, A., and Solomons, A. (2014), "Explaining Job Polarization: Routine-Biased Technological Change and Offshoring," *American Economic Review* 104: 2509-2526.

Benanou, L. and Neimanm, B. (2015), "Bonus Culture: Competitive Pay, Screening, and Multitasking," forthcoming in *Journal of Political Economy*. (http://www.princeton.edu/~rbenabou/papers.html)

Chettey, R., Hendren, N., Kline, P., and Saez, E. (2014), "Where is the Land of Opportunity? The Geography of Intergenerational Mobility in the United States," *Quarterly Journal of Economics* 129: 1553-1623.

De La Croix, D. and Doepke, M. (2003), "Inequality and Growth: Why Differential Fertility Matters," *American Economic Review* 93: 1091-1113.

Baudin, T., De La Croix, D., and Gobbi, P. (2015), "Fertility and Childlessness in the United States," *American Economic Review* 105: 1852–1882.

Grossman, G., and Helpman, E. (2014), "Growth, Trade, and Inequality," Manuscript. (http://scholar.harvard.edu/helpman/publications)

Besley, T. and Persson, P. (2010), "State Capacity, Conflict, and Development," *Econometrica* 78: 1-34.

# LABOR ECONOMICS

**Lecture:**

Daniel Münich

(Daniel.Münich@cerge-ei.cz; office 303, phone 175)

Mariola Pytliková

(jola.pytlikova@gmail.com; office 309, mobile +420 739 211 312)

**Teaching Assistant:**

Liyousew Gebremedhin Borga

(lborga@cerge-ei.cz)

**Office hours:**

DM – Tue 2-4pm (+anytime if doors are open)

MP – upon appointment

**Course information**

The course will provide fundamental understanding of stylized labor supply and demand models in static and dynamic version, models of wage determination. The course will combine theoretical concepts, empirical evidence and empirical approaches including use of econometrics tools. Critical discussions about implications for public policy designs and policy experience will be encouraged.

The course has three major goals (i) to guide students through current theoretical and empirical understanding of major issues in the broad field of labor economics, (ii) to guide student's to own empirical research, (iii) to make students familiar with common research resources, standards of practice and approaches in the field. Throughout the topics, references will be made to empirical approaches (data and techniques econometric / identification strategies) and actual policies.

The necessary prerequisite for the course is familiarity with principles of microeconomic theory and econometrics from the 1st year.

**Course outline**

Labor supply
* Key terms, framework, resources (DM)
* Static model of labor supply, non-linear price lines, participation,  tax-ben schemes (DM)
* Home production, interpersonal transfers, allocation of (non)market time (DM)
* Labor supply over business and life-cycle (DM)

Models of wage structures
* Human capital and competing model (DM)
* Differentials on labor markets by gender and ethnicity (MP)
* Compensating wage differentials, discrimination (MP)
* Changes in wage structures, income inequality (MP)
* Job turnover, matching and search, unemployment duration (DM)

Labor demand
* Static and dynamic labor demand (DM)
* Theory of firm (standard, state owned, coops, labor managed) (DM)
* Minimum wages; unions; bargaining (MP)

Economics of education

- Quality of teachers and teacher's labor market (DM)
- Skills formation and measurement (DM)

**Requirements and grading**

Grades will be based on student's performance in the final exam (55%), a term paper i.e. Critical Literature Review = CLR (25%), and an empirical assignment (20%).

The aim CLR is to make students familiar with real empirical econometric analysis on labor econ topic using real empirical data. The CLR is expected to be carefully crafted academic literature review on a course related topic of own choice containing student's critical insight.

Exercise sessions will be scheduled irregularly and will focus mainly on empirical research practices (data work, statistics, and econometrics) related to the syllabus.

Detailed information, announcements and lecture materials (readings, links, lecture notes, etc.) will be made available via course web page at http://home.cerge-ei.cz/munich/labor15/

*Readings*

Selected chapters from:

HBLE (Handbook of Labor Economics, Vol. 1, 2, 3, 4A, 4B, Edited by O. Ashenfelter, R. Layard and D. Card, Elsevier) at http://econpapers.repec.org/bookchap/eeelabhes/.

HBEE (Handbook of  Economics of Education, Vol. 1, 2, 3, 4, Edited by E.A. Hanushek, S.Machin, L.Woessmann, Elsevier).

Labor Economics, George Borjas.

Hamermesh, Daniel S. and Albert Rees (1984) "The Economics of Work and Pay".

Hamermesh, Daniel S. (1993), "Labor Demand" (Princeton University Press).

Auxiliary reference texts:

Econometric Analysis of Cross Section and Panel Data, Jeffrey M. Wooldridge, MIT Press, 2002.

Limited-dependent and Qualitative Variables in Econometrics, G.S. Maddala, Cambridge U. Press, 1983.

A Guide to Econometrics, Peter Kennedy.

Additional readings (papers) will be provided for various subtopics before and after particular lectures.

# ACADEMIC WRITING II

**Lecturers:**

Andrea Downing

(Andrea.Downing@cerge-ei.cz; office 317, phone 254)

Paul Whitaker

(Paul.Whitaker@cerge-ei.cz; office 315, phone 259)

**Course Co-ordinator:**

Deborah Nováková

(Deborah.Novakova@cerge-ei.cz; office 318, phone 197)

**Teaching assistant:**

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**Office hours:**

TBA

## Course information

The purpose of this course is to support further development of in-field, PhD level academic writing skills and to provide practice in specific types of writing required.

Building upon the work in Academic Writing I, students will research, plan, and write a Position Paper on a topic chosen by the student. The paper should analyze the work of others and offer the students' own distinct position on the topic. The earlier assignments lead directly to the Position Paper.

## Requirements and grading

0% Survey                    10% Summary of a Position Paper

20% Comparative Critique      50% Position Paper

10% Analysis of Peer Draft    10% Other Assignments

Students are evaluated according to their ability to produce graduate-level written academic texts in English.  100% class and consultation attendance is mandatory, and completing all assigned tasks is a minimum requirement for passing the course.

## Readings

Sources and materials will be provided. Students will also participate in choosing readings.

## COMBINED SKILLS II – PhD

| |
|---|
| **Lecturer:** |
| <u>Andrea Downing</u> |
| (Andrea.Downing@cerge-ei.cz; office 317, phone 254) |
| <u>Paul Whitaker</u> |
| (Paul.Whitaker@cerge-ei.cz; office 315, phone 259) |
| **Teaching assistant:** |
| --- |
| **Office hours:** |
| AD – Tuesday 12:00-15:00 / Wednesday 14:00-17:00 |
| PW – Monday 10:30-12:00 / Tuesday 13:00-14:30 / Wednesday 9:00-12:00 |

**Seminar Information**

This is the final required credit course for the Academic Skills Center.

The seminar is designed primarily to assist dissertation proposal workshop participants with their written research proposals and presentations via consultation with Academic Skills Center faculty. For DPW candidates, the seminar will work towards the first official DPW draft due November 1st. Consultations will continue through November until DPW week, and afterwards if necessary, prior to the final submission date for the ASC credit course. All students deliver a presentation of their research proposals close to DPW week in November. Students not wishing to participate in DPW can complete the course requirements by participating in all elements of the course without final attendance at DPW.

Attendance is compulsory at an individual round table workshop (announced in September), the presentations prior to DPW week and at least two individual consultations. Dates of compulsory meetings/presentations will be announced by the ASC in advance.

**Evaluation**

This is an Academic Skills Center graded course, which includes evaluation of the written proposal and presentation. 70% of available marks are allocated to the written research proposal, and 30% to the assessed presentation.

NOTE: Full participation in the seminar, consultations, and completion of all required tasks are the minimum requirements for passing the course.

*When relevant, updates that supersede this hardcopy can be found on the internal pages of the website at: https://iweb.cerge-ei.cz/phd/prog_details/coursebook/*

## III.   PROFESSORS TEACHING IN THE FALL SEMESTER 2015

### Andrea Downing, Ph.D.

Email: Andrea.Downing@cerge-ei.cz

Andrea Downing is teaching at CERGE-EI since September 2012. Received her Ph.D. in Economic and Social History from the University of Liverpool, UK in 1998 and M.A. in Research Methods in the Social Sciences from the University of Liverpool, UK in 1993. She worked as a Lecturer at the Metropolitan University in Prague from 2010 to 2012. She was also working as a Teacher Trainer at the Metropolitan University in Prague from 2010 to 2011, where she designed and delivered pedagogic training to aspiring and in-service Czech teachers of English. From September 2004 to June 2005 she was an Associate Professor and a Chair of Foundation Studies at Sur University College in Oman.

Research orientation:

Multiple intelligences and learner autonomy and observing the observer in teaching development.

### Patrick Gaulé, Ph.D.
Assistant Professor

Email: patrickgaule@gmail.com

Webpage: http://sites.google.com/site/patrickgaule/

Patrick Gaule is an Assistant Professor at CERGE-EI (under U.S. permanent charter) and at CERGE, Charles University, and a Researcher at the Economics Institute of the Academy of Sciences of the Czech Republic since September 2012. He received his Ph.D. from the Ecole Polytechnique Federale de Lausanne, Switzerland, in May 2009. From September 2009 to August 2012, he held a succession of postdoctoral appointments at the MIT Sloan School of Management, the National Bureau of Economic Research, and Harvard University.

Research orientation:

Applied microeconomics; economics of innovation; high-skilled migration.

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

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Webpage: http://home.cerge-ei.cz/bee

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.

### prof. Ing. Štěpán Jurajda, Ph.D.
Mellon Endowment Professor with Tenure

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Webpage: http://home.cerge-ei.cz/jurajda

Štěpán Jurajda has been the Mellon Endowment Professor with tenure at CERGE-EI (under US permanent charter) since 2014 (previously the Mellon Endowment Associate Professor with tenure since 2004). He has been a member of the Executive and Supervisory Committee of CERGE-EI since 2004. Between January 2009 and December 2013 he served as the Director of CERGE, Charles University, and the Economics Institute of the Academy of Sciences of the Czech Republic (EI), where he is a Full Professor and a Senior Researcher, respectively. He graduated from the Prague School of Economics in 1992 in Econometrics and Operations Research and received his M.A. and Ph.D. degrees in Labor Economics from the University of Pittsburgh in 1995 and 1997, respectively. In 1997, he became an Assistant Professor of Economics at CERGE-EI, where he served as Deputy Director for Research during 2000–2001 and 2005–2007. During 1999–2000, he was a Visiting Research Fellow at Princeton University, Department of Economics, Industrial Relations Section. He is also affiliated with CEPR, London, and IZA, Bonn. In 2004 he defended his habilitation in economics at the Faculty of Social Sciences of Charles University and received the Otto Wichterle Prize for young scientists awarded by the Academy of Sciences of the Czech Republic. Between 2005 and 2010, a member of the Executive Committee of the European Association of Labour Economists. Between 2009 and 2013, chair of the Economics Panel and of the Social Sciences and Humanities Committee at the Czech Science Foundation. In 2014, he defended his professorship at Charles University where he also received its Commemorative medal, was granted the Fernand Braudel Senior Fellowship at the European University Institute, and became a member of the Research, Development and Innovation Council of the Government of the Czech Republic.

Research orientation:

Applied microeconomics, econometrics, labour economics, economics of transition.

### doc. Silvester van Koten, Ph.D.
Post-Doctoral Fellow

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https://sites.google.com/site/slvstrnl/

Silvester van Koten is a Jean-Monet Fellow at the Florence School of Regulation and a Post-Doc Fellow at CERGE-EI in Prague. He is a researcher with a special interest in the economics of energy markets, renewables, and regulation. His present research appraises the effectiveness of forward markets to alleviate market power using economics experiments. In his previous research, he analysed the effects of incomplete unbundling on competition. Apart from his intellectual passion, Economics, Silvester van Koten has interests in a broad range of fields, such as Public Speaking, Psychology, the Philosophy of Science, and Mathematics.

Research Orientation:

energy markets, regulation, and economics experiments.

### Fabio Michelucci, Ph.D.
Assistant Professor

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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.

### doc. Ing. Daniel Münich, Ph.D.
Associate Professor

Email: Daniel.Munich@cerge-ei.cz

Webpage: http://home.cerge-ei.cz/munich

Daniel Münich is an Associate Professor at CERGE-EI (under U.S. permanent charter). He is a Docent (Associate Professor) at CERGE, Charles University, since 2006, and a Researcher at the Economics Institute of the Academy of Sciences of the Czech Republic (EI) since 1998. Since September 2015 he has served as Deputy Director for Research of CERGE and EI. Received his Ing. degree in Electrical Engineering in 1991 from the Czech Technical University in Prague, and Ph.D. in Economics in 1998 from CERGE, Charles University. During 1997–1998 a Visiting Scholar at the William Davidson Institute at the University of Michigan Business School and during 1994–1995 at a study stay at the University of Pittsburgh. At CERGE-EI (under US permanent charter) he was Altria Group Associate Professor (Spring 2006 – Spring 2008). Deputy Director for Development and Public Relations (2003–2006) and Deputy Director for Graduate Studies (1999–2002) at CERGE and EI. Research Affiliate of CEPR in London. He served as an advisor to Ministers of Education, Youth and Sport, and of Finances of the Czech Republic (in 2006 and during 1997–1998), an external advisor of the minister of finance of the Czech Republic (1997, 2002–2004), a steering committee member under the auspices of the Czech vice-minister for economy to supervise the national Strategy for Economic Growth (in 2005). Member of an expert team preparing reform of the Czech tertiary education system (2007–2008). He was a senior advisor to the European Network of Economists of Education (EENEE) (2004–2007), a member of the executive board of the Czech Economic Society (during 2003–2009), a member of the Board of the Sociological Institute of the Czech Academy of Sciences (during 2006–2010). He is a member of the Board of EI (since 1997), a National SYSDEM Correspondent for the EU commission (since 2005), a chair of the governmental Advisory Committee for Social and Human Sciences and a member of Advisory Committee for Evaluation of R&D of the Board for R&D of the Czech government (since 2008), a member of the National Economic Board of

the Government (since 2010) and a member of the European Association of Labour Economists (since 2006).

Research orientation:

Labor economics (empirical issues of unemployment, labor supply and policies, human capital, welfare schemes), economics of education and schooling (public vs. private schools, quality of education, efficiency and equity, selectivity), bibliometric analysis.

### Deborah Nováková, M.A.
Academic Skills Center

Email: Deborah.Novakova@cerge-ei.cz

Deborah Nováková is teaching at CERGE-EI beginning in August 2012. She received her M.A. in TEFL/TESL from the University of Birmingham, UK in 2007. From October 2007 to October 2010 she was working as an Instructor, course coordinator, curriculum developer and a professional development facilitator at Maastricht University Language Centre in Netherlands. She was also at Maastricht University from 2001-2003. During the years 2003 to 2007 she was working as an Instructor, curriculum developer and an editor at the Southern Alberta Institute of Technology in Calgary, Canada, where she worked on both domestic and international projects.

Research orientation:

Curriculum design, teacher training and professional development, successful intercultural communication in international contexts, student-centred learning approaches and methods, successful team-building in classroom and teaching in team contexts.

### Michal Pakoš, Ph.D.
Associate Professor

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Michal Pakoš is an Assistant Professor at CERGE-EI (under US permanent charter) and at CERGE, Charles University since September 2011 and a Researcher at the Economics Institute of the Academy of Sciences of the Czech Republic since August 2009. Earned his bachelor´s degree in Management (1998) from the Comenius University, Slovakia; master´s degree in Financial Management (2000) also from the Comenius University, Slovakia; MA. degree in Economics (2000/With Distinction) from the Central European University, Hungary; Ph.D. degree in Financial Economics (2005) from the Graduate School of Business of the University of Chicago, USA. From 2005 till 2009 he was working as an Assistant Professor of Finance at the Carnegie Mellon University, USA.

Research orientation:

Empirical macroeconomics, asset pricing, especially with asymmetric information, portfolio choice, quantitive financial economics.

## Prof. Avner Shaked, Ph.D.

Visiting Professor, Bonn University

Email: avner.shaked@gmail.com

Avner Shaked is a Visiting Professor at CERGE-EI since 1998. Since May 2000 member of the Executive and Supervisory Committee of CERGE-EI. State Street Distinguished Visiting Professor at CERGE-EI since Fall 2001 to Spring 2009. Earned a B.Sc. from Hebrew University, Jerusalem in Mathematics and Physics in 1964. Holds a M.Sc. (1965) from Hebrew University, Jerusalem in Mathematical Logic. In 1972 earned his Ph.D. degree in Economics from Hebrew University, Jerusalem. Since 1989 Professor of Economic Theory, Bonn University, Germany. Since February 2009 a Professor emeritus in Bonn (retired). 1982–1993 member of the Editorial Board of the Review of Economic Studies; 1982–1987 Secretary Organizer of the Workshop in Theoretical Economics, STICERD, London School of Economics; 1983–1989 London Coordinator of the European Doctoral Program; 1988–1991 Associate Editor of The Quarterly Journal of Economics; 1993–1995 Associate Editor of the Journal of Economic Theory; since 1992 a Fellow of Econometric Society.

Research orientation:

Bounded rationality, learning theory, evolutionary theory, experimental game theory, theoretical industrial organization, bargaining theory.

## Sergey Slobodyan, Ph.D.

Citigroup Endowment Associate Professor with Tenure

Email: Sergey.Slobodyan@cerge-ei.cz

Sergey Slobodyan is the Citigroup Endowment Associate Professor with tenure at CERGE-EI (under US permanent charter) since 2011 and a member of the Executive and Supervisory Committee of CERGE-EI since 2009. 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 since 2000. Since September 2012 he serves as the Deputy Director for Graduate Studies at CERGE and EI. He has received his M.Sc. in Physics from Novosibirsk State University in 1988, later M.A. in Economics from Washington University in 1996 and Ph.D. in Economics from Washington University in 2000. He has taught economics in St. Louis, Prague, Frankfurt, Kiev, and Novosibirsk and worked at the Institute of Inorganic Chemistry, Novosibirsk.

Research orientation:

Bayesian estimation of DSGE models, especially under adaptive learning; large deviations theory in models of monetary policy; adaptive learning; interaction of public pensions and public educational systems; dynamics of growth models with multiple steady states and indeterminacy; micro-simulations of various markets, such as education and electricity, using agent-based computational economics.

## doc. Mgr. Jakub Steiner, Ph.D.

Associate Professor with Tenure

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Jakub Steiner is an Associate Professor with tenure at CERGE-EI (under US permanent charter) and a member of the Executive and Supervisory Committee of CERGE-EI (since 2012). Since September

2012 he is an Assistant Professor at CERGE, Charles University, and since January 2012 a Senior Researcher at the Economics Institute of the Academy of Sciences of the Czech Republic. He has been awarded the J. E. Purkyně Fellowship by the Academy of Sciences of the Czech Republic. He is an Assistant Professor at Kellogg, MEDS at Northwestern University since September 2009. Prior to his appointment at Kellogg, he worked as an Assistant Professor at the University of Edinburgh. He completed his Ph.D. in Economics at CERGE-EI in 2006, and M.A. in Physics at Charles University in 2000. He has published in journals such as American Economic Review, the Journal of Economic Theory, Theoretical Economics, and Games and Economic Behavior. He worked as a social worker for a Roma community from 2000-2002, and since then he has been interested in the economics of social exclusion.

Research orientation:

Game theory and economic theory. He studies behavior in strategic situations with the possibility of self-fulfilling prophecies such as those that arise during currency attacks, bank runs, and revolutions.

### Sherzod Tashpulatov, PhD.

Junior Researcher

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Sherzod Tashpulatov earned his master's degree in mathematical methods in economic analysis and teaching diploma from Moscow State University, M.A. and Ph.D. degrees in Economics from CERGE-EI. Two chapters of his dissertation research on energy markets liberalization, supervised by doc. Ing. Lubomír Lízal, Ph.D., were published in top field international journals. His research interests include energy economics, applied microeconomics, dynamic modeling and optimization, and mathematical methods in economic analysis.

### Paul Whitaker, M.A.

Academic Skills Center

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Paul Whitaker has been teaching at CERGE-EI since August 2014. He earned his Master's from the University of Nottingham, England in 2000. Before coming to CERGE-EI, Paul taught at the Higher Colleges of Technology in the UAE and the School of Business Administration in Karviná, Czech Republic. He also worked for many years as a teacher trainer and business skills trainer focusing on presentation and communication skills for multinational companies.

His research interests include effective communication, student-centered learning approaches and teacher training.

### PhDr. Jan Zápal, Ph.D.

Assistant Professor

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Jan Zápal has been an Assistant Professor at CERGE-EI (under U.S. permanent charter) as of September 2012. He has been an Assistant Professor at CERGE, Charles University and a Researcher at the Economics Institute of the Academy of Sciences of the Czech Republic, since

September 2014. Between July 2013 and August 2014, he has also worked as a Researcher at CERGE, Charles University. He received his Master´s degree from the Institute of Economic Studies at Charles University in 2005 and a Ph.D. degree from the London School of Economics and Political Science in 2012. During his Ph.D. studies he was a Visiting Student Researcher at the Californian Institute of Technology (2010 to 2011), held an Economica Scholarship awarded by the LSE Department of Economics (2007 and 2008), and won the first prize in the Young Economist of the Year competition organized by the Czech Economic Society (2008). Between 2012 and 2014 he was a Post-doctoral Fellow at IAE-CSIC, Barcelona.

Research orientation:

Political economics, economic theory, dynamic bargaining models, effect of status-quo and its determination in the context of group decision making, decision making in monetary policy committees.

### doc. Krešimir Žigić, Ph.D.
Citigroup Endowment Associate Professor with Tenure

Email: Kresimir.Zigic@cerge-ei.cz

Krešimir Žigić is the Citigroup Endowment Associate Professor with tenure at CERGE-EI (under US permanent charter) since 2007 and a member of the Executive and Supervisory Committee of CERGE-EI since 2004. He is a Docent (Associate Professor) at CERGE, Charles University since 2012 and a Researcher at the Economics Institute of the Academy of Sciences since 1993. Graduated from the Faculty of Economics, University of Zagreb, B.A. 1982, M.A. 1988. Ph.D. in Economics, CERGE-EI, 1996. Assistant Professor, CERGE, Charles University, 1996–2012. Deputy Director for Graduate Studies, CERGE and EI 1997–1999 and 2005–2008. At CERGE-EI (under US permanent charter) he was Philip Morris Associate Professor, Fall 2001 – Fall 2002, Altria Associate Professor, Spring 2003, and Associate Professor of European Economic Issues, Česká spořitelna Chair, Fall 2003 – Spring 2007. Financial Officer, Rade Koncar Corporation, Zagreb, 1982–1990. Lecturer, Central European University, 1994. Lecturer, World Bank and Joint Vienna Institute Comprehensive Course, 1993–2003.

Research orientation:

International trade, industrial organization, applied microeconomics.

# IV. ACADEMIC CALENDAR 2015 – 2016

| Month | Week | 1st year students | 2nd year students | 3rd and 4th year students | Preparatory semester |
|---|---|---|---|---|---|
| September | 7 - 11 | H | H | H | |
| | 14 - 18 | | | | |
| | 21 - 25 | A/D | A/D | | |
| | 28 - 2 | * | * | * | |
| October | 5 - 9 | | | | |
| | 12 - 16 | M | M | | |
| | 19 - 23 | * | * | * | |
| | 26 - 30 | | | | |
| November | 2 - 6 | | | | |
| | 9 - 13 | | | | |
| | 16 - 20 | * | * | * | |
| | 23 - 27 | | | DPW | |
| | 30 - 4 | | | | |
| December | 7 - 11 | F | F | | |
| | 14 - 18 | Holidays | Holidays | Holidays | |
| | 21 - 25 | * | * | * | |
| | 28 - 1 | * | * | * | |
| January | 4 - 8 | | U | | |
| | 11 - 15 | | A/D | | |
| | 18 - 22 | | | | |
| | 25 - 29 | | | | |
| February | 1 - 5 | Spring Semester | Spring Semester | Research Seminar Series | |
| | 8 - 12 | M | M | | |
| | 15 - 19 | | | | |
| | 22 - 26 | | | | |
| | 29 - 4 | | | | |
| March | 7 - 11 | | | | |
| | 14 - 18 | | | | |
| | 21 - 25 | | | | |
| | 28 - 1 | F* | F* | * | |
| April | 4 - 8 | H | H | H | |
| | 11 - 15 | | | | |
| | 18 - 22 | | | | |
| | 25 - 29 | Summer Semester | | Research Seminar Series | |
| May | 2 - 3 | | | | |
| | 9 - 13 | | | | |
| | 16 - 20 | | G | | |
| | 23 - 27 | M | G | P | |
| | 30 - 3 | | | DW | |
| June | 6 - 10 | | | | |
| | 13 - 17 | | RMS | | |
| | 20 - 24 | | | | |
| | 27 - 1 | | | | |
| July | 4 - 8 | * | * | * | |
| | 11 - 15 | F | | | |
| | 18 - 22 | | | | Preparatory Semester |
| | 25 - 29 | | | | |
| August | 1 - 5 | G | U | | |
| | 8 - 12 | G | U | | |
| | 15 - 19 | G | | | |
| | 22 - 26 | H | H | H | F |
| | 29 - 2 | H | H | H | |

| | |
|---|---|
| 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 (timing provisional, subject to change after ESC meeting in November 2015) |
| H | official CERGE holiday |
| DPW | dissertation proposal workshops week |
| DW | disesstation workshops week (timing provisional, subject to change after ESC meeting in November 2015) |
| * | 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 (Monday)
28 October - Establishment of the Czechoslovak Republic (Wednesday)
17 November - Freedom and Democracy Day (Tuesday)
24 December - Christmas Eve (Thursday)
25 December - Christmas Day (Friday)
26 December - Christmas Day (Saturday)
1 January - New Year's Day (Friday)
28 March(Easter Monday)
1 May - Labor Day (Sunday)
8 May - Liberation from Fascism (Sunday)
5 July - Cyril and Methodius (Tuesday)
6 July - Burning at Stake of Jan Hus (Wednesday)

## V.   FALL SEMESTER TEACHING SCHEDULE 2015

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

**A. FIRST YEAR STUDENTS - 1st half of the Fall Semester = Sept 14th – Oct 23rd**

| | MONDAY | TUESDAY | WEDNESDAY | THURSDAY | FRIDAY |
|---|---|---|---|---|---|
| 08:30 – 10:00 | | **Microeconomics I** *Zápal* 320 | | | **Macroeconomics I\*** *Slobodyan* 320 |
| 10:00 – 10:30 | | | *Coffee Break* | | |
| 10:30 – 12:00 | | **Microeconometrics I** *Zápal* 320 | **Statistics** *Gaulé* 320 | | **Macroeconomics I\*** *Slobodyan* 320 |
| 12:00 – 13:30 | | | *Lunch Break* | | |
| 13:30 – 15:00 | **Macroeconomics I\*\*** *Slobodyan* 320 | **Macroeconomics I\*\*** *Slobodyan* 320 | **Statistics** *Gaulé* 320 | **Macroeconomics I\*** *Slobodyan* 320 | |
| 15:00 – 16:30 | **Macroeconomics I\*\*** *Slobodyan* 320 | **Macroeconomics I\*\*** *Slobodyan* 320 | | **Macroeconomics I\*** *Slobodyan* 320 | |
| 16:30 – 18:00 | **Research Seminars** | | | **Research Seminars** | **Research Seminars** |

**\* Sept 17/18, Oct 1/2**

**\*\* Oct 19/20**

**B.SECOND YEAR STUDENTS**

| | MONDAY | TUESDAY | WEDNESDAY | THURSDAY | FRIDAY |
|---|---|---|---|---|---|
| 08:30 – 10:00 | | Labor Economics<br>*Münich/Pytlíková*<br>3 | Labor Economics<br>*Münich/Pytlíková*<br>3 | | ES Energy Economics<br>*Tashpulatov*<br>3 |
| 10:00 – 10:30 | *Coffee Break* | | | | |
| 10:30 – 12:00 | Labor Economics<br>*Münich/Pytlíková*<br>3 | Cross-Sectional Emetrics<br>*Jurajda*<br>3 | Energy Economics<br>*Tashpulatov/van Koten*<br>3 | Academic Writing II<br>*Whitaker*<br>3 | Cross-Sectional Emetrics<br>*Jurajda*<br>3 |
| 12:00 – 13:30 | *Lunch Break* | | | | |
| 13:30 – 15:00 | Labor Economics<br>*Münich/Pytlíková*<br>3 | Fin Markets I<br>*Pakoš*<br>3 | Industrial Organization<br>*Shaked/Steiner/Žigić*<br>3 | Industrial Organization<br>*Shaked/Steiner/Žigić*<br>3 | Academic Writing II<br>*Downing*<br>3 |
| 15:00 – 16:30 | Macro Topics<br>*Jeong*<br>3 | Academic Writing II<br>*Whitaker*<br>3 | Fin Markets I<br>*Pakoš*<br>3 | Macro Topics<br>*Jeong*<br>3 | Research Seminars |
| 16:30 – 18:00 | Research Seminars | Energy Economics<br>*Tashpulatov/van Koten*<br>3 | Academic Writing II<br>*Downing*<br>3 | Research Seminars | |

Notes:

**Notes:**