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1 The structure of studies in economics at CERGE-EI
These courses are designed for the preparatory semester and the first and second year of study. One lecture/exercise unit is 45 minutes.

### Preparatory semester

<table>
<thead>
<tr>
<th>Subject</th>
<th>(Lecture hours / exercise hours)</th>
</tr>
</thead>
<tbody>
<tr>
<td>One lecture/ exercise unit is 45 minutes long. 4/2 refers to 4 units of lecture and 2 units of exercise sessions per week.</td>
<td></td>
</tr>
<tr>
<td>Macroeconomics 0</td>
<td>4/2, Exam</td>
</tr>
<tr>
<td>Microeconomics 0</td>
<td>4/2, Exam</td>
</tr>
<tr>
<td>Mathematics</td>
<td>4/2, Exam</td>
</tr>
</tbody>
</table>

### First year

<table>
<thead>
<tr>
<th>Subject</th>
<th>Fall</th>
<th>Spring</th>
<th>Summer</th>
</tr>
</thead>
<tbody>
<tr>
<td>One lecture/ exercise unit is 45 minutes long. 4/2 refers to 4 units of lecture and 2 units of exercise sessions per week.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Macroeconomics I, II, III</td>
<td>4/2, Exam</td>
<td>4/2, Exam</td>
<td>4/2, Exam</td>
</tr>
<tr>
<td>Microeconomics I, II, III</td>
<td>4/2, Exam</td>
<td>4/2, Exam</td>
<td>4/2, Exam</td>
</tr>
<tr>
<td>Statistics/Econometrics I, II</td>
<td>4/2, Exam</td>
<td>4/2, Exam</td>
<td>4/2, Exam</td>
</tr>
<tr>
<td>Academic Writing I (PhD students)</td>
<td>---</td>
<td>4/0 Credit</td>
<td>---</td>
</tr>
<tr>
<td>Research Writing I (MAER students)</td>
<td>---</td>
<td>4/0 Credit</td>
<td>---</td>
</tr>
</tbody>
</table>

**Notes:** After completing the first-year courses, students must pass General examinations in Macroeconomics, Microeconomics and Econometrics.
### Second Year

<table>
<thead>
<tr>
<th>Subject</th>
<th>Fall</th>
<th>Spring</th>
<th>Summer</th>
</tr>
</thead>
<tbody>
<tr>
<td>Development Economics</td>
<td>4/2, Exam</td>
<td>4/2, Exam</td>
<td>4/0, Credit</td>
</tr>
<tr>
<td>Experimental Economics</td>
<td>4/2, Exam</td>
<td>4/0, Credit</td>
<td>4/2, Exam</td>
</tr>
<tr>
<td>Economic Development and Institutions</td>
<td>4/2, Exam</td>
<td>4/2, Exam</td>
<td>4/2, Exam</td>
</tr>
<tr>
<td>Quantitative Economic History</td>
<td>4/2, Exam</td>
<td>4/0, Credit</td>
<td>4/2, Exam</td>
</tr>
<tr>
<td>Microeconometrics</td>
<td>4/2, Exam</td>
<td>4/0, Credit</td>
<td>4/2, Exam</td>
</tr>
<tr>
<td>Labor Economics I, II</td>
<td>4/2, Exam</td>
<td>4/2, Exam</td>
<td>4/2, Exam</td>
</tr>
<tr>
<td>Macro Topics I, II</td>
<td>4/2, Exam</td>
<td>4/2, Exam</td>
<td>4/2, Exam</td>
</tr>
<tr>
<td>Public Finance</td>
<td>4/2, Exam</td>
<td>4/2, Exam</td>
<td>4/2, Exam</td>
</tr>
<tr>
<td>Political Economy</td>
<td>4/2, Exam</td>
<td>4/0, Credit</td>
<td>4/2, Exam</td>
</tr>
<tr>
<td>Time Series Econometrics</td>
<td>4/2, Exam</td>
<td>4/0, Credit</td>
<td>4/2, Exam</td>
</tr>
<tr>
<td>Financial Econometrics</td>
<td>4/2, Exam</td>
<td>4/0, Credit</td>
<td>4/2, Exam</td>
</tr>
<tr>
<td>Academic Writing II / Research Writing II</td>
<td>4/0, Credit</td>
<td>4/0, Credit</td>
<td>4/0, Credit</td>
</tr>
<tr>
<td>Research Methodology Seminar</td>
<td>Mandatory</td>
<td>Mandatory</td>
<td>4/0, Credit</td>
</tr>
<tr>
<td>Combined Skills I</td>
<td>4/0, Credit</td>
<td>4/0, Credit</td>
<td>4/0, Credit</td>
</tr>
<tr>
<td>Research Seminars</td>
<td>4/0, Credit</td>
<td>4/0, Credit</td>
<td>4/0, Credit</td>
</tr>
<tr>
<td>Combined Skills II – M.A.</td>
<td>4/0, Credit</td>
<td>4/0, Credit</td>
<td>4/0, Credit</td>
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</tbody>
</table>

**Notes:**

* Second-year students must choose at least three courses from different fields with final exams per semester. Courses offered may
differ slightly from year to year, depending on the faculty members in residence.

* Credits for Academic Skills Center courses, the Research Seminars and Directed Research are mandatory.
* Credit for the Research Methodology Seminar is awarded based on individual consultations with the instructors and individual written work.
* After completing the second year, each student must pass General exams in two fields.
* Combined Skills ll - M.A. is for M.A. students only, who must produce a paper that fulfills the MA-degree writing requirement.

**Third year**

<table>
<thead>
<tr>
<th>Subject</th>
<th>Fall</th>
<th>Spring</th>
<th>Summer</th>
</tr>
</thead>
<tbody>
<tr>
<td>Combined Skills ll - Ph.D.</td>
<td>Credit</td>
<td>---</td>
<td>---</td>
</tr>
</tbody>
</table>

**Notes:** Students must pass the two-year program as a pre-requisite to registration in CS ll-Ph.D.
2 Spring semester course syllabi
A. First year courses

MACROECONOMICS II

Lecturer:
Ctirad Slavík
(ctirad.sklavik@cerge-ei.cz; office 323, phone 188)

Teaching assistant:
Jan Žemlička
(jan.zemlicka@cerge-ei.cz)

Office hours:
Wednesday, Thursday 10:00-11:00

Course information
This course will be an introduction to the techniques and the applications of dynamic general equilibrium models. In the first part of the course we will cover basic methods of solving dynamic models, including dynamic programming. This course will apply the techniques of dynamic general equilibrium models to the analysis of labor markets.

Course outline
1. Neoclassical Growth Model

1. Labor Search


Requirements and grading
Grades will be based on four problem sets (40% of the grade for my part of the course), and a midterm exam (60% of the grade for my part of the course). There is no make-up for the midterm exam. Basic knowledge of Julia will be required to solve some of the problem sets.

Copying someone else’s problem set solution (either in part or in full) will result in zero points for the whole problem set. Doing so repeatedly or cheating on the midterm exam action will result in an F grade in this course.

Readings
The following books will be useful throughout the whole first year macroeconomics sequence.


(SS) Thomas J. Sargent and John Stachurski. Quantitative Macroeconomics. https://lectures.quantecon.org. This online source is useful for the computational aspects of the course, especially if you are using Julia or Python.
Course description
The course presents technical aspects of modern econometric estimation and inference, applied in both cross-sectional and time-series settings. After reviewing important econometric notions and asymptotic inference tools, we concentrate on parametric regression models, including linear and nonlinear. Then we turn to methods applied to non-regression settings, including maximum likelihood and method of moments estimation. Finally, we will study methods of bootstrap inference. Home assignments serve as an important ingredient in the learning process.

Course outline
- **Deterministic dynamic optimization problems.**
  - a. Canonical model.
  - b. Efficient Allocations.
    - i. Sequence Approach.
    - ii. Function Space and Dynamic Programming.
  - c. Properties of Solutions.

- **Equilibrium Concepts.**
  - a. No Uncertainty.
    - i. Sequence concepts:
      - A. Date 0 Arrow-Debreu.
      - B. Sequence-of-Markets.
    - ii. Recursive Competitive Equilibrium.
  - b. Adding Uncertainty.

- **Application: Growth Theory.**
  - a. Exogenous Growth.
  - b. Endogenous Growth.

- **Asset Pricing and Risk Sharing.**
- **Introducing Financial Frictions (if time permits).**

Requirements and grading
The grades will be determined as follows: homeworks 10%; final 90%.

Readings
The textbooks for the course are:


Additional reading materials and the related readings will be made available later.
MICROECONOMICS I

Lecturer:
Avner Shaked
(avner.shaked@gmail.cz, office 113, phone 162)
Krešimir Žigić
(kresimir.zigic@cerge-ei.cz, office 306, phone 245)

Teaching assistants:
Vladimir Pyrlik
(vladimir.pyrlik@cerge-ei.cz)
Artem Razumovskii
(artem.razumovskii@cerge-ei.cz)

Office hours:
see the office door

Course information
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 lectures and exercise sessions. Two lectures and one class take place in any given week.

Problem sets are integral part of the course. Students are required to complete problem sets and hand it in before the class (details to be specified). The classes might 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
   ✓ Consumer’s Preference and Choice
   ✓ Revealed Preference
   ✓ Consumer’s Surplus and Aggregated Demand
   ✓ Intertemporal Choice
   ✓ Uncertainty and risk

2. Production
 ✓ Production

3. Markets

 ✓ Competitive Markets
 ✓ Public Goods
 ✓ Externalities
 ✓ Exchange, Matching, Edgeworth Box
 ✓ General Equilibrium

*If there's time left:*

Behavioral Economics
Discriminating Monopolist

**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 problem sets. The main books used in the course will be Osborne & Rubinstein’s and MasColell’s (nos. 1&2 in the list below).

**Readings**


**STATISTICS**

<table>
<thead>
<tr>
<th>Lecturer:</th>
<th>Paolo Zacchia</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(<a href="mailto:paolo.zacchia@cerge-ei.cz">paolo.zacchia@cerge-ei.cz</a>, office 318, phone 174)</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Teaching assistants:</th>
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</thead>
<tbody>
<tr>
<td>Michal Hakala</td>
</tr>
<tr>
<td>(<a href="mailto:michal.hakala@cerge-ei.cz">michal.hakala@cerge-ei.cz</a>)</td>
</tr>
</tbody>
</table>
Course information
This is a graduate level introductory course in mathematical probability and statistics: its objective is to provide students with key conceptual tools that are necessary for additional training in econometrics and microeconomics. Beginning from basic axiomatic definitions of probability, the course introduces univariate and multivariate probability distributions, samples and statistics, concepts of estimation and inference, some key asymptotic results, and it concludes with an introduction to linear projections and regression, whose properties are emphasized in preparation for further coursework in econometrics.

Course outline
- Events and probabilities
  - Axiomatic definition of probability
  - Conditional probability, independence and Bayes’ Rule
  - Random variables and univariate distribution functions
  - Functions and transformation of random variables
  - Moments and moment generating functions

- Univariate probability distributions
  - Discrete distributions: Bernoulli, binomial, negative binomial, (hyper)geometric, Poisson
  - Continuous distributions I: normal, lognormal, logistic, Cauchy, Laplace
  - Continuous distributions II: Beta, Gamma and their special cases, $F$, Student’s $t$, Pareto
  - Continuous distributions III: extreme values: Gumbel, Fréchet and (reverse) Weibull

- Multivariate probability distributions
  - Random vectors, joint distributions, marginal distributions, transformations
  - Independence of random variables and vectors, random products and random ratios
  - Moments of random vectors, covariance, correlation
  - Multivariate moment generation, sum of independent random variables
  - Conditional distributions and moments, Law of Iterated Expectations, Law of Total Variance
  - Key multivariate distributions: multinomial, multivariate normal

- Samples and sample statistics
  - Samples, random samples and their properties
  - Sampling from the univariate and multivariate normal distributions
  - Order statistics and some key associated results
  - The sufficiency principle and sufficient statistics

- Estimation and Inference
• Point estimation: the analogy principle and the method of moments
• Point estimation: the likelihood principle and maximum likelihood estimation
• Evaluating estimators: loss functions, unbiasedness, consistency, the Cramér-Rao bound
• Inference: tests of hypotheses, and analysis of selected exact results
• Inference: interval estimation and analysis of selected exact results

• Introduction to asymptotic theory
  • Random sequences, convergence in probability, almost sure convergence
  • Properties of convergent sequences, Laws of Large Numbers, and implications for estimation
  • Convergence in distribution, Slutsky’s Theorem, and the Cramér-Wold device
  • Central Limit Theorems, the Delta Method, and implications for estimation

• Linear Projections and Regression
  • Linear socio-economic relationships: some classical examples
  • Linear predictors, linear projections and conditional expectation
  • The least squares estimator: derivation and algebraic properties
  • Introduction to the linear regression model, dummy variables

Mathematical prerequisites
It is expected that students possess a solid command of univariate and multivariate calculus, as well as a basic training in linear algebra.

Requirements and grading
The final evaluation for this course is determined as follows: a midterm exam accounts for 30% of the grade; a final exam counts for 50%, while the remaining 20% is based on the performance in regular assignments, with an approximately biweekly expected cadence.

Readings
Main material: class notes prepared by the lecturer and made available to students.

George Casella and Roger L. Berger (2001), Statistical Inference, Duxbury Press.

Bruce E. Hansen (2019), Econometrics, working draft available online on the author’s website.
B. Second year courses

DEVELOPMENT ECONOMICS

Lecturer:
Andreas Menzel
(andreas.menzel@cerge-ei.cz, office 330, phone 211)

Teaching assistant:
TBA

Office hours:
TBA

Preliminary: Some minor changes likely in final syllabus provided at beginning of course!

Course information
The goal of this course is to expose you to the research frontier in applied microeconomic research in development economics, particular empirical and policy oriented research, and research that involves field experiments. After taking this course, you should be able to identify promising research questions, and know methodological challenges and best practices in this field.
**Requirement and grading**
Evaluation of this course will be based on a term paper (40%), in which you identify a research question and propose a data-collection and an identification strategy to answer the question, two paper presentations (each ca. 20 minutes - each 15%), one assignment in which you replicate the results of a paper (20%), and brief summaries of one paper that a fellow course participant will present each week, starting from week 3 (max ½ page – 10%).

**Course introduction and readings**
The following book provides a helpful overview and introduction to the topic: Banerjee, Abhijit, and Esther Duflo. 2011: Poor Economics.

The needed econometrics can be read up in:
Angrist, Josh, and Joern-Steffen Pischke. 2009: Mostly Harmless Econometrics.


A practical introduction into the methodology of Randomized Controlled Trials that will be referenced a few times is:

The following link and book is great for setting the frame for the phenomena we study, for those who wish to immerse themselves deeper in the topic:
www.gapminder.org/dollar-street/?topic=families


* indicates required reading
(R) indicates articles that will be presented by students (and summarised by other students each week). From the viewpoint of examinations, these papers are *required reading too.*

**Week 1: Introduction**

Banerjee, Abhijit, and Esther Duflo. 2008: What is Middle Class about the Middle Classes around the World?, Journal of Economic Perspectives 22 (2): 3-28

Dollar, David, Tatjana Kleineberg, and Art Kraay. 2016: Growth still is good for the Poor, European Economic Review 81: 68-85


**Week 2: Poverty Traps**


Balboni, Clare, Oriana Bandiera, Robin Burgess, Maitreesh Ghatak and Anton Heil. 2019: *Why do people stay poor?*, Working Paper, LSE *


**Week 3: Microfinance**


Gine, Xavier, Karuna Krishnaswamy, and Alejandro Ponce. 2013: Strategic Default in Joint Liability Groups: Evidence from a Natural Experiment in India, Unpublished. (R)

Field, Erica, Rohini Pande, John Papp, and Natalia Rigol. 2013: Does the classic microfinance model discourage entrepreneurship among the poor? Experimental evidence from India”, AEJ: Applied Economics. 103 (6): 2196–2226 (R)

**Week 4: Credit Markets and Property Rights**


Bryan, Gharad, Dean Karlan, and Jonathan Zinman. 2015: Referrals: Peer Screening and Enforcement in a Consumer Credit Field Experiment, AEJ: Microeconomics 7 (3): 174-204

Gine, Xavier, and Dean Karlan. 2014: Group versus individual liability: Short and long term evidence from Philippine microcredit lending groups, Journal of Development Economics 107: 65-83 *


De Janvry, Alain, Kyle Emerick, Marco Gonzalez-Navarro, and Elisabeth Sadoulet. 2015: Delinking Land Rights from Land Use: Certification and Migration in Mexico, American Economic Review 105 (10): 3125-3149 (R)


Week 5: Schooling
Muralidharan, Khartik. 2017: Field Experiments in Education in Developing Countries, in Handbook of Field Experiments Vol 2, Eds. A. Banerjee and E. Duflo, Elsevier


Romero, Mauricio, Justin Sandefur, and Wayne Aaron Sandholtz. Forthcoming: Outsourcing Education: Experimental Evidence from Liberia *


Week 6: Health


**Week 7: Infrastructure**

Asher, Sam, and Paul Novosad. 2019: Rural Roads and Local Economic Development, American Economics Review, forthcoming *


**Week 8: Small Firms**


**Week 9: Large Firms**


Bloom, Nicholas, Raffaella Sadun, and John Van Reenen. 2016: Management as a Technology? Working Paper, Stanford


Lane, Nathan. 2019: Manufacturing Revolutions: Industrial Policy and Industrialization in South Korea, Working Paper, Monash University (R)

**Week 10: Labor Markets and Migration**


**Week 11: Gender/Discrimination**


Dhar, Diva, Tarun Jain, and Seema Jayachandran. 2018: Reshaping Adolescents Gender Attitudes: Evidence from a School-Based Experiment in India, Working Paper, Northwestern University *


**Week 12: Review**


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**ECONOMIC DEVELOPMENT AND INSTITUTIONS**

**Lecturer:**
Vasily Korovkin
(vasily.korovkin@cerge-ei.cz, office 311, phone 167)

**Teaching assistant:**
TBA

**Office hours:**
By appointment or after the class

**Course page:**
TBA

**Course information**
The goal of this course is to examine the role of institutions and political economy in economic development. We will overview some theoretical contributions to the literature. However, the main focus of the course is on empirical evidence. Specifically, an accent will be made on empirical methods and applying them in your research. The toolbox of causal inference methods will broadly follow “Mostly Harmless Econometrics” by Angrist and Pischke. We will also rely on some more recent methodological contributions. The course will be helpful
for all students whose field of concentration is within applied economics.

Requirements and grading

Class participation & a presentation: you will find the list of required readings in the next section. You can choose readings that have a dagger † next to it for a class presentation. Each person will need to present once, the presenter will need to write an executive summary of a paper, no more than four pages, and everyone else should read it before the class. Both the summary and the presentation should explain what the paper's contribution to the literature is, the primary empirical method used, and the main findings. The presenter should be presenting the paper as his/her research, arguing that the question is important, and the empirical analysis is robust and sufficient. I will ask everyone else to prepare two-slides discussions with criticism of the paper and suggestions for improvement. I will randomly select a student for a brief discussion after the main presentation.

Home assignments: there will be 3-4 home assignments, covering theoretical concepts from the class, and implementing empirical methods in Stata. You can work in groups of up to two people, but each of you needs to submit a separate electronic copy of the home assignment as pdf to the TA, cc’ing the professor.

Final paper: you will need to develop three research ideas on political economy and development topics. These ideas should have the potential to be converted into a paper. An initial proposal should have three original research questions. You will need to motivate their importance, suggest how you would answer them, and develop the methods to carefully do it (what is the identification strategy?). Each idea should be no more than one page. You will need to develop one of the ideas into a more extended final project, with data work highly recommended to be done by the beginning of the Spring semester.

Outline and readings (preliminary)

The readings marked with † are required for class discussion. The class will cover readings with * in detail. You need to take a quick look at them to follow the lectures. Other readings will be mentioned in the class, but they are optional. However, it is highly encouraged to become familiar with some of them, especially if you are interested in the topic.


 ✓ Chapters 1-2 of Angrist and Pischke (2008)*


 ✓ Jones and Olken (2009)†

CAM/MA/PhD Study Affairs Office

- Callen and Long (2015)
- Finan and Schechter (2012), Chattopadhyay and Duflo (2004), Acemoglu et al. (2014) (the latter, if time permits)

4. Long-run Effects of Institutions. Local and Macro development. Persistence on the Local Level. Methods: More on Regression Discontinuity, Instrumental Variables

- Dell (2010), Acemoglu and Johnson (2007)
- Chapter 6 of Angrist and Pischke (2008), Michalopoulos and Papaioannou (2013 a,b)
- Chapter 4 of Angrist and Pischke (2008), Banerjee and Iyer (2005), Nunn (2008)

5. Overview of Long-run Growth and Macro-development Perspective. Methods: Difference in Differences

- Nunn and Qian (2011)
- Chapter 5 (5.2) of Angrist and Pischke (2008), Dell et al. (2012)
- Acemoglu et al. (2001), Galor (2005)


- Blattman and Miguel (2010), Hjort (2014), Spolaore and Wacziarg (2016), Dell and Querubin (2017)

7. State Capacity, Formation of State Capacity and Public Goods Provision

- Weigel (2017)
- Alesina et al. (2004), Besley and Persson (2009), De La Sierra et al. (2014)


- Bandiera et al. (2009), Oliva (2015)


- Enikolopov et al. (2016)
 ✓ Ferraz and Finan (2008)*, Gentzkov and Shapiro (2010)*, Enikolopov et al. (2011)*

The full reference list will be posted on the class website.

LABOR ECONOMICS I

Lecturer:
Daniel Münich
(daniel.munich@cerge-ei.cz, office 303, phone 175)
Mariola Pytliková
(mariola.pytlikova@cerge-ei.cz; office 310, phone +420 739211312)
Teaching assistant:
TBA

Office hours:
DM: Fri 14-16 (+ upon request & anytime if doors are open); MP: upon appointment (by email)

Course information
The course will provide fundamental understanding of stylized labor supply and demand in their static and advanced versions, and models of wage determination. The course will combine theoretical concepts, empirical evidence and methodologies of empirical approaches including use of econometrics tools and data. Debates involving students about relevance for public policies and mechanism designs will be encouraged.

The course has three major goals (i) to guide students through current theoretical and empirical understanding of major labor market issues, (ii) to promote student’s own empirical research on selected topics, (iii) to make students familiar with common research resources, standards and approaches in the field. Throughout the topics, empirical methodological approaches will be clarified (data and techniques econometric / identification).

The 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)
 ✓ Labor supply model, non-linear price lines, participation, tax-ben schemes (DM)
 ✓ Home production, interpersonal transfers, allocation of (non)market time (DM)
 ✓ Labor supply over life-cycle (DM)
 ✓ Retirement and aging; Early retirement plans (MP)
✓ Family and work; Family policies (MP)

MODELS OF WAGE STRUCTURES
✓ Human capital and competing models (DM)
✓ Differentials on labor markets by gender and ethnicity, discrimination (MP)
✓ Changes in wage structures, income inequality (MP)
✓ Pay & productivity-wage determination within firms, incentive pay, efficiency wages (MP)

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

OTHER SPECIFIC ISSUES
✓ Job turnover, matching and search, unemployment duration (DM)
✓ Economics of Migration (MP)
✓ Labor market effects of international trade and FDI; Production sharing (MP)

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.

Detailed information, announcements and lecture materials (readings, links, lecture notes, etc.) will be made available via course web page.

Readings
Numerous 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
Economics of Migration, Bansak, Simpson and Zavodny
Modern Labor Economics, Ehrenberg and Smith
Auxiliary reference texts:
Econometric Analysis of Cross Section and Panel Data, Jeffrey M. Wooldridge, MIT Press, 2010
A Guide to Econometrics, Peter Kennedy

Additional readings (journal articles and papers) will be assigned via course web-site for mandatory and optional readings before and after particular lectures.

MACRO TOPICS I

Lecturer:
Byeongju Jeong
(byeongju.jeong@cerge-ei.cz, office 321, phone 233)

Office hours:
TBA

Course information
We will study some macro topics. Below are the papers that we will study first. They are listed in the order of discussion. After studying them, we will continue with some other papers of our choice. You are required to read the papers in advance of lectures and to write a short question at the beginning of each lecture. Lectures will build on your questions about the contents of the papers.

Requirements and grading
The grade is based on the midterm exam (one-fourth), the final exam (one-fourth), occasional home problems (one-fourth), and your questions submitted at the beginning of lectures (one-fourth).

Readings


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PUBLIC FINANCE

**Lecturer:**
Marek Kapička
(marek.kapicka@cerge-ei.cz, office 328, phone 236)

**Office hours:**
TBA

**Course information**
This course studies topics in the optimal design of tax and transfer policies. We will study economies where the underlying information structure is explicitly specified, and all tax instruments arise endogenously. We will discuss optimal capital and income taxation, optimal estate taxes and other applications.

If time permits, we will also discuss other topics, such as long run properties of the efficient allocations, efficient allocations with persistent private information and the implications of hidden savings and endogenous insurance markets.

**Course outline**
- *Ramsey Taxation*
- *Production Efficiency*
- *Static Mirrlees Taxation*
- *Dynamic Mirrlees Taxation*
- *Other topics.*

**Requirements and grading**
Grades will be based on the final exam (20%), problem sets (20%), and a term paper (60%).

The term paper can be an original idea, or an extension of an existing paper. It needs to be related to the topics covered in this course, and should be about 10-15 pages long. You need to have the topic approved by the end of the Midterm week. The final draft of the term paper must be submitted by the end of the first week of the Spring semester.
Readings
Course Outline (* denotes required reading)

**Ramsey Taxation**


V. V. Chari, V.V., Juan Pablo Nicolini and Peter Teles. *More on the Optimal Taxation of Capital.* Working paper, University of Minnesota


**Production efficiency**


**Static Mirrlees Taxation**


**Dynamic Mirrlees Taxation**


**Long Run Properties of the Optima**


**Persistent Private Information**


Kenichi Fukushima and Yuichiro Waki. Computing dynamic optimal mechanisms when hidden types are Markov. Working paper, University of Minnesota, 2011

Hidden Savings


TIME SERIES ECONOMETRICS

Lecturers:
Stanislav Anatolyev
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Teaching assistant:
Alena Skolkova
(alena.skolkova@cerge-ei.cz)

Office hours:
Course information
This course represents the first half of the two-semester sequence *Time series and financial econometrics*, and covers important aspects of modern time series econometrics. After reviewing of (or getting acquainted with) basic time series notions like stationarity, Wold decomposition, etc., we will discuss principles of non-structural time series modeling and review various model selection procedures. After that we will study popular models of conditional mean dynamics such as linear autoregressions and vector autoregressions as well as nonlinear structures like threshold, smooth transition and regime switching models. We will also explore such issues as stationarity vs integratedness and unit roots, and get acquainted with the notion of Brownian motion useful in other contexts as well. Then we will turn to modeling conditional variance and, more generally, volatility. We will also review modeling and forecasting other conditional objects such as conditional quantiles, probabilities, and densities. Finally, we will study methods of dealing with structural instability.

Course outline
I. Basics of time series analysis
   • Stationarity and ergodicity. Linear processes. Lag operator.
   • Innovations and Wold decomposition. AR, MA, ARMA, ARIMA. Box-Jenking methodology.
   • Trend stationarity and difference stationarity.
   • Nonlinear processes. Processes with time-varying parameters.

II. Modeling methodology and model selection
   • Structural and non-structural time series modeling.
   • Object of dynamic modeling: conditional mean, conditional variance, conditional quantile, conditional direction, conditional density.
   • Model selection: diagnostic testing, information criteria and prediction criteria. Model confidence sets.
   • General-to-specific and specific-to-general methodologies. Data mining.
   • Predictability and testing for predictability.

III. Modeling conditional mean
   • Stationary AR models: properties, estimation, inference, forecasting.
   • Stochastic and deterministic trends, unit root testing. Brownian motion, FCLT.
   • Nonlinear autoregressions: threshold autoregressions, smooth transition autoregressions, Markov switching models, state-space models.
   • Stationary VAR models: properties, estimation, analysis and forecasting. Nonlinear VAR.
   • Spurious regression, cointegrating regression, and their asymptotics. Engle-Granger test.

IV. Modeling conditional variance and volatility
   • The class of ARCH models: properties, estimation, inference and forecasting.
   • Extensions: IGARCH, ARCH-t. Time-varying risk and ARCH-in-mean.
   • Multivariate GARCH: vech, BEKK, CCC, DCC, DECO. Variance targeting.
   • Other measures of financial volatility: RiskMetrics, ranges, realized volatility.
   • MEM models for RV and ranges. HAR models for RV. Models for jump.
V. Other topics on modeling and forecasting

- Ultra-high frequency data models: ACD, UHF–GARCH.
- Modeling and forecasting conditional density. ARCD modeling.
- Multivariate dynamic densities. Copula machinery.
- Generalized autoregressive score models. MIDAS models.

VI. Analysis of structural stability

- Identification, estimation and testing for structural breaks. Andrews and Bai-Perron tests.
- Retrospection and monitoring for structural stability. CUSUM and other sequential tests.

Requirements, grading, and attendance policies

- The course presumes reading of textbooks and publications, as well as practical computer work with real data.
- There will be weekly home assignments combining theoretical exercises and empirical practice (20% of the course grade).
- One will need programming econometric software to do empirical exercises. MATLAB is recommended as a baseline, but GAUSS, Python and/or R are also options whenever appropriate.
- One may do empirics using low-level programming and get up to the exercise’s full credit (and master the techniques), or, alternatively, utilize embedded high-level commands/libraries and get up to 25% of the exercise’s full credit (and most likely not learn relevant techniques).
- There will be a presentation/mini-lecture (30-40 minutes) on a particular topic assigned far in advance (10% of the course grade).
- There will be a midterm exam (30% of the grade) and a final exam (40% of the grade).
- All the above components are mandatory (two home assignments are excused – for this count but not for the score) for getting a passing grade.
- Discussion sections will be devoted to solving problems and discussing relevant (both theoretical and applied) literature. Active participation in discussion sections will be awarded by up to bonus 10% of the course grade.

Readings

Main textbooks


Additional materials
A number of methodological materials and published journal articles will be assigned for reading.

**Academic integrity policy**
Cheating, plagiarism, and any other violations of academic ethics at CERGE-EI are not tolerated.
Course Information

This year, AW2 and RW2 will be held fully on-line, due to the Covid-19 situation. We appreciate the understanding and co-operation of the students across the semester and will make every effort to support and engage you at both class and individual levels.

The courses support ongoing development of PhD level English and the skills required to produce PhD academic papers and publishable texts through explicit study of in-field language and genre. The course also includes specialized workshops on articles (a, an, the), punctuation, and writing abstracts. Students practice and process their writing through continuing revision of draft work from the idea stages to the final version, in response to peer and instructor feedback via discussion and on draft texts. Instructors provide individual consultations and extended written feedback in student texts, aimed to support each student in developing his/her individual writing skills.

A peer feedback process will be applied to all written submissions on the course, and the peer review of the final paper draft comprises a significant portion of the final grade.

Building upon the work in Academic Writing 1, students will research, plan, and write an academic Position Paper on a topic chosen by the student. The paper should both analyze the work of others and present the students’ own distinct position on the topic. This paper may form a basis or thought exercise for a practice research proposal in spring 2021, which could be developed for DPW later on.

AW2 and RW2 differ only in that the MAER students will be offered optional consultations on any sections of their MA thesis that they are working on across the semester.

Requirements and grading
In addition to the marked assignments below, expect a range of smaller writing tasks beginning with production of a professional biography. The peer feedback step applies to all works.

Four Marked Assignments:
First Summary Task 10%  Due Sunday, October 4
Abstract of the Final Paper 10% Due Wednesday, November 25
Students are evaluated according to their ability to produce graduate-level written academic texts in English.

100% attendance is mandatory, including at workshops and plenary sessions. Any necessary absences must be discussed with your instructor, preferably in advance, and any work missed must be made up. Missing more than three classes (unexcused) will result in a one-letter-grade penalty on the final course grade. The ASC forgives absences and late submissions of graded tasks in cases when the SAO informs us that the absence/s is/are officially excused. Any unexcused late submission will be automatically graded 0.

C. Third year courses

COMBINED SKILLS II - PhD

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

Office hours:
TBA
Gray Krueger
(Grayson.Krueger@cerge-ei.cz; office 126, phone 259)
Office hours:
TBA

Seminar Information
This is the final required credit course for the Academic Skills Centre.

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 (or as SAO announces). 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 one plenary workshop (announced in early October), the practice 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. Students may opt to attend the whole seminar online, including the mandatory consultations and final assessed presentation; no student will be required to attend in person.

Notes: