

DOKTORANTŪROS STUDIJŲ DALYKO SANDAS

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| Dalyko pavadinimas | Mokslo kryptis (šaka) kodas | Fakultetas | Katedra |
| Research Methodology and Methods | Ekonomika S 004 | Ekonomikos ir verslo administravimo fakultetas Kauno fakultetas | |
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| Studijų būdas | Kreditų skaičius ECTS | Studijų būdas | Kreditų skaičius |
| paskaitos | 1 | konsultacijos | 1 |
| individualus | 7 | seminarai | |

Dalyko anotacija

Objective of the course: The aim of this course is twofold. First, the course aims at providing an introduction to planning and writing a paper in economics to PhD students who are about to start their research career. Second, the course aims at making PhD students familiar with R, MATLAB and LaTeX as tools for research in economics.

Besides making students aware of the key suggestions for doing research in economics, the course puts an emphasis on practice. With this in mind, the first course unit (Writing a research paper in economics) is structured to cover the basic information and suggestions for research in economics and also gives a chance to practice different steps. Such phases of research as planning a research project and structuring a scientific paper will be covered in terms of common tips and also through practical examples and assignments. Students will learn how to make better-structured and effective academic presentations. Students will refresh their knowledge on writing well and work on improving their writing by analyzing selected papers in economics and their own pieces of writing. The intention is to increase awareness of what good writing entails and achieve better writing through practice in the class and self-study.

Other parts of the course focus on tools in economic research, namely, R, MATLAB and LaTeX. These classes are structured to provide introduction to using R, MATLAB and LaTeX in economic research and prepare students for using these tools in other PhD courses, e.g. Advanced Econometrics. This part is highly practice-oriented as well.

Learning outcomes:

- During this course students will learn about the key planning principles of a research project and start planning their own research agenda by adapting the tips. Students will learn how to make their presentations better-structured and effective in terms of conveying results and receiving feedback and become aware of what is good writing in economics. Consequently this course will improve students' writing and presentation skills.
- After this course students will know the basic syntax and operations with R and MATLAB and how to make and use matrices, vectors, if statements, loops and user-defined functions in both programming languages. "The introduction to R" will allow students become familiar with basic data analysis using different functions for data manipulation, graphics and regression analysis. "The introduction to MATLAB" will introduce students to graphical analysis with MATLAB as well and stress code efficiency.

- After this course student will be able to use LaTeX, a de facto standard for the communication and publication of scientific documents. “The introduction to LaTeX” will allow students to know the basics of how LaTeX works using core LaTeX concepts, such as commands, environments, and packages.
- The course will also introduce students to writing beautiful structured documents with figures, tables and automatic bibliographies, and then show you how to apply the same skills to make professional presentations with beamer and advanced drawings with TikZ.

Course outline:

- a. Writing a research paper in economics (Dr Eglė Jakučionytė)
 - i. Session 1 - How to do research (3 hours)
 1. How to get started on research in economics?
 2. Planning a research project.
 3. Writing a research paper.
 - ii. Session 2 - How to do research? (3 hours)
 1. Publishing a research paper.
 2. How to present a scientific paper?
 - iii. Session 3 - Academic writing for economists (6 hours)
- b. Introduction to programming in R (Dr Eglė Jakučionytė)
 - i. Session 4 - Introduction to R (2 hours)
 1. Mathematical operations, matrices and vectors.
 2. Writing a function.
 - ii. Session 5 - Basic data analysis in R (2 hours)
 1. Getting overview of data and data manipulation challenges.
 2. Graphical analysis.
 3. Regression analysis
- b. Introduction to programming in MATLAB (Dr Benjamin Hemingway)
 - i. Sessions 6-7

Using MATLAB (1 hour)

 1. Running MATLAB, using the interface.
 2. Matrixes, operations and basic MATLAB functions.

Scripts, Logic and Loops (2 hours)

 3. Creating MATLAB scripts.
 4. Logical operators and Loops.
 5. Creating functions.

Creating Plots, writing good code, fixing bad code (1 hour)

 1. Creating and labelling graphs.
 2. Saving graphs as pdfs.
 3. Timing functions and writing efficient MATLAB code.
 4. Common mistakes and how to fix them.
- c. Introduction to LaTeX (Dr Linas Tarasonis)
 - i. Session 8

Intro to LaTeX (1.5 hours)

 1. Setting up a LaTeX document
 2. Typesetting text
 3. Handling LaTeX errors
 4. Typesetting equations
 5. Using LaTeX packages

LaTeX features (1.5 hours)

1. Structured documents
2. Sections, labels and cross-references
3. Figures and tables in LaTeX
4. Automatic bibliographies with BibTeX
5. Useful LaTeX packages and online resources

Presentations and drawing (1 hour)

1. LaTeX presentations with Beamer
2. Drawing in LaTeX with TikZ

Evaluation (exam and grading):

The evaluation will depend on students' performance in all four parts of the course. Grades from all four parts will be given the following weights when computing the final grade: 52 percent for "Writing a research paper in economics", 16 percent for Introduction to programming in R, 16 percent for "Introduction to programming in MATLAB" and 16 percent for "Introduction to LaTeX". The chosen weights approximate for contact hours assigned for each part. Grades for each part will be given on assignments described below.

- **Writing a research paper in economics.** The course unit has one assignment. Students will have to hand in an introduction of their own paper in economics. It does not have to be a finished paper, because the introduction will be evaluated based on clarity of the presentation, the idea and the structure only. The final grade from this course unit will be composed by giving a 40 percent weight to the assignment and a 60 percent weight to a take-home exam. The take-home exam will consist of writing a report on a given paper in economics. The report will be given a high grade, if it discusses the research question, the contribution and the structure. Including suggestions for improvement is required as well.
- **Introduction to programming in R.** Students will have to solve one take-home problem set, involving writing functions and doing simple data analysis in R.
- **Introduction to programming in MATLAB.** There will be one take-home problem set, involving the creation of MATLAB code that performs certain tasks and solves basic problems.
- **Introduction to LaTeX.** There will be one take-home problem set, involving the creation of a scientific document using LaTeX.

Pagrindinė literatūra

a. Writing a research paper in economics

Cochrane, J. (2005): Writing Tips for PhD Students, Chicago University,
http://faculty.chicagogsb.edu/john.cochrane/research/Papers/phd_paper_writing.pdf

Gastel, B. and R. A. Day (2011): How to write and publish a scientific paper, Greenwood; 7 edition (June 16, 2011).

McCloskey, D. (1985): Economical writing, Economic Inquiry, 23, 187-222.

McCloskey, D. N. (1983): The rhetoric of economics, Journal of Economic Literature, 21, 481-517.

Zinsser, W. (2016): On Writing Well: The Classic Guide to Writing Nonfiction, Harper Perennial; Anniversary, Reprint edition (April 5, 2016).

b. Introduction to programming in R

Venables, W. N. and D. M. Smith (2009): An Introduction to R, Network Theory Ltd., 2nd ed.

c. Introduction to programming in MATLAB

Handley, Kyle - MATLAB Mini Course,

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| http://webuser.bus.umich.edu/handleyk/MatlabMini.pdf |
| Mathworks - MATLAB Primer (R2018a) https://www.mathworks.com/help/pdf_doc/matlab/getstart |
| Wikibooks - MATLAB Programming, https://en.wikibooks.org/wiki/MATLAB_Programming |
| d. Introduction to LaTeX |
| Dr John Lees-Miller – An interactive introduction to LaTeX https://www.overleaf.com/latex/learn/free-online-introduction-to-latex-part-1 |
| Wikibooks – LaTeX https://en.wikibooks.org/wiki/LaTeX |

| Konsultuojančiųjų dėstytojų vardas, pavardė | Mokslo laipsnis | Svarbiausieji darbai mokslo kryptyje (šakoje) paskelbti per pastaruosius 5 metus |
|---|-----------------|--|
| Eglė Jakučionytė | Dr. | Jakucionyte, E., & van Wijnbergen, S. (2018). Unclogging the Credit Channel: on the Macroeconomics of Banking frictions. van Wijnbergen, S. J., & Jakucionyte, E. (2018). Debt Overhang, Exchange Rates and the Macroeconomics of Carry Trade (No. 17-005/VI). Tinbergen Institute. Jakucionyte, E. (2018). The macroeconomic consequences of carry trade gone wrong and borrower protection. 9789036105170. Jakucionyte, E., & van Wijnbergen, S. (2017). Debt overhang and the macroeconomics of carry trade. Jakučionytė, E. (2011). THE EFFECT OF EURO ADOPTION ON NASDAQ OMX BALTIC STOCK EXCHANGE: ANALYSIS BY STRUCTURAL BREAK TESTS. Ekonomika/Economics, 90(3). Jakučionytė, E. (2011)/ THE IMPACT OF THE EURO ADOPTION ON NASDAQ OM X BALTIC STOCK EXCHANGE. ANALYSIS BY STRUCTURAL BREAK TESTS. Ekonomika, 90. |

| Konsultuojančiųjų dėstytojų vardas, pavardė | Mokslo laipsnis | Svarbiausieji darbai mokslo kryptyje (šakoje) paskelbti per pastaruosius 5 metus |
|---|-----------------|--|
| Linas Tarasonis | Dr. | Dolado, J. J., Garcia-Peñalosa, C., & Tarasonis, L. (2019). The changing nature of gender selection into employment over the Great Recession (No. 58). Bank of Lithuania. Borowczyk-Martins, D., Bradley, J., & Tarasonis, L. (2017). Racial discrimination in the US labor market: Employment and wage differentials by skill. Labour Economics, 49, 106-127. Borowczyk-Martins, D., Bradley, J., & Tarasonis, L. (2014). Racial discrimination in the us labor market: Employment and wage differentials by skill. Dolado, J., Garcia-Peñalosa, C., & Tarasonis, L. (2016). The changing nature of gender selection into employment: Europe over the Great Recession. Lalé, E., & Tarasonis, L. (2018). The Life-cycle Profile of Worker Flows in Europe. Decreuse, B., & Tarasonis, L. (2016). Estimating a Search Equilibrium Model of Statistical Discrimination: Racial Wage and Employment Disparities in the US. Decreuse, B., & Tarasonis, L. (2016). Statistical |

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| | | <p>Discrimination in a Search Equilibrium Model: Racial Wage and Employment Disparities in the US. Decreuse, B., & Tarasonis, L. (2016). Statistical Statistical Discrimination in a Search Equilibrium Model: Racial Wage and Employment Disparities in the US (No. 1621). Aix-Marseille School of Economics, Marseille, France.</p> <p>Dolado, J. J., García-Peñalosa, C., & Tarasonis, L. (2016). Working Papers/Documents de travail. Dolado, J. J., Garcia-Penalosa, C., & Tarasonis, L. (2016). DP11367 The Changing Nature of Gender Selection into Employment: Europe over the Great Recession.</p> <p>Borowczyk-Martins, D., Bradley, J., & Tarasonis, L. (2013). Racial Discrimination in the US Labor Market: Employment and Wage Differentials by Skill Job Market Paper.</p> |
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| Konsultuojančiųjų dėstytojų vardas, pavardė | Mokslo laipsnis | Svarbiausieji darbai mokslo kryptyje (šakoje) paskelbti per pastaruosius 5 metus |
|--|-----------------|---|
| Benjamin Hemingway | Dr. | <p>Hemingway, B., Crawford, A. (in progress) The effect of the financial crisis on bank lending to SMEs joint with Hemingway, B. Macroeconomic implications of insolvency regimes [Under revision] Banking regulation and collateral screening in a model of information asymmetry Hemingway, B. A Model of Credit Rationing in SME Loan Applications</p> |

Doktorantūros komiteto teikimu patvirtinta fakulteto/instituto taryboje 2019 m. kovo mėn. 25 d. , protokolo Nr. 210000-KI-14

Tarybos pirmininkas

Pastaba: jei doktorantūros teisė bus suteikta kartu su kita institucija, tvirtinama ne fakulteto taryboje , o jungtinėje komisijoje.