Research Seminar “Empirical Economics”

**National Research University Higher School of Economics – Saint-Petersburg**

**Faculty of Economics**

**Department of Economics**

**The course is intended for the 3rd year students, studying at program 080100.62 «Economics»**

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**I. COURSE DESCRIPTION**

The aim of the course is to introduce students to empirical methods in economics and the ways they are applied in research papers written by economics and management scholars and published in top journals. By critically assessing and discussing strategies commonly used in high quality empirical studies students will learn to design their own research to address a question of interest.

The author of the course is actively involved in empirical research himself, which is why he has included topics that are essential for students to get their empirical work started. Most of these topics are not covered in any other course of the undergraduate program at which the author teaches.

The fact that the course is taught in English helps students to adapt to the fact that almost all internationally recognized papers are written in English and that internationally recognized scholars need to have a good command of English to communicate effectively.

**II. Learning outcomes**

By the end of the course students should:

* Know the process of empirical academic research, the role of this type of research, its advantages and disadvantages
* Understand terms that are specific to research articles written and English and commonly used in empirical papers
* Be able to conduct research into the literature of others who have considered the same question. This includes the use of meta-analysis, i.e. systematic literature review which uses quantitative approach
* Be able to pose questions and use methods of formal inquiry to answer questions and solve problems
* Be able to use Mendeley bibliographical software in order to structure their personal library of research papers and books and simplify the insertion of links to sources into the text and automate the compilation of reference list for a paper

**III. Course outline**

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| --- | --- | --- | --- |
| № | Topic | Class hours | Self-study |
| 1 | The essence and the role of empirical research in economics | 4 | 10 |
| 2 | Statistics as the cornerstone of empirical research | 8 | 12 |
| 3 | Methods for analyzing existing literature on the subject | 8 | 12 |
| 4 | Experimental methods | 8 | 12 |
| 5 | Econometric methods | 6 | 12 |
| 6 | Designing empirical studies | 4 | 12 |

# The essence and the role of empirical research in economics. The role of empirical research in sciences. Popper’s and Lakatosh’s criterias for theory selection. Types and structure of an empirical paper. The logic of research papers with some examples.

# Statistics as the cornerstone of empirical research. The content of AP Statistics Exam. Basic statistical reference material that every researcher has to know. Examples of problems for every topic. The list of formulas and statistical tables. The discussion of some difficult points. Between 1st and 2nd modules students prepare for the simulated AP Statistics Exam.

# Methods for analyzing existing literature on the subject. Bibliographical software Mendeley. Quantitative analysis of existing studies – meta analysis. Lab 1: the analysis of meta-analytical paper. Lab 2: replication of a meta-analytic study by students.

# Experimental methods. The discussion of papers utilizing experimental techniques.

# Econometric methods. Inferring causality. The discussion of papers utilizing econometric techniques.

# Designing empirical studies. How to write grant proposals. Preparation of preliminary grant proposals.

**IV. TYPES OF ACTIVITIES**

**1. Reading comprehension of modern research papers** – the most actively used type of activities. In order to be up to date about what is going on in science, an economist should read carefully or atg least effectively read through hundreds of papers annually. Most students lack the ability to quickly extracting useful information from texts.

We have a unique approach to reading comprehension. The text of the paper with accompanying exercises is uploaded to LMS eFront. A student reads the paper, then opens a test and has only 10 minutes to answer 10-20 questions.

To successfully do the task students should be able to answer the following questions:

* What problem does the author focus on?
* Why is this problem interesting?
* What is the originality of the paper?
* How is the paper structured?
* What are the main results and policy implications?

In addition, several questions about details are asked. It is possible to answer such questions only if you carefully read the paper and understood everything well.

As a result all students have to read and understand all the papers, not only those they presented in class as it is often done in research seminars. What is more, students attend classes every time, because testing is regular.

**2. Preparation to simulated AP Statistics Exam and taking the test.**

Without knowing statistics well it is impossible to understand and write empirical papers. That is why the first module of an academic year is devoted to reviewing the basics of statistics, which is necessary before proceeding to topics such as meta-analysis, experiments and econometrics. The use of AP Statistics format ensures that students have the level of statistics that is at least as high as that of first-year students of a US college.

**3. «Project»[[1]](#footnote-1) - a task that requires a student to create her own text, that acts as an answer to some open ended questions. A project weights 2-3 times more than an ordinary reading comprehension task.**

**4. Guest lectures of instructors that will act as potential thesis supervisors for students when they start their 4th year of study.**

**5. Essay in the form of a simplified research proposal** (according to the requirements of “The National Research University Higher School of Economics’ Academic Fund Program).

At the end of the course students prepare a research proposal that is supposed to be related to their undergraduate thesis and should contain:

* A **problem statement** in which you discuss why your research question is important to study, or your “moment for research” (~1 page)
* A **literature review** in which you thoroughly discuss the work that has already been done to address aspects of your research question (~2 pages)
* A description and explanation of the **research methods** you will use to address this research question (~3 pages)
* An **annotated bibliography** that cites and summarizes your sources (~5-20 sources)

**IV. Assessment**

There is no exam at the end of the course. The grade is formed only by Classwork, test and written research proposal.

|  |  |  |
| --- | --- | --- |
| **Form of testing** | **Details** | **Weight** |
| Classwork | 75-min. tests given at classroom every week. Each Problem Set consists of 2-5 problems. Classwork is assessed using the weighted average grade across all problem sets. | 50% |
| Test | Take-home problem set covering topics 1-6 (module 4) | 20% |
| Written research proposal | The final project for this course is an implementation-ready research proposal  employing at least one empirical research method (module 4) | 30% |

All types of testing are implemented using HSE’s corporate Learning Management System eFront.

**V. Sample tasks**

**Sample task 1 (from classwork)**

**The test is based on the paper "The Relative Impact of Marketing, Research-and-Development, and Operations Capabilities on Firm Performance" by Alexander Krasnikov & Satish Jayachandran (2005). Please, first read the paper carefully and then do the test. You'll have only 15 minutes to answer 10 questions.**

**Question 1**

The results of the research can be used to convince managers that they should invest in developing marketing capabilities.

1. False
2. True

**Question 2**

In all studies considered by the authors of the meta-analysis market research and advertising expenditures were used for measuring marketing capabilities.

1. False
2. True

**Question 3**

It is easier for rivals to imitate a competitor's R&D capability than marketing capability.

1. False
2. True

**Question 4**

When does the "file-drawer problem" occur?

1. when meta-analysis includes too few unpublished studies
2. when authors who do not find significant influence/differences tend not to submit their papers, being afraid that they will be rejected for publication
3. when it is hard to find all full-text articles, because of the lack of access to databases
4. when researchers report fake results without conducting actual research

**Question 5**

2 people coded studies for meta-analysis: they took different papers and each coded their own array of studies.

Then they aggregated their results to obtain the final dataset.

1. False
2. True

**Question 6**

Which problem was addressed by using a hierarchical linear model?

1. multicollinearity
2. observations are not independent: some of them are taken from the same study and therefore correlated
3. nonlinearity
4. large residuals

**Question 7**

In HLM the coefficients of the level-1 model are allowed to vary depending on the characteristics of the study.

1. False
2. True

**Question 8**

In this meta-analysis \_\_\_effect sizes were nested in \_\_\_studies (insert integer numbers).

**Question 9**

The authors have found a significant positive relationship between capability and performance. What is the number of studies reporting null effects for the respective relationship that is necessary to reduce the cumulative effect to the point of nonsignificance? \_\_\_\_

**Question 10**

Which of these study characteristics significantly influence the parameters of the capability–performance relationship?

1. large (1) versus small (0) firms
2. subjective (1) versus objective (0) data
3. business-to-business (1) versus business-to-consumer (0) data
4. manufacturing (1) versus services (0) data
5. U.S. (1) versus non-U.S. (0) data
6. SBU (1) versus firm (0) data
7. multiple (1) versus single (0) industry data

**Sample task 2 (from classwork)**

The test is based on the paper "New Empirical Generalizations on the Determinants of Price Elasticity" by TAMMO H.A. BIJMOLT, HARALD J. VAN HEERDE, and RIK G.M. PIETERS (2005). Please, first read the paper and then do the test, since you'll have only 25 minutes to answer 18 questions.

**Question 1 (Weight=5%)**

When was the previous (before this article) meta-analysis of price elasticity studies published?

1. 1982
2. 1984
3. 1986
4. 1988
5. 1990
6. 1992
7. 1994

**Question 2 (Weight=5%)**

The meta-analysis done in the paper covers the period of ... years

1. 19
2. 16
3. 17
4. 43
5. 33
6. 23

**Question 3 (Weight=5%)**

When conducting his meta-analysis Tellis did not account for the influence of private labels vs. household name on price elasticity.

1. False
2. True

**Question 4 (Weight=5%)**

In the introductory section of the paper the authors:

1. explain why it is important to conduct such analysis
2. say how their study differs from the previous influential paper
3. state the aim of the study
4. provide a specification of the regression model
5. list the data sources

**Question 5 (Weight=5%)**

The authors included not only journal papers, but also working papers in their meta-analysis.

1. False
2. True

**Question 6 (Weight=10%)**

price elasticities from \_\_\_ studies were included in the actual analysis (insert numbers)

**Question 7 (Weight=5%)**

One of the studies, included in meta-analysis, contained the estimates of 264 price elasticities.

False

True

**Question 8 (Weight=5%)**

Journal of the Academy of Marketing Science was among the 9 leading journals, which were used for the issue-by-issue search done by the authors.

False

True

**Question 9 (Weight=5%)**

What is the share of non-negative price elasticities reported in research papers? % (round to the closest integer number)

**Question 10 (Weight=5%)**

Which of these problems did the authors encounter when building their meta-regression?

1. multicollinearity
2. heteroscedasticity
3. autocorrelation
4. dummy variables trap

**Question 11 (Weight=5%)**

In this study the authors found strong empirical support for the statement

"the magnitude of sales price elasticity increases over time with a linear trend"

1. False
2. True

**Question 12 (Weight=5%)**

Elasticities for manufacturer brands are closer to zero than are private label brands

1. False
2. True

**Question 13 (Weight=5%)**

Consumers are more responsive to price changes of expensive items (durables) than to price changes of cheap items (groceries).

1. False
2. True

**Question 14 (Weight=5%)**

People in the USA and Canada are more price sensitive than those from Europe.

1. False
2. True

**Question 15 (Weight=10%)**

Coca-Cola is a brand.

Coca-Cola Light 0.5L in a plastic bottle is an SKU.

1. False
2. True

**Question 16 (Weight=5%)**

In this paper no significant elasticity differences between alternative functional forms were found.

1. False
2. True

**Question 17 (Weight=5%)**

During economic booms price increases are less harmful than they are during recessions.

1. False
2. True

**Question 18 (Weight=5%)**

The authors say their results can be used by online, as well as offline stores.

1. False
2. True

**Sample task 3 (from the exam)**

**The test is based on the paper** [**"How Effective are Groupon Promotions for Businesses" by Utpal M. Dholakia (2010)**](http://lms.hse.ru/content/lessons/12403/papers/HOW%20EFFECTIVE%20ARE%20GROUPON%20PROMOTIONS%20FOR%20BUSINESSES.pdf)**. Please, first read the paper carefully and then do the test. You'll have only 5 minutes to answer 10 questions.**

**Question 1 (Weight=10%)**

What was the first stage of the research?

1. Qualitative research
2. Quantitative survey research
3. Logistic regression
4. OLS regression

**Question 2 (Weight=10%)**

What is the total amount of money that researchers paid to survey respondents?

\_\_\_dollars

**Question 3 (Weight=10%)**

Which was the largest category represented in the sample?

1. restaurants
2. educational services
3. salons and spas
4. tourism

**Question 4 (Weight=10%)**

Less than a half of businesses that received an invitation to participate in the survey became the respondents.

1. False
2. True

**Question 5 (Weight=10%)**

What is the percentage of business that plan to run another Groupon campaign in the future among those who had a profitable Groupon promotion?

\_\_\_%

**Question 6 (Weight=10%)**

Which of these factors appeared to be significant (at 5%) predictors of Groupon promotion profitability?

1. employee satisfaction with Groupon-using customers
2. its effectiveness in reaching new customers
3. number of Groupons sold
4. the Groupon’s face value
5. percentage of discount offered relative to full price
6. the promotion’s duration
7. the percentage of customers buying more than the Groupon’s value
8. the percentage purchasing a second time

**Question 7 (Weight=10%)**

In the regression explaining the number of Groupons sold the author used the log of number of Groupons sold as the dependent variable in order to:

1. Meet one of the assumptions of the classical linear model
2. Make the interpretation of the regression clearer
3. Impress the readers with the complexity of the model

**Question 8 (Weight=10%)**

According to the findings of this research restaurants sell more coupons than other businesses ceteris paribus.

1. False
2. True

**Question 9 (Weight=10%)**

Groupon value is an insignificant driver of the number of coupons sold at 15% significance level.

1. False
2. True

**Question 10 (Weight=10%)**

The authors conclude by giving some recommendations that can give some benefits to businesses, but are likely to reduce the attractiveness of the promotions.

1. False
2. True

**V. Recommended readings**

1. Leedy, P. D. and Ormond, J. E. (2010). *Practical research: Planning and design (9th Ed.).* Upper Saddle River, NJ: Pearson.
2. Angrist, J. D. and Pischke J. S. (2009). *Mostly Harmless Econometrics: An Empiricists Companion*. Princeton, NY: Princeton University Press.

Various empirical papers are given to students. Most empirical papers published between 1970 and the present moment are suitable for the course. Some examples include:

* Altonji, Joseph, Todd E. Elder, and Christopher R. Taber (2000) `Selection on observed and unobserved variables: Assessing the effectiveness of catholic schools.' NBER Working Paper No.W7831
* Angrist, Joshua D. (1990) `Lifetime earnings and the Vietnam era draft lottery: Evidence from Social Security Administrative records.' American Economic Review 80(3), 313-336
* Angrist, Joshua D. (1998) `Estimating the labor market impact of voluntary military service using social security data on military applicants.' Econometrica 66(2), 249-88
* Angrist, Joshua D., and Alan B. Krueger (1999) `Empirical strategies in labor economics.' Handbook of Labor Economics
* Angrist, Joshua D., and Guido Imbens (1994) `Identification and estimation of local average treatment effects.' Econometrica 62(2), 467-475
* Angrist, Joshua D., and Victor Lavy (1999) `Using Maimonides' rule to estimate the effect of class size on scholastic achievement.' Quarterly Journal of Economics 114(2), 533-575
* Angrist, Joshua D., Guido W. Imbens, and Donald B.Rubin (1996) `Identification of causal effects using instrumental variables.' Journal of the American Statistical Association 91(434), 444-455
* Ashenfelter, Orley, and David Card (1985) `Using the longitudinal structure of earnings to estimate the effect of training programs.' Review of Economics and Statistics 67(4), 648-60
* Campbell, Donald T. (1969) `Reforms as experiments.' American Psychologist 24, 407-429
* Card, David, and Alan Krueger (1992) `Does school quality matter? Returns to education and the characteristics of public schools in the United States.' Journal of Political Economy 100(1)
* Rosenbaum, Paul, and Donald B. Rubin (1984) `Estimating the effects caused by treatments: Comment [on the nature and discovery of structure].' Journal of the American Statistical Association 79(385), 26-28
* Sacerdote, Bruce (2000) `Peer effects with random assignment: Results for Dartmouth roommates.' Working Paper 7469, National Bureau of Economic Research
* Strauss, John (1986) `Does better nutrition raise farm productivity?' Journal of Political Economy 9(2), 297-320

**VI. INSTRUCTORS’ CONTACTS**

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1. By “project” we mean every type of work that we implement using the instrument “Projects” in LMS eFront [↑](#footnote-ref-1)