

Faculty of Economic Sciences
National Research University Higher School of Economics

BASIC INFORMATION

PEOPLE

LECTURER [Ekaterina Kazakova](#)
INSTRUCTORS [Dmitry Malakhov](#), [Elena Semerikova](#), [Pavel Tukpetov](#)

CLASS TIMES (ALL TAKE PLACE IN KIRPICHNAYA STREET 33)

LECTURES tba
SEMINARS tba

CONTACT INFORMATION

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OFFICE LOCATION Room S-444
OFFICE HOURS tba

GENERAL INFORMATION ABOUT THE COURSE

This course covers the core set of statistical and econometric techniques as applied in empirical work with economic and business data. This is an obligatory course for the second-year students of Bachelor program “Business Informatics.”

We start with an introduction to econometrics and discuss main types of data available for answering quantitative economic and business questions. Then we spend some time at summarizing the basic ideas of the theory of probability and statistics that are needed to perform descriptive statistics analysis, understand regression analysis and econometrics. After the introductory and review part, we learn how to perform simple and multiple regression analysis, create and test hypotheses on the real data, build your own models and assess their reliability.

COURSE GOALS, LEARNING OBJECTIVES, EXPECTED LEARNING OUTCOMES

The primary objective of this course is to enable students to critically evaluate statistical reports and findings and learn how various statistical techniques assist in making business decisions and answering economic questions. You are expected to develop logical and structural thinking while working on your own project and applying econometric tools to answer your own research question. You will become familiar with Stata, statistical software, which will be used during the practice sessions and within the group research project.

COURSE OUTLINE

Course consists of 8 lectures and 10 seminar sessions. Lectures will introduce the basic econometric techniques and give examples how those techniques can be applied in econometric analysis. The goal of lectures is to learn how the econometrics works, which methods can be applied to tackle a particular question, and how to interpret the statistical findings. The seminar is devoted to practical applications of tools introduced in the lecture with the use of statistical software. The goal of the practice session is to make sure you understand and are able to apply learned econometric techniques for your own research project.

DESCRIPTION OF COURSE METHODOLOGY AND FORMS OF ASSESSMENT TO BE USED

53%	TERM PROJECT	A joint research project is done in a group of 2-3 students. For the detailed description of the stages of the term project, please, refer to the section “Term project.”
7%	QUIZZES	At the end of every lecture, there will be a short quiz which is aimed to test understanding of the basic concepts discussed in the <i>previous</i> lecture.
40%	FINAL EXAM	Final exam consists of 20 multiple choice questions, answering which would require understanding of both lecture and practice sessions’ material.

TENTATIVE SCHEDULE

<i>N</i> ^o	Topic/Focus/Activity	Week	Course format: lectures, seminars, consultations, workshops, etc.	Readings and assignments
1.	Introduction	01.04	Lecture	SW 1: Economic questions and data.
			Seminar	Introduction to Stata, organizing and handling data, .do-files, basic commands and syntax.
2.	Review of probability	08.04	Lecture	SW 2: Review of the theory of probability.
			Seminar	Descriptive statistics and visualization in Stata, practice questions to the theory of probability.
3.	Review of statistics	15.04	Lecture	SW 3: Review of statistics.
			Seminar	Descriptive statistics and plots in Stata, practice questions to the theory of statistics.
4.	Linear regression with one regressor	22.04	Lecture	SW 4: Linear regression, OLS, measures of fit.
			Seminar	Computing and interpreting linear regression with a single regressor estimates.
5.	Hypothesis tests and confidence intervals: One regressor case	29.04	Lecture	SW 5: Testing hypotheses about one of the regression coefficients, heteroskedasticity and homoskedasticity.
			Seminar	Testing hypotheses and confidence intervals: regression with a single regressor.
6.	Linear regression with multiple regressors	13.05	Lecture	SW 6: Omitted variable bias, OLS in multiple regression, multicollinearity.
			Seminar	Computing and interpreting linear multiple regression estimates.
7.	Hypothesis tests and confidence intervals: Multiple regression case	20.05	Lecture	SW 7: Hypothesis tests and confidence intervals for a single-coefficient, tests of joint hypothesis, model specification, heteroskedasticity.
			Seminar	Testing hypotheses and confidence intervals: regression with multiple regressors.
8.	Multiple regression: Further issues	27.05	Lecture	SW 8-9: Polynomials, logarithms, interactions between independent variables, model specification.
		03.06 10.06	Seminar	Computing and interpreting nonlinear multiple regression estimates. Forecasting, inclusion of irrelevant variable, model misspecification, issues of endogeneity.

TERM PROJECT

The term project is a report based on the analysis of real-life cross-sectional data with econometric methods learned during the course. The final report consists of the results obtained at several stages, each of them is due to a specific deadline. All reports at each stage (including the final report) should be written **in English**. A failure to meet a deadline for stages 1 – 5 reduces the maximum grade for the stage by 30%. Overall, you can get **100 points** in total for the term project.

STAGE 0 tba Students organize in groups of 2-3 people. The link for the registration of group members will be provided in the first lecture. Everyone who will not manage to find a group **by deadline** will be randomly allocated to some group. Afterwards, there are no changes in groups possible. Please, note that you can create groups only within your academic HSE group.

STAGE 1 tba Each group finds or collects real-life data, which are to be used in the project. In doing so, students are advised to use links provided in the following pages: sophist.hse.ru/eng/, gks.ru, as well as refer to the economic and business journals which require open data for their publications (Marketing Science, American Economic Review, Econometrica, Review of Economics and Statistics, Journal of Political Economy, Journal of Consumer Psychology, American Accounting Review, Journal of Consumer Research). The data should be related to the question you would like to address and should contain different entities for a *single* time period. The **.dta-file** with the chosen data and a link to the data source should be sent to the seminar instructors **by deadline**. We will evaluate three main things: if data are cross-sectional, if variables are well described (include labels), if data contain both numerical and categorical variables. You also need to fill the ‘Data’ part in the project template.

(10 points)

STAGE 2 tba Each group needs to submit a written report (fill ‘Descriptive statistics’ part in the project template) + .do-file with descriptive statistics of their data **by deadline**.

(25 points)

STAGE 3 tba Each group needs to submit a written report (fill ‘Introduction’ part in the project template) with formulation of the applied research question and main hypotheses to be tested when answering the formulated question. Students also should describe potential consumers of their results and list the scientific works related to the posed economic/business question. This report is due **to deadline**.

(20 points)

STAGE 4 tba Each group needs to submit a written report (fill ‘Econometric analysis’ part in the project template) + .do-file with the specification of the econometric model, detailed econometric analysis and interpretation of obtained results. This report is due **to deadline**.

(45 points)

STAGE 5 tba The finalization of the term project, correction of inconsistencies in previous results, assessment of internal validity. The final version of the term project should be submitted **by deadline**. In total, up to *10 extra points* can be added to the scores for previous stages for reasonable corrections.

(10(+10) points)

Please, note that there is no mid-term evaluation of the project stages – the final grade will be given after the final fifth stage. However, you are highly advised to consult with your seminar instructor and the lecturer about any questions related to the term project. In particular, the pre-approval of the research problem and data to use is highly recommended. On-going feedback can be also requested during office hours.

TEXTS, READINGS AND OTHER INFORMATIONAL RESOURCES

Lecture slides are posted in the LMS website and ekaterinakazakova.com (in the teaching section).

MAIN BOOK James H. Stock, Mark W. Watson, "Introduction to Econometrics."

ADDITIONAL BOOK Jeffrey M. Wooldridge, "Introductory Econometrics: A Modern Approach."

EXTRA (EASY) READING David Doane, Lori Seward, "Applied Statistics in Business and Economics."

EXAMINATION/EVALUATION

There is a retake for the exam for students missing the first-take for a valid reason.

ACADEMIC INTEGRITY

The Higher School of Economics strictly adheres to the principle of academic integrity and honesty. Accordingly, in this course there will be a zero-tolerance policy toward academic dishonesty. This includes, but is not limited to, cheating, plagiarism (including failure to properly cite sources), fabricating citations or information, tampering with other students' work, and presenting a part of or the entirety of another person's work as your own. HSE uses an automated plagiarism-detection system to ensure the originality of students' work. Students who violate university rules on academic honesty will face disciplinary consequences, which, depending on the severity of the offense, may include having points deducted on a specific assignment, receiving a failing grade for the course, being expelled from the university, or other measures specified in HSE's [Internal Regulations](#).

CHANGES TO THE SYLLABUS

Any changes to this syllabus will be announced in the lecture and ekaterinakazakova.com.