National Research University Higher School of Economics, Faculty of Social Sciences, Public Policy Department
Course: Quantitative Methods
Instructor: Dagmara Celik Katreniak, Ph.D.

1 Instructor:

Instructor:	Dasa Celik Katreniak
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2 Administrative Information:

Class Duration:	Fall semester 2016, between 18:10 and 21:00
Location:	Myasnitskaya 11, room TBA
Office hours:	17:30, Myasnitskaya 11, room (professor's room)

3 Course Description:

The goal of this course is to broaden and systematize students' knowledge of statistics and to practice its application. During the course we will go through the essentials of statistics: from the statistical background through the theory and intuition behind regression analysis to practical applications. The course is elementary and presents concepts and techniques in way that benefits students of all mathematical backgrounds. Fundamental concepts and methods of statistics are introduced with emphasis on interpretation of arguments and application to real-world problems.

Prerequisite: Working knowledge of mathematics.

4 Course Objectives:

Upon successful completion of the course, the student will:

- be able to present the basic concepts and methods of statistical reasoning and data analysis in the context of decision-making
- develop computational skills in fundamental statistical analysis
- acquire a basic/working knowledge of data analysis using MS Excel, SPSS and possibly STATA
- demonstrate the appropriate level of competence regarding the fundamentals of statistics
- demonstrate the appropriate level of competence in written expression

5 Instructional Material: PRELIMINARY

Required:

UE: Using Econometrics: A practical guide, A.H.Stundemund, 6th EditionAddison-Wesley Series in Economic

SM: Statistics for Managers using Microsoft Excel, David M. Levine, David F. Stephan, Timothy C. Krehbiel & Mark L. Berenson, 5th Edition, Pearson Education, Inc.

Supplemental:

Fair, R.C. (2002) Predicting Presidential Elections and Other Things. Stanford University Press. Available at: http://fairmodel.econ.yale.edu/rayfair/pdf/vote.pdf

Optional: TBA

6 Course Schedule: PRELIMINARY

TIME	PART	TOPICS	READING ASSIGNED
Oct 5, 2015	**STATISTICAL CONCEPTS**	**Introduction to data description and collection**	**TBA**
Oct 12, 2015	**STATISTICAL CONCEPTS**	**Describing data using numerical measures**	**TBA**
Oct 19, 2015	**PROBABILITY CONCEPTS**	**Introduction to probability theory, probability distributions**	**TBA**
Oct 26, 2015	**Exam Break at HSE, no class**		
Nov 2, 2015	**PROBABILITY CONCEPTS**	**Introduction to Sampling distributions, Central Limit Theorem**	**TBA**
Nov 9, 2015	**HYPOTHESIS TESTING**	**Hypothesis testing I**	**TBA**
Nov 16, 2015	**ESTIMATION**	**Introduction to linear regression model, Hypothesis testing after OLS, goodness of fit**	**TBA**
Nov 23, 2015	**ESTIMATION**	**Nonlinear and discrete independent variables**	**TBA**
Nov 30, 2015	**ESTIMATION**	**Misspecifications and departures from OLS assumptions**	**TBA**
Dec 7, 2015	**MULTIVARIATE ANALYSIS**	**Factor and cluster analysis**	**TBA**
Dec 14, 2015	**Recapitulation and Written Examination**		

The above schedule is preliminary and for reference only. The instructor may have the flexibility to control the pace of teaching.

7 Course Plan:

№	Topic	Total hours	Contact hours		Independent students' work
			Lectures	Seminars	
1.	**Descriptive Statistics and Data Analysis**	**8**	**4**	**4**	
2.	**Probability concepts**	**8**	**4**	**4**	
3.	**Hypothesis testing**	**6**	**2**	**4**	
4.	**Regression analysis and hypothesis testing**	**12**	**4**	**8**	
5.	**Multivariate analysis**	**4**	**2**	**2**	
6.	**Recapitulation, training and written exam**	**4**	**0**	**4**	
Total:		**42**	**16**	**26**	

8 Course Requirements:

One in-class exam accounting for 40%; homework assignments: 15%, essay: 30%, in-class quizzes: 10%, class participation: 5 points. Detailed explanation will be given to students during the first class.

$$FinalGrade = 0.4 * Exam + 0.3 * Essay + 0.15 * HW + 0.10 * Quizzes + 0.5 * Participation$$

EXAMINATIONS AND QUIZZES:

- The exam retake policy is: A student can retake the exam if her/his score was below 50%.
- No retakes are allowed for quizzes.
- Quizzes will NOT be announced in advance.
- ONLY BASIC CALCULATORS will be allowed in the exams.
- The exam is an open-book exam, i.e., you can use all your HANDWRITTEN materials (exception: printed lecture notes).

HOMEWORK ASSIGNMENTS:

- Late homework submission WILL NOT BE ACCEPTED.
- Students are allowed to work on homework assignments individually or in groups of two.
- Homework outputs will be handed in a printed version at the beginning of a predefined class (unless agreed differently). If the students work in pairs, the role of each student needs to be described and both students need to sign it (there will be 50% point deduction it is missing).

ESSAY:

- At the beginning of the course each student will be given a dataset. Student will use the dataset throughout the course. The dataset can be also used in the essay, whose main goal is to provide students with practical exercise of what will be taught during the course and to apply knowledge using statistical softwares (MS Office, SPSS and STATA). Student can use own dataset for the essay but he/she needs to have it approved by the instructor.
- Student will work on the project individually.
- Project accounts for 20 per cent of the final grade and need to be handed at the end of the semester (December 31st, 2016).

GROUP TASKS:

- During the classes, students will be given group tasks which will count for the class participation (5% of the final score). Students will be grouped at the beginning of the semester and groups will remain stable.

8 Academic Integrity:

Academic honesty is non-negotiable. All quizzes and exams must be student's own work. All assignments submitted in fulfillment of course requirements must be the student's own work (if submitting assignment individually). If submitting the assignment in a pair, the role of each student of the group must be clearly specified and the assignment must be signed by both authors. Plagiarism and/or any other form of academic dishonesty will not be tolerated and will result in a grade of zero on the assignment or exam.