



Course syllabus

Academic year 2020-2021

1. Information about the program

1.1 Higher Education Institution	Babeş-Bolyai University Cluj-Napoca
1.2 Faculty	European Studies
1.3 Department	European Studies and Governance
1.4 Field of study	International Relations and European Studies
1.5 Study level	Bachelor
1.6 Programme of study/ Qualification	International Relations and European Studies (in English)

2. Information about the discipline

2.1 Module	Research Methodologies in the Social Sciences						
2.2 Course holder	Assistant Professor Dr. Adrian Luduşan						
2.3 Seminar holder	Assistant Professor Dr. Adrian Luduşan						
2.4 Year of study	1	2.5 Semester	2	2.6. Type of assessment ¹	E	2.7 Type of module ²	OB

3. Total estimated time (teaching hours per semester)

3.1 No. of hours per week	2	3.1 of which for course	2	3.3 of which for seminar	2
3.4 Total no. of hours in the curriculum	56	3.5 of which for course	28	3.6 of which for seminar	28
Time distribution: 5 x 25 = 125					Hours
Study by using handbook, reader, bibliography and course notes					70
Additional library/specialised online research, field research					28
Preparation of seminars/laboratories, homework, projects, portfolios and essays					15
Tutoring					10
Examinations					2
Other activities:					
3.7 Total no. of hours for individual study	5				
3.8 Total no. of hours per semester	125				
3.9 No. of ECTS credit points	5				

4. Prerequisites (where applicable)

4.1 of curriculum	•
4.2 of competencies	•

5. Conditions (where applicable)

¹ E - exam, ME - multi-term examinations, C - collocutional examination/assessment test

² OB - core module, OP - elective module, F - extracurricular module



5.1 For the development of the course	•
5.2 For the development of the seminar/laboratory	•

6. Specific skills acquired

Professional skills	<ul style="list-style-type: none"> the ability to collect and analyze quantitative data. the ability to use statistical software (SPSS, R).
Interdisciplinary skills	<ul style="list-style-type: none"> the ability to use statistical methods in analyzing social phenomena. the ability to construct, test, and interpret hypotheses concerning social phenomena.

7. Course objectives (based on list of acquired skills)

7.1 General objective	The course intends to familiarize the students with the main quantitative methods of analysis in the social sciences.
7.2 Specific objectives	The course intends to present the core techniques of quantitative approaches involved in analyzing social phenomena. A special emphasis will be placed in developing the basic skills for using statistical software.

8. Contents

8.1 Course	Teaching methods	Observations
1. Overview of quantitative methods. The epistemological status of theories and experiments.	Lecturing, interactive teaching.	Peter Burnham, Wyn Grant, Zig Layton-Henry, <i>Research Methods in Politics</i> , New York, Palgrave Macmillan, 2004. Colin Dyer, <i>Research in Psychology: A Practical Guide to Methods and Statistics</i> , Oxford: Blackwell, 2006.
2. Quantitative research design	Lecturing, interactive teaching.	William Martin, Krista Bridgmon, <i>Quantitative and statistical research Methods: From Hypotehsis to Results</i> , San Francisco: Jossey-Bass, 2012. Donald Treiman, <i>Quantitative Data Analysis</i> , San Francisco: Jossey-Bass, 2009.



3. Statistical characteristics. Measures of quantitative variables.	Lecturing, interactive teaching.	David Freedman, Robert Pisani, Roger Purves, <i>Statistics</i> , Third edition, New York, London: W.W. Norton & Company, 1998. Frederik Michel Dekking Cornelis Kraaikamp Hendrik Paul Lopuhaä Ludolf Erwin Meester, <i>A Modern Introduction to Probability and Statistics. Understanding Why and How</i> , Springer texts in statistics, New York, Springer, 2005. William Martin, Krista Bridgmon, <i>Quantitative and statistical research Methods: From Hypotehsis to Results</i> , San Francisco: Jossey-Bass, 2012.
4. Development of statistical hypothesis. Testing statistical hypothesis. .	Lecturing, interactive teaching.	David Freedman, Robert Pisani, Roger Purves, <i>Statistics</i> , Third edition, New York, London: W.W. Norton & Company, 1998. William Martin, Krista Bridgmon, <i>Quantitative and statistical research Methods: From Hypotehsis to Results</i> , San Francisco: Jossey-Bass, 2012. Donald Treiman, <i>Quantitative Data Analysis</i> , San Francisco: Jossey-Bass, 2009
5. Association between qualitative variables	Lecturing, interactive teaching.	Donald Treiman, <i>Quantitative Data Analysis</i> , San Francisco: Jossey-Bass, 2009.
6. Correlation and simple linear regression.	Lecturing, interactive teaching.	David Freedman, Robert Pisani, Roger Purves, <i>Statistics</i> , Third edition, New York, London: W.W. Norton & Company, 1998. Donald Treiman, <i>Quantitative Data Analysis</i> , San Francisco: Jossey-Bass, 2009.
7. Advanced methods of social research.	Lecturing, interactive teaching.	Alan Agresti, <i>An introduction to Categorical Data Analysis</i> , Second Edition, New Jersey: John Wiley & Sons, 2007. Jae-On Kim și Charles W Mueller, <i>Introduction to Factor Analysis. What It Is and How to Do It</i> , Newbury Park, Ca.: Sage Publications, 1978a. Jae-On Kim și Charles W Mueller, <i>Factor Analysis. Statistical Methods and Practical Issues</i> . Newbury Park, Ca.: Sage Publications, 1978b.
<p>Bibliography:</p> <ol style="list-style-type: none"> 1) Agresti, Alan [2007]. <i>An introduction to Categorical Data Analysis</i>. Second Edition. New Jersey: John Wiley & Sons. 2) Burnham, Peter; Grant, Wyn; Layton-Henry, Zig [2004]. <i>Research Methods in Politics</i>. New York: Palgrave Macmillan. 3) Dekking, Frederik Michel; Kraaikamp, Cornelis; Lopuhaä, Hendrik Paul; Meester, Ludolf Erwin [2005]. <i>A Modern Introduction to Probability and Statistics. Understanding Why and How</i>. Springer Texts in Statistics. New York: Springer. 4) Freedman, David; Pisani, Robert; Purves, Roger [1998]. <i>Statistics</i>. Third Edition. New York, London: W.W. Norton & Company. 		



5) Huff, Darrell [1993]. *How to Lie with Statistics*. New York: W. W. Norton & Company.
 6) Kim, Jae-On; Mueller, Charles W. [1978a]. *Introduction to Factor Analysis. What It Is and How to Do It*. Newbury Park, Ca.: Sage Publications.
 7) Kim, Jae-On; Mueller, Charles W. [1978b]. *Factor Analysis. Statistical Methods and Practical Issues*. Newbury Park, Ca.: Sage Publications.
 8) Martin, William; Bridgmon, Krista [2012]. *Quantitative and statistical research Methods: From Hypotehsis to Results*. San Francisco: Jossey-Bass.
 9) Roussas, George G. [1997]. *A Course in Mathematical Statistics*, Second Edition, New York: Academic Press.
 10) Treiman, Donald. [2009]. *Quantitative Data Analysis*. San Francisco: Jossey-Bass.

8.2 Seminar / Laboratory	Teaching methods	Observations
1. Data and variables in statistics: types, classification.	Lecturing, interactive teaching of SPSS, EXCEL	David Freedman, Robert Pisani, Roger Purves, <i>Statistics</i> , Third edition, New York, London: W.W. Norton & Company, 1998, pp. 31 – 57. Frederik Michel Dekking Cornelis Kraaikamp Hendrik Paul Lopushaä Ludolf Erwin Meester, <i>A Modern Introduction to Probability and Statistics. Understanding Why and How</i> , Springer texts in statistics, New York, Springer, 2005, pp. 207 – 231. Roxy Peck, Chris Olsen, Jay L. Devore, <i>Introduction to Statistics and Data Analysis</i> , Fourth Edition, Boston, Cengage Learning, pp. 2 – 28, pp. 95 – 168.
2. Graphical representations of statistical data.	Lecturing, interactive teaching of SPSS, EXCEL.	
3. Measures of central tendencies: mean, median, mode. Properties of the measures of central tendencies.	Lecturing, interactive teaching of SPSS	David Freedman <i>et al.</i> , <i>op. cit.</i> , pp. 57 – 65. Frederik Michel Dekking <i>et al.</i> , <i>op. cit.</i> , pp. 231 – 245. Roxy Peck <i>et al.</i> <i>op. cit.</i> pp. 173 – 200.
4. Measures of dispersion I: range, mean deviation, Gini's index.	Lecturing, interactive teaching of SPSS, EXCEL.	David Freedman <i>et al.</i> , <i>op. cit.</i> , pp. 65 – 78. Peter Burnham, Wyn Grant, Zig Layton-Henry, <i>Research Methods in Politics</i> , New York, Palgrave Macmillan, 2004, pp. 114 – 141.
5. Measures of dispersion II: standard deviation, variance.	Lecturing, interactive teaching of SPSS, EXCEL.	David Freedman <i>et al.</i> , <i>op. cit.</i> , pp. 65 – 78. Peter Burnham, Wyn Grant, Zig Layton-Henry, <i>Research Methods in Politics</i> , New York, Palgrave Macmillan, 2004, pp. 114 – 141.
6. Measures for shape of distribution: skewness and kurtosis.	Lecturing, interactive	Frederik Michel Dekking <i>et al.</i> , <i>op. cit.</i> , pp. 13 – 25. David Freedman <i>et al.</i> , <i>op. cit.</i> , pp. 221 – 237. George G. Roussas, <i>A Course in Mathematical Statistics</i> ,



	teaching of SPSS, EXCEL.	Second Edition, New York, Academic Press, 1997, pp. 14 – 47.
7. Dashboards and graphical representations of central tendencies and measures of dispersion.	Lecturing, interactive teaching of SPSS, EXCEL.	Frederik Michel Dekking <i>et al.</i> , <i>op. cit.</i> , pp. 25 – 41. David Freedman <i>et al.</i> , <i>op. cit.</i> , pp. 255 – 273. George G. Roussas, <i>A Course in Mathematical Statistics</i> , Second Edition, New York, Academic Press, 1997, pp. 14 – 47.
8. Sampling. Procedures of sampling.	Lecturing, interactive teaching of SPSS, EXCEL.	David Freedman <i>et al.</i> , <i>op. cit.</i> , pp. 333 – 355. Frederik Michel Dekking <i>et al.</i> , <i>op. cit.</i> , pp. 195 – 207. Peter Burnhamet <i>al. op. cit.</i> , pp. 80 – 112. Rabi Bhattacharya, Edward C. Waymire <i>A basic course in probability theory</i> , New York, Springer, 2007, pp. 99 – 107.
9. Central limit theorem. Applications.	Lecturing, interactive teaching of SPSS, EXCEL.	David Freedman <i>et al.</i> , <i>op. cit.</i> , pp. 333 – 355. Frederik Michel Dekking <i>et al.</i> , <i>op. cit.</i> , pp. 195 – 207. Peter Burnhamet <i>al. op. cit.</i> , pp. 80 – 112. Rabi Bhattacharya, Edward C. Waymire <i>A basic course in probability theory</i> , New York, Springer, 2007, pp. 99 – 107.
10. Estimation of parameters. Confidence intervals. Significance of confidence intervals	Lecturing, interactive teaching of SPSS, EXCEL.	Frederik Michel Dekking <i>et al.</i> , <i>op. cit.</i> , pp. 341 – 356. George G. Roussas, <i>op cit</i> , pp. 397 – 413. Frederik Michel Dekking <i>et al.</i> , <i>op. cit.</i> , pp. 341 – 373.
11. Significance tests: z, t, and χ^2 tests.	Lecturing, interactive teaching of SPSS, EXCEL.	David Freedman <i>et al.</i> , <i>op. cit.</i> , pp. 475 – 489. Frederik Michel Dekking <i>et al.</i> , <i>op. cit.</i> , pp. 373 – 380. George G. Roussas, <i>op cit</i> , pp. 329 – 337.
12. Association between qualitative variables. 1) Dichotomous variables: ϕ , Y , and Q coefficients, 2) Categorical variables: C , V , λ , and τ coefficients. 3) Ordinal variables: τ , γ , and d coefficients.	Lecturing, interactive teaching of SPSS, EXCEL.	David Freedman <i>et al.</i> , <i>op. cit.</i> , pp. 490 – 524. Frederik Michel Dekking <i>et al.</i> , <i>op. cit.</i> , pp. 399 – 424. George G. Roussas, <i>op cit</i> , pp. 337 – 353.
13. Correlation and simple linear regression: covariance, coefficient of covariance, Pearson's r , linear regression equation, linear	Lecturing, interactive teaching of SPSS, EXCEL.	David Freedman <i>et al.</i> , <i>op. cit.</i> , pp. 525 – 547. George G. Roussas, <i>op cit</i> , pp. 353 – 373.



regression graphical analysis, interpretations.		
14. Review. The significance and limits of statistical approaches in the social sciences.	Lecturing, interactive teaching of SPSS, EXCEL.	William Martin, Krista Bridgmon, <i>Quantitative and statistical research Methods: From Hypotehsis to Results</i> , San Francisco: Jossey-Bass, 2012. Donald Treiman, <i>Quantitative Data Analysis</i> , San Francisco: Jossey-Bass, 2009.

Bibliography:

- 1) Acton, Ciaran; Miller, Robert; Maltby, John; Fullerton, Deirdre [2009]. *SPSS for Social Scientists*. Second Edition. New York: Macmillan.
- 2) Alan Agresti, *An introduction to Categorical Data Analysis*, John Wiley & Sons, New Jersey.
- 3) Cornillon, Pierre-Andre [2012]. *R for Statistics*. Londra: Chapman & Hall/CRC.
- 4) Dennis, Brian [2012]. *The R Student Companion*. Londra: Chapman & Hall/CRC.
- 5) Falissard, Bruno [2012]. *Analysis of Questionnaire Data with R*. Londra: Chapman & Hall/CRC.
- 6) Frederik Michel Dekking, Cornelis Kraaikamp, Hendrik Paul Lopuhaä, Ludolf Erwin Meester [2005]. *A Modern Introduction to Probability and Statistics. Understanding Why and How*, Springer texts in statistics, New York: Springer.
- 7) Freedman, David; Pisani, Robert; Purves, Roger [1998]. *Statistics*. Third Edition. New York, London: W.W. Norton & Company.
- 8) Halsey, Lewis G.; Curran-Everett, Douglas; Vowler; Sarah L.; Drummond; Gordon B. [2015]. „The fickle *P* value generates irreproducible results”. In *Nature*, Vol 12, No. 3, March 2015.
- 9) Husson, Francois; Lê, Sébastien; Pagès, Jérôme [2010]. *Exploratory Multivariate Analysis by Example Using R*. Computer Sciences and Data Analysis. Londra: Chapman & Hall/CRC.
- 10) Martin, William; Bridgmon, Krista [2012]. *Quantitative and statistical research Methods: From Hypotehsis to Results*. San Francisco: Jossey-Bass.
- 11) Nuzzo, Regina [2014] „Scientific method: Statistical errors”. In *Nature*, Vol. 506, Issue 7487, 12 February 2014, <http://www.nature.com/news/scientific-method-statistical-errors-1.14700>.
- 12) Quick, John M. [2012]. *The Statistical Analysis with R. Beginners Guide*. Birmingham, UK.: Packt Publishing, 2010.
- 13) Rabi Bhattacharya [2007]. Edward C. Waymire *A basic course in probability theory*, New York: Springer.
- 14) Roxy Peck, Chris Olsen, Jay L. Devore, *Introduction to Statistics and Data Analysis*, Fourth Edition, Boston, Cengage Learning.
- 15) Sheather, Simon [2008]. *A Modern Approach to Regression with R*. New York: Springer.
- 16) Stowell, Sarah [2014]. *Using R for Statistics*. New York: Apress.
- 17) Treiman, Donald. [2009]. *Quantitative Data Analysis*. San Francisco: Jossey-Bass.
- 18) Vinod, Hrishikesh D. editor [2010]. *Advances in Social Science Research Using R*. Lecture Notes in Statistics. New York: Springer.
- 19) Zuur, Alain F.; Ieno, Elena N.; Meesters, Erik [2009]. *A Beginner's Guide to R. Use R*. New York: Springer.

Online resources:

Tutorials for R:

- 1) <http://www.r-project.org/>.



- 2) <http://cran.r-project.org/doc/contrib/Torfs+Brauer-Short-R-Intro.pdf>.
- 3) <http://cran.r-project.org/doc/manuals/R-intro.pdf>.
- 4) <http://www.r-tutor.com/r-introduction>.
- 5) <http://www.r-tutor.com/elementary-statistics>.

Tutorials for SPSS:

- 1) http://www.ssc.wisc.edu/sscc/pubs/spss_students1.htm
- 2) <http://www.psych.utoronto.ca/courses/c1/spss/toc.htm>
- 3) <http://www.mhhe.com/socscience/psychology/runyon/spss/spss.html>
- 4) <http://www.lse.ac.uk/methodology/tutorials/SPSS/home.aspx>
- 5) <http://www.k-state.edu/cns/software/spss/SPSSBaseUsersGuide130.pdf>
- 6) <http://davidmlane.com/hyperstat/>
1. <http://www.chass.ncsu.edu/training/SPSS/>

9. The correspondence between the content of the course and the expectations of the academic community, professional associations and representative employers in the field:

The course aims to develop essential abilities in using statistical techniques and software involved in the analysis of social phenomena. The course also provides the methodological foundations for the development and implementation of a quantitative research project.

10. Assessment

Type of activity	10.1 Assessment criteria	10.2 Assessment methods	10.3 Percentage of the final grade
10.4 Course	Written Exam	Written Exam	50
10.5 Seminar/Laboratory	Seminar activity	Solving and completing seminar assignments	50
10.6 Minimum standard of performance			
<ul style="list-style-type: none"> • Obtain a grade of 5 (composed of the points accumulated in seminar activity and/or written exam). 			

Date Course holder signature Seminar holder signature
 15 September 2020 Assistant Prof. Adrian Ludușan Assistant Prof. Dr. Adrian Ludușan

Date of departmental approval Head of department signature