Syllabus

1. Programme information

1.1. Institution	THE BUCHAREST UNIVERSITY OF ECONOMIC STUDIES
1.2. Faculty	Economic Cybernetics, Statistics and Informatics
1.3. Departments	Department of Statistics and Econometrics
1.4. Field of study	Cybernetics and statistics
1.5. Cycle of studies	Master Studies
1.6. Education type	Full-time
1.7. Study programme	Applied data analytics
1.8. Language of study	English
1.9. Academic year	2025-2026

2. Information on the discipline

2.1. Name	**Survey and Measurement Methodology**								
2.2. Code	**25.0318IF1.1-05.1**								
2.3. Year of study	**1**	2.4. Semester	**1**	2.5. Type of assessment	**Test**	2.6. Status of the discipline	**A**	2.7. Number of ECTS credits	**6**

2.8. Leaders	C(C)	**prof.univ.dr. NICULESCU-ARON D ILEANA-GABRIELA**	gabriela.niculescu@csie.ase.ro
	S(S)	**prof.univ.dr. NICULESCU-ARON D ILEANA-GABRIELA**	gabriela.niculescu@csie.ase.ro

3. Estimated Total Time

3.1. Number of weeks	14.00		
3.2. Number of hours per week	4.00	of which	
		C(C)	2.00
		S(S)	2.00
3.3. Total hours from curriculum	56.00	of which	
		C(C)	28.00
		S(S)	28.00
3.4. Total hours of study per semester (ECTS*25)	150.00		
3.5. Total hours of individual study	94.00		
Distribution of time for individual study			
Study by the textbook, lecture notes, bibliography and student's own notes	40.00		
Additional documentation in the library, on specialized online platforms and in the field	20.00		
Preparation of seminars, labs, assignments, portfolios and essays	20.00		
Tutorials	5.00		
Examinations	5.00		
Other activities	4.00		

4. Prerequisites

4.1. of curriculum	• Statistics I, Statistics II, Probabilities theory and mathematical statistics
4.2. of competences	• Collecting, processing, analysing and interpreting data

5. Conditions

for the C(C)	• Lectures take place in classrooms with internet access and multimedia teaching equipment or on dedicated platforms for online education
for the S(S)	• It takes place in the laboratories of the Department of Statistics and Econometrics or on dedicated platforms for online education.

6. Acquired specific competences

PREFESSIONAL	CC2	STEM (science, technology, engineering, mathematics) skills – understanding the mathematical foundations of AI, statistical methods of data analysis applied in AI techniques.
PREFESSIONAL	CO4	Conducts quantitative research
PREFESSIONAL	CP1	Applies statistical analysis techniques
PREFESSIONAL	CP3	Performs data analysis
PREFESSIONAL	CT2	Thinks through the use of logic and reasoning for identifying the strengths and weaknesses of alternative solutions, conclusions, or approaches to problems.

7. Objectives of the discipline

7.1. General objective	• Appropriation of techniques for projection and implementation of statistic surveys and enquires
7.2. Specific objectives	C1 Acquisition of advanced knowledge regarding concepts, methods, and techniques of applied statistical analysis, including inference, stochastic modeling, econometrics, and Bayesian methods. A2 Application of exploratory and predictive data analysis techniques—including time series analysis, spatial econometrics, and big data—for supporting strategic decision-making in public and private organizations. RA3 Continuous development of professional skills in line with technological dynamics and the evolving business environment.

8. Contents

8.1. C(C)		Teaching/Work methods	Recommendations for students
1	The role of surveys as observation method in the Informational Statistic System (C1) teaching activity: 2 hours	The lectures focus on the use of power-point support, access to multimedia resources	Minimum required bibliographic sources: (2) pg. 13-33 (4) pg. 2-7
2	Designing a stratified survey (C1,A2,RA3) teaching activity: 2 hours	The lectures focus on the use of power-point support, access to multimedia resources	Minimum required bibliographic sources: (2) pg 114-124 (3) pg 55-61
3	Estimating the parameters under a stratified survey (C1,A2,RA3) teaching activity: 2 hours	The lectures focus on the use of power-point support, access to multimedia resources	Minimum required bibliographic sources: (2) pg 114-124 (3) pg 55-61
4	Stratification after sampling (C1,A2,RA3) teaching activity: 2 hours	The lectures focus on the use of power-point support, access to multimedia resources	Minimum required bibliographic sources: (2) pg 124-126 (4) pg 16-17

5	Test 1 Designing a cluster type survey (C1,A2,RA3) teaching activity: 1 hour Test: 1 hour	online.ase.ro. The lectures focus on the use of power-point support, access to multimedia resources	Minimum required bibliographic sources: (2) pg 126-135 (3) pg 61-69
6	Parameter estimation under a cluster sampling survey (C1,A2,RA3) teaching activity: 2 hours	The lectures focus on the use of power-point support, access to multimedia resources	Minimum required bibliographic sources: (2) pg 126-135 (3) pg 61-69
7	Designing a bistadial cluster survey (C1,A2,RA3) teaching activity: 2 hours	The lectures focus on the use of power-point support, access to multimedia resources	Minimum required bibliographic sources: (2) pg 140-142 (3) pg 87-90
8	The design effect and its role in determining the sample volume (C1,A2,RA3) teaching activity: 2 hours	The lectures focus on the use of power-point support, access to multimedia resources	Minimum required bibliographic sources:: (4) pg. 28-31
9	Multiphase survey (C1,A2,RA3) teaching activity: 2 hours	online.ase.ro	Minimum required bibliographic sources: (2) pg 142-146 (3) pg 90-91
10	Longitudinal surveys (C1,A2,RA3) teaching activity: 2 hours	The lectures focus on the use of power-point support, access to multimedia resources	Minimum required bibliographic sources: (2) pg 146-153 (3) pg 91-95
11	Methodological aspects in the analysis of data obtained on the basis of complex surveys (C1,A2,RA3) teaching activity: 2 hours	The lectures focus on the use of power-point support, access to multimedia resources	Minimum required bibliographic sources: (4) pg. 40-44 (5) pg. 6-15
12	Analysis of data from complex surveys. Estimation of variation. (C1,A2,RA3) teaching activity: 2 hours	The lectures focus on the use of power-point support, access to multimedia resources	Minimum required bibliographic sources: (4) pg. 45-46 (5) pg. 18-35
13	Test 2. Peculiarities of household surveys. Examples.Essay presentation (C1,A2,RA3) teaching activity: 2 hour Test: 1 hour	online.ase.ro. The lectures focus on the use of power-point support, access to multimedia resources	Minimum required bibliographic sources: (4) pg. 47-48
14	Discussions on how to conduct the exam. Essay presentation (C1,A2,RA3) teaching activity: 2 hours	The lectures focus on the use of power-point support, access to multimedia resources	

Bibliography

- Ionita Andoria Cristina, (1)Sondaje rotationale in cercetarea fenomenelor economico-sociale, Teza Doctorat, Bucuresti, 2012, România
- Niculescu-Aron I. G., (2)Sondajul statistic în cercetarea forţei de muncă, ASE, Bucuresti, 2005, România
- Niculescu-Aron I. G., (3) Sondaje si anchete. Curs pentru invatamantul la distanta, ASE, Bucuresti, 2011, http://campus-virtual.ase.ro/master-2020/sondaje-anchete/Sondaje.pdf, România
- Niculescu-Aron I. G., (4) Tehnici speciale in anchete si sondaje. Suport de curs incarcat pe online.ase.ro, România
- Christian Bruch, Ralf Mu¨nnich, Stefan Zins, (5) Variance Estimation for Complex, The project FP7–SSH–2007–217322 AMELI is supported by European Commission, 2011, https://www.uni-trier.de/fileadmin/fb4/projekte/SurveyStatisticsNet/Ameli_Delivrables/AMELI-WP3-D3.1-20110514.pdf, Belgia

8.2. S(S)		Teaching/Work methods	Recommendations for students
1	Types of population, sampling frame and their problems (C1) teaching activity: 2 hours	Presentation, discussions on the topic of online access	www.insse.ro www.comune.ro https://www.roaep.ro/

2	Check the completeness of the data. Treatment of total and partial non-spreads (reselection from among nonrespondents, simple imputation and multiple imputation) (C1, A2) teaching activity: 2 hours	Applications and case studies in specialized software packages	Minimum required bibliographic sources: (1)Pg. 29-34; 39-43
3	The stratified survey l. The importance of choosing the stratification criterion. (C1, A2) teaching activity: 2 hours	Applications and case studies in specialized software packages	Minimum required bibliographic sources: (1) pg 114-124 (3) pg 13-39
4	Preparation of a survey base in order to apply a bistadial stratified survey. Use the SPSS Sampling Wizard module to generate layered survey plan. (C1, A2) teaching activity: 2 hours	Applications and case studies in specialized software packages	Minimum required bibliographic sources: (4) pg 1-7
5	Establishing the volume of sample in the case of a bizarre stratified survey. Its distribution by primary and secondary units (C1, A2) teaching activity: 2 hours	Applications and case studies in specialized software packages	Minimum required bibliographic sources: (3) pg 44-48
6	Cost components of a survey research. (C1, A2) teaching activity: 2 hours	Applications and case studies in specialized software packages	Minimum required bibliographic sources: (5)pg. 136-137
7	Checking the representativeness of the sample (C1, A2, RA3) teaching activity: 2 hours	Applications and case studies in specialized software packages	(3)pg. 38-47
8	Simple imputation method in SPSS (C1, A2, RA3) teaching activity: 2 hours	Applications and case studies in specialized software packages	(6) pg 1-7
9	Multiple imputation method in SPSS (C1, A2, RA3) teaching activity: 2 hours	Applications and case studies in specialized software packages	(6) pg 7-20
10	Calculation of estimators obtained based on simple survey plans. Cluster survey (C1, A2, RA3) teaching activity: 2 hours	Applications and case studies in specialized software packages	(1) pg. 83-86 (3)pg. 32-43
11	Calculation of estimators obtained based on complex survey designs. Multistage design for numerical variables (C1, A2, RA3) teaching activity: 2 hours	Applications and case studies in specialized software packages	(1) pg. 87-98 (3) pg.44-49
12	Calculation of estimators obtained based on complex survey designs. Multistage design for qualitative variables (C1, A2, RA3) teaching activity: 2 hours	Applications and case studies in specialized software packages	(1) pg. 87-98 (3) pg.44-49
13	Calculation of estimators obtained based on complex survey plans. Multiphase plan. (C1, A2, RA3) teaching activity: 2 hours	Applications and case studies in specialized software packages	(1) pg. 142-146
14	Project presentation (C1, A2, RA3) teaching activity: 2 hours	Project evaluation	

Bibliography

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- Rotariu T.I., (2) Ancheta sociologică şi sondajul de opinie, Editura Polirom, Iasi, 1999, România
- Niculescu-Aron I. G., (3) Tehnica sondajelor Aplicatii si teste de evaluare, ASE, Bucuresti, 2006, România
- (4) IBM SPSS Complex Samples 28 , https://www.ibm.com/docs/en/SSLVMB_28.0.0/pdf/IBM_SPSS_Complex_Samples.pdf
- Niculescu-Aron I. G., (5) Sondajul statistic în cercetarea forţei de muncă, ASE, Bucuresti, 2005, România
- (6) Ghid IBM SPSS Missing Values 29 , https://www.ibm.com/docs/en/SSLVMB_29.0.0/pdf/IBM_SPSS_Missing_Values.pdf

9. Corroboration of the contents of the discipline with the expectations of the representatives of the epistemic community, of the professional associations and representative employers in the field associated with the programme

The contents of the discipline plan was elaborated after discussions with specialists from the National Institute of Statistics and representatives of some market research institutes.

10. Assessment

Type of activity	Assessment criteria	Assessment methods	Percentage in the final grade
10.1. C(C)	Test	automated assessment	10.00
10.2. C(C)		automated assessment	10.00
10.3. S(S)	Participarea cu întrebări, comentarii, sugestii și exemple de analiză în cadrul prelegerilor	the quantification of the student's activity	10.00
10.4. S(S)	project evaluation	achievement of project requirements, presentation method	20.00
10.5. Final assessment	written paper on the platform online.ase.ro	automated assessment	50.00
10.6. Modality of grading	Whole notes 1-10		
10.7. Minimum standard of performance	Acquiring the skills necessary for designing a complex survey plan. Understanding the role of using weighting coefficients, as well as calculating and implementing them. Access to the final exam is granted only if the grade obtained for in-semester activity is at least 5. Participation in the two tests.		

Date of listing,
04/28/2026

Signature of the discipline leaders,

Date of approval in the department

Signature of the Department Director,