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 Applied Mathematics
1.4. Field of study	Economic Cybernetics, Statistics and Informatics
1.5. Cycle of studies	Bachelor
1.6. Education type	Full-time
1.7. Study programme	Statistics and Economic Forecasting
1.8. Language of study	Romanian
1.9. Academic year	2021-2022

2. Information on the discipline

2.1. Name	**Statistical Hypothesis Testing**								
2.2. Code	**21.0204IF2.2-0005**								
2.3. Year of study	**2**	2.4. Semester	**2**	2.5. Type of assessment	**Exam**	2.6. Status of the discipline	**Obligatoriu**	2.7. Number of ECTS credits	**4**

2.8. Leaders	Lectures (C)	**Associate professor BADIN Andreea Luiza**	luiza.badin@csie.ase.ro
	Seminars (S)	**Associate professor BADIN Andreea Luiza**	luiza.badin@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	
		Lectures(C)	2.00
		Seminars(S)	2.00
3.3. Total hours from curriculum	56.00	of which	
		Lectures(C)	28.00
		Seminars(S)	28.00
3.4. Total hours of study per semester (ECTS*25)	100.00		
3.5. Total hours of individual study	44.00		
Distribution of time for individual study			
Study by the textbook, lecture notes, bibliography and student's own notes	17.00		
Additional documentation in the library, on specialized online platforms and in the field	10.00		
Preparation of seminars, labs, assignments, portfolios and essays	14.00		
Tutorials	1.00		
Examinations	2.00		
Other activities	0.00		

4. Prerequisites

4.1. of curriculum	Probability theory and mathematical statistics
4.2. of competences	Use of mathematical concepts to solve problems.

5. Conditions

for the Lectures(C)	The lectures are scheduled in classrooms with multiple boards and videoprojector or online.
for the Seminars(S)	The seminars are scheduled in classrooms with multiple boards and computers with Internet access or online.

6. Acquired specific competences

Professional	C6	The statistical and econometric modeling of socio-economic phenomena

7. Objectives of the discipline

7.1. General objective	The lecture provides the fundamental concepts and tools used in general for statistical inference and in particular, for statistical hypotheses testing.
7.2. Specific objectives	Provides basic notions and tools useful in statistical analysis. It provides the necessary competences for approaching some advanced topics from data analysis, business statistics, econometrics. It contributes to the development of a positive attitude towards the idea of interdisciplinarity.

8. Contents

8.1. Lectures(C)		Teaching/Work methods	Recommendations for students
1	Connections between classical distributions. Sums of independent random variables and their distributions.	Classical lecture using the blackboard or videoprojector, interaction with students.	
2	Review of estimation theory. Methods of point estimation. Confidence intervals estimation. Connection with statistical hypotheses testing.	Idem	
3	Hypotheses, errors and risks. parametric tests. Neyman - Pearson lemma.	Idem	
4	Parametric tests using samples from Normal, Exponential distribution.	Idem	
5	Parametric tests for large samples. Testing one or two proportions.	Idem	
6	Likelihood ratio tests.	Idem	
7	Nonparametric tests - 2 lectures	Idem	
8	ANOVA	Idem	
9	Linear regression model. Least squares estimators.	Idem	
10	Inference and prediction in linear regression models. Connection between regression and analysis of variance - 3 lectures	Idem	
11	Final review	idem	

Bibliography

- Wonnacott, R. J. & Wonnacott, T., H., Introductory Statistics fo Business and Economics (4th Ed), John Wiley and Sons LTD, 1990
- Beganu, G., Metode probabilistice aplicate în economie şi asigurări, Editura Tehnica, Bucuresti, 1996
- Badin, L., Verificarea Ipotezelor Statistice, Note de curs - manuscris, 2013
- Beganu, G., Badin, L., Manu L., Covrig, M. Toma, A., Teoria probabilitatilor si statistica matematica - Culegere de probleme, Meteor Press, Bucuresti, 2002

8.2. Seminars(S)		Teaching/Work methods	Recommendations for students
1	Applications involving theoretical elements presented at the lecture.	Problems solved using the blackboard, computer or videoprojector, interaction with students.	
2	Applications involving theoretical elements presented at the lecture.	Idem	
3	Applications involving theoretical elements presented at the lecture.	Idem	
4	Applications involving theoretical elements presented at the lecture.	Idem	
5	Applications involving theoretical elements presented at the lecture.	Idem	
6	Applications involving theoretical elements presented at the lecture.	Idem	
7	Applications involving theoretical elements presented at the lecture.	Idem	
8	Applications involving theoretical elements presented at the lecture.	Idem	
9	Applications involving theoretical elements presented at the lecture.	Idem	
10	Applications involving theoretical elements presented at the lecture.	Idem	
11	Applications involving theoretical elements presented at the lecture.	Idem	
12	Applications involving theoretical elements presented at the lecture.	Idem	
13	Applications involving theoretical elements presented at the lecture.	Idem	
14	Applications involving theoretical elements presented at the lecture.	Idem	

Bibliography

- Wonnacott, R. J. & Wonnacott, T., H., Introductory Statistics fo Business and Economics (4th Ed), John Wiley and Sons LTD, 1990
- Fishman, G.S., Monte Carlo: concepts, algorithms and applications, Springer, New York, 1996
- Badin L., Verificarea Ipotezelor Statistice, Note de curs - manuscris
- Beganu, G., Badin, L., Manu L., Covrig, M. Toma, A., Teoria probabilitatilor si statistica matematica - Culegere de probleme, Meteor Press, Bucuresti, 2002

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 syllabus was discussed with specialists and members of Department of Applied Mathematics and Department of Statistics and Econometrics.

10. Assessment

Type of activity	Assessment criteria	Assessment methods	Percentage in the final grade
10.1. Lectures(C)	Knowledge of concepts and methods; solving proposed problems as required.	Attendance and interaction in classroom activities.	10.00
10.2. Seminars(S)	Involvement in classroom activities with questions, comments, remarks.	Attendance and interaction in classroom activities.	30.00
10.3. Final assessment	Knowledge of concepts and methods; solving proposed problems as required.	Written exam with presence on campus or online, and if this is not possible, oral exam with presence on campus or online.	60.00
10.4. Modality of grading	Whole notes 1-10		
10.5. Minimum standard of performance	The minimum required passing mark is 5. The final mark is computed as weighted average of marks on activities.		

Date of listing,
11/13/2026

Signature of the discipline leaders,

Date of approval in the department

Signature of the Department Director,