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	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	**Econometrics**								
2.2. Code	**21.0204IF2.2-0003**								
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. Instructors									

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	20.00		
Additional documentation in the library, on specialized online platforms and in the field	10.00		
Preparation of seminars, labs, assignments, portfolios and essays	10.00		
Tutorials	1.00		
Examinations	3.00		
Other activities			

4. Prerequisites

4.1. of curriculum	Statistics Probability theory and Mathematic Statistics Basics of Economics
4.2. of competences	Use statistical methods in the analysis of economic phenomena

5. Conditions

for the Lectures(C)	Lectures are held in rooms with internet access and multimedia teaching equipment or pe o platforma online agreata, in cazul in care orele se vor desfasura in modul online
for the Seminars(S)	Conducting seminars in rooms with computers which have appropriate software: Excel, Eviews, R etc. sau pe o platforma online agreata, in cazul in care orele se vor desfasura in modul online. Softurile utilizate vor fi Microsoft Excel, EViews, R etc.

6. Acquired specific competences

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

7. Objectives of the discipline

7.1. General objective	Provide quantitative analysis tools necessary for economic phenomena
7.2. Specific objectives	Identifying the data sources needed for an economic analysis; Using econometric methods in data analysis, Integrating the results of estimating quantitative models into an economic analysis.

8. Contents

8.1. Lectures(C)		Teaching/Work methods	Recommendations for students
1	Introduction to Econometrics: subject objectives; requirements and minimum standards for final evaluation; bibliographical sources; definitions; specifical concepts for econometric analysis; stages of econometric analysis using an example; data sources used to estimate the parameters of an econometric model.	Classic and Power-Point.	1 course
2	Regression Analysis. Unifactorial linear regression model: specificating the model; classical assumptions underlying the method of Least Squares; the estimation of the parameters using Ordinary Least Square(OLS); the interpretation of the estimated model parameters.	idem	1 course
3	Univariate linear regression model: discussing the assumptions of the model; the properties of the parameter estimators; testing the significance of the parameters; confidence intervals for the parameters; testing the validity of the regression model (ANOVA).	idem	2 courses
4	The simple linear regression model: validation of the regression model (determination of the coefficient of determination; calculation of and testing the linear correlation coefficient); forecasting the values of the dependent variable; residuals analysis; testing the normality assumption of errors.	idem	2 courses
5	The multifactorial linear regression model: formalization and model hypotheses; estimating parameters; properties of parameter estimators; statistical inference on parameters; testing the validity of the model; forecasts based on the estimated regression model.	idem	2 courses
6	Heteroscedasticity of the random errors: causes, consequences of the presence of heteroscedasticity, tests for detecting the heteroscedasticity, Remedies for errors heteroscedasticity.	idem	1 course
7	Autocorrelation of the random errors: causes; consequences/effects of the presence of autocorrelation; tests for detecting autocorrelation; Remedies for errors autocorrelation.	idem	1 course
8	Multicollianearity analysis: causes; consequences of the presence of multicollinearity; methods for detecting the multicollinearity; Remedies for multicollinearity.	idem	1 course
9	Nonlinear regression model. Transforming the nonlinear models into linear ones. Log-log, lin-log, log-lin, hiperbolic, parabolic regression models.	idem	1 course
10	Regression analysis with qualitative explanatory variables. Dummy variables.	idem	1 course
11	Recap.	idem	1 course

Bibliography

- Enders, W., Applied Econometric Time Series, John Wiley&Sons, 2010
- Gujarati, D., Basic Econometrics, McGraw-Hill, ed. a 4-a, 2004
- Greene, W., Econometric Analysis, Prentice Hall, New Jersey, 2008
- Andrei T., Bourbonnais R, Econometrie, Economică, Bucuresti, 2008
- Andrei, T., Stancu, S., Iacob, A., I., Tusa, E, Introducere în econometrie utilizând EViews, Economică, Bucureşti, 2008
- Voineagu V., Ţiţan E., Şerban R., Ghită S., Todose D., Boboc C., Pele D., Teorie şi Practică Econometrică, Meteor Press, Bucureşti, 2007

8.2. Seminars(S)		Teaching/Work methods	Recommendations for students
1	Introduction in EViews and/or R	Presentation using multimedia equipment.	1 seminar
2	Vizualization of bivariate datasets. Sources of economic data.	Idem	1 seminar
3	The simple linear regression model: parameters estimation; interpretation of the estimates; testing the goodness of fit of the regression model; statistical inference on the parameters; coefficient of determination; linear corelation coefficient; residuals analysis (testing the normality of errors assumption): analysis and clarification of some issues that may occur in the analysis of residuals; forcasts of the values of the dependent variable.	idem	4 seminars
4	Multiple regression model.	idem	2 seminars
5	Heteroscedasticity analysis	idem	1 seminar
6	Error autocorelation analysis	idem	1 seminar
7	Multicolinearity analysis	idem	1 seminar
8	Nonliniar regression models.	idem	1 seminar
9	Project presentation.	idem	1 seminar
10	Recap.	idem	1 seminar

Bibliography

- Gujarati, D., Basic Econometrics, McGraw-Hill, ed. a 4-a, 2004
- Andrei T., Bourbonnais R, Econometrie, Economică, Bucureşti, 2008
- Greene, W., Econometric Analysis, Prentice Hall, New Jersey, 2008
- Andrei, T., Stancu, S., Iacob, A., I., Tusa, E, Introducere în econometrie utilizând EViews, Economică, Bucureşti, 2008
- Robert I. Kabacoff, R in Action. Data Analysis and Graphics with R, Manning Publications Co, 2011
- Voineagu V., Ţiţan E., Şerban R., Ghită S., Todose D., Boboc C., Pele D.,, Teorie şi Practică Econometrică, Meteor Press, Bucureşti, 2007

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 courses and seminars will be concentrated on a quantitative of the economice phenomena

10. Assessment

Type of activity	Assessment criteria	Assessment methods	Percentage in the final grade
10.1. Lectures(C)	Knowledge evaluation - quizzes	Correctness of the exercises solutions.	10.00
10.2. Seminars(S)	Term project	Completeness and correctness of the project requirements.	20.00
10.3. Seminars(S)	Knowledge evaluation	Active participation during the seminar.	10.00
10.4. Final assessment	Knowledge evaluation	Written exam onsite (campus) or online.	60.00
10.5. Modality of grading	Whole notes 1-10		
10.6. Minimum standard of performance	- The term project in teams of at mosr three students should be presented at seminar, and sent in electronic format (by email or uploaded on the blended learning platform). - The final grade is calculated as weighted average of the activities.		

Date of listing,
11/09/2026

Signature of the discipline leaders,

Date of approval in the department

Signature of the Department Director,