



COURSE DESCRIPTION
Business Applied Statistics
Academic year 2026-2027

1. Programme-related data

1.1. Higher Education Institution	Babeș-Bolyai University
1.2. Faculty	Business
1.3. Department	Business
1.4. Field	Business Administration
1.5. Level of study	Bachelor
1.6. Degree programme / Qualification	Business Administration in Hospitality Services /Bachelor in Economic Studies
1.7. Form of education	Full time

2. Information regarding the discipline

2.1. Name of the discipline	Business Applied Statistics			Discipline code	ILE0047
2.2. Course coordinator	Assoc.prof Gabriela Petrușel, PhD				
2.3. Seminar coordinator	Assoc.prof. Gabriela Petrușel, PhD				
2.4. Year of study	1	2.5. Semester	2	2.6. Type of assessment	Exam
2.7. Course status	Compulsory			2.8. Course type	Core subject

3. Total estimated time (hours per semester of teaching activities)

3.1. Number of hours per week	4	of which: 3.2. course	2	3.3. seminar/ laboratory/ project	2
3.4. Total of hours in the curriculum	56	of which: 3.5. course	28	3.6. seminar/ laboratory	28
Time allocation for individual study (IS) and self-taught activities (ST)					hours
Learning from textbooks, course materials, bibliography, and notes (IS)					14
Additional research in the library, on subject-specific electronic platforms, and on-site					14
Preparing seminars/ laboratories/ projects, assignments, reports, portfolios, and essays					28
Tutoring (professional guidance)					2
Examinations					2
Other activities					9
3.7. Total hours of individual study (IS) and self-taught activities (ST)				69	
3.8. Total hours per semester				125	
3.9. Number of credits				5	

4. Prerequisites (where applicable)

4.1. curriculum-related	
4.2. skills-related	

5. Specific conditions (where applicable)

5.1. course-related	classroom with computer and projector;
5.2. seminar/laboratory-related	classroom with computer and projector;

6.1. Competencies resulting from the completion of the degree programme

Professional competencies	
Competency code	Competency
PC1	Gathering, processing, and analysing economic data for business management.
Transversal competencies	
Competency code	Competency
TC1	Implementing professional and ethical principles, norms and values within one's own rigorous, efficient and responsible strategy of work.

6.2. Learning outcomes relevant to the degree programme

Learning outcomes targeted by the subject		
Competency code	Knowledge and comprehension	Specific academic skills
PC1 TC1	1. The student/graduate identifies the role of statistics in the analysis of economic and social phenomena, applies quantitative techniques for optimal decision-making in economic and social systems, and uses statistical methods in the analysis of economic and social phenomena. The student/graduate develops practices related to the application of economic techniques and instruments for conducting economic and financial analyses and forecasts, as well as the application of quantitative methods for data analysis through the testing and interpretation of econometric models.	1. The student/graduate recognizes and applies the main statistical methods for the analysis of economic and social phenomena, applies statistical methods in the measurement and analysis of socio-economic processes at the macroeconomic level, analyses the concepts, models, and forecasting methods of socio-economic phenomena, recognizes the concepts, principles, methods, and techniques for organizing partial statistical observation, and indicates the ways of ensuring the instruments required for the quantitative and qualitative analysis of economic phenomena. The student/graduate efficiently uses software packages for data analysis through statistical and econometric methods, applying concepts, theories, principles, and investigative tools specific to the study of economic and social phenomena and processes.

PC1 TC1	2. The student/graduate operates with concepts, indicators, models, instruments, and mathematical methods for the analysis and optimization of managerial processes in relation to the organizational environment. The student/graduate uses elements of financial mathematics, optimization of multivariable functions, forecasting the evolution of economic indicators over time, probabilistic modelling of economic phenomena occurring under conditions of risk and uncertainty, evaluation of statistical indicators characterizing economic phenomena, and estimation of model parameters. The student/graduate identifies, differentiates, and coherently analyses the concepts, models, and quantitative methods required in the decision-making process within organizations.	2. The student/graduate models an economic process and its determining factors by using multivariable functions. The student/graduate uses mathematical algorithms to determine the optimal solution to a maximization or minimization problem of a function modelling a performance indicator. The student/graduate probabilistically models scenarios for the evolution of an economic phenomenon, evaluates the outcome associated with each scenario, and estimates the expected result based on the identified scenarios by using numerical characteristics of random variables (mean value, variance, correlation coefficient). The student/graduate analyses data, estimates the parameters of a statistical model, and substantiates managerial decisions based on these analyses. The student/graduate quantifies the time value of a capital flow by using financial mathematics models.
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7. Subject-specific learning outcomes

Knowledge and understanding
1. The student/graduate knows data collection methods and how to carry out statistics for the purpose of testing and evaluation in order to generate statements and pattern predictions, with the aim of discovering useful information in the decision-making process.
2. The Student/Graduate has knowledge of using software tools for creating and editing tabular data to perform mathematical calculations, to organize data and information, to create data-based charts, and to retrieve them.
3. The student/graduate knows the fundamental concepts of probability theory.
4. The student/graduate knows the main models and probability distributions used in the analysis of economic phenomena
Specific academic skills
1. The Student/Graduate applies methods of organizing and processing statistical data, constructing data series and calculating relevant statistical indicators, using dedicated software.
2. The student/graduate analyzes and interprets statistical data using graphical representations and synthetic indicators, in order to describe economic phenomena.
3. The student/graduate applies probabilistic models for the analysis of economic phenomena under conditions of risk and uncertainty, using distributions and numerical characteristics of random variables.
4. The Student/Graduate models and interprets simple probabilistic scenarios, estimating probabilities and expected values to support decision-making.

8. Contents

8.1. Course	Teaching and learning methods	Remarks
Basic probability concept	interactive discussion; problems	• Events. Combination of events. Event probability • Conditional probability • Independent events
Classical probability scheme	interactive discussion; problems	• Binomial scheme • Polynomial scheme • Hyper geometric scheme • Poisson's scheme • Pascal's scheme

Discrete random variables	interactive discussion; problems	• Distribution • Cumulative probability function • Expected value, variance, standard deviation
Continuous random variables	interactive discussion; problems	• Distribution • Cumulative probability function • Expected value, variance, standard deviation
Discrete probability distributions	interactive discussion; problems	• Binomial distribution • Hyper geometric distribution • Poisson distribution
Continuous probability distribution	interactive discussion; problems	• Uniform distribution • Exponential distribution • Gamma distribution • Beta distribution • Log-normal distribution • Traingular distribution • Normal distribution
Continuous probability distribution	interactive discussion; problems	Normal distribution
Random variables sequences	interactive discussion; problems	• Convergence notions • Law of large numbers • Limit theorems
Basic concept of descriptive statistics	interactive discussion; case study	• Data • Element • Population • Sample • Variable
Organizing data. Frequencies. Tables.	interactive discussion; case study	• Tabulation • Crosstabulation
Organizing data. Charts and Graphs	interactive discussion; case study	• Barchart • Piechart • Histogram • Frequency poligon
Describing data. Central tendency. Location.	interactive discussion; case study	• Mean value • Median • Mode • Quartiles
Describing data. Variability	interactive discussion; case study	• Variance • Standard deviation • Interquartile range
Revision		
Bibliography		
1. Carter Hill, R., Griffiths, W.E., Lim, G.C., Principles of Econometrics, 5th Edition, 2018, Wiley 2. Briand, G., Carter Hill, R., Using Excel for Principles of Econometrics, 5th Edition, 2018, E-book. 3. Brandimarte P., <i>Quantitative Methods – an introduction for Business Management</i>, Wiley&Sons, 2011 4. Berenson M.L., Levine D.M., Krehbiel T.C., <i>Basic Business Statistics. Concepts and applications</i>, 11th edition, Pearson Education, 2009; 5. Anderson D., Sweeney D., Williams T., <i>Quantitative Methods for Business</i>, Thomas Learning, London, 2001. (biblioteca facultății) 6. Fleming M.C., Nellis J.G., <i>Principles of Applied Statistics, Second Edition</i>, Thomas Learning, 2000. (biblioteca facultății)		
8.2. Seminar/ laboratory	Teaching and learning methods	Remarks
Basic probability concept	interactive discussion; problems	• Events. Combination of events. Event probability • Conditional probability • Independent events

Classical probability scheme	interactive discussion; problems	• Binomial scheme • Polynomial scheme • Hyper geometric scheme • Poisson's scheme • Pascal's scheme
Discrete random variables	interactive discussion; problems	• Distribution • Cumulative probability function Expected value, variance, standard deviation
Continuous random variables	interactive discussion; problems	• Distribution • Cumulative probability function • Expected value, variance, standard deviation
Discrete probability distributions	interactive discussion; problems	• Binomial distribution • Hyper geometric distribution • Poisson distribution
Continuous probability distribution	interactive discussion; problems	• Uniform distribution • Exponential distribution • Gamma distribution • Beta distribution • Log-normal distribution • Traingular distribution • Normal distribution
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9. Evaluation

- The same evaluation criteria are maintained for all exams sessions. The components of the evaluation process carried out during the semester cannot be recovered/redone in the examination sessions.
- To be able to accumulate the points obtained during the semester, it is mandatory to obtain a minimum of 5 (five) in the final exam (written/oral).

Type of activity	9.1 Evaluation criteria	9.2 Evaluation methods	9.3 Percentage in the final grade
9.4. Course	- understanding fundamental statistical concepts (variables, series, indicators); - the ability to apply statistical methods, interpret the results obtained; - understanding probability concepts (events, random variables) - applying probability distributions - solving probability problems	final exam (in the exams session)	50%
9.5. Seminar/ laboratory	-application of statistical methods on data sets -application of probabilistic models and solving simple risk scenarios -interpretation of results and formulation of conclusions - Involvement and activity in the seminar	control papers (during the semester) applicative activities (projects, essays, reports (during the semester) the active participation in seminars	30% 10% 10%
9.6 Minimum standard for passing			
For the minimum grade (5), students must			
- Know the fundamental concepts and to be able to apply them. - To give an interpretation of the results.			

10. SDG labels (Sustainable Development Goals)

								
1 FĂRĂ SĂRĂCIE	2 FOAMETE "ZERO"	3 SĂNĂTATE ȘI BUNĂSTĂRE	4 EDUCATIE DE CALITATE	5 EGALITATE DE GEN	6 APĂ CURATĂ ȘI SĂNĂTATE	7 ENERGIE CURATĂ ȘI LA PREȚURI ACCESIBILE	8 MUNCĂ DECENTĂ ȘI CREȘTERE ECONOMICĂ	9 INDUSTRIE, INOVATIE ȘI INFRASTRUCTURĂ
								Nu se aplică nici o etichetă
								X

Date of entry:

22.05.2026

Signature of course coordinator

Assoc.prof Gabriela Petrușel, PhD

Signature of seminar coordinator

Assoc.prof Gabriela Petrușel, PhD

Date of approval in the department:

27.05.2026

Signature of the head of department

Prof. Ioan Cristian CHIFU, PhD