



**SYLLABUS**  
**Business Applied Statistics**  
Academic year 2025-2026

**1. Information regarding the program**

1.1. Higher education institution	Universitatea Babeș Bolyai
1.2. Faculty	Business
1.3. Department	Business
1.4. Field of study	Business Administration
1.5. Study cycle	Bachelor
1.6. Study programme/Qualification	Business Administration (in English)/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 evaluation	E	2.7. Discipline regime	compulsory	

**3. Total estimated time (hours/semester of didactic activities)**

3.1. Hours per week	4	of which: 3.2 course	2	3.3 seminar/laboratory	2
3.4. Total hours in the curriculum	56	of which: 3.5 course	28	3.6 seminar/laboratory	28
<b>Time allotment for individual study (ID) and self-study activities (SA)</b>					<b>hours</b>
Learning using manual, course support, bibliography, course notes (SA)					14
Additional documentation (in libraries, on electronic platforms, field documentation)					14
Preparation for seminars/labs, homework, papers, portfolios and essays					28
Tutorship					2
Evaluations					2
Other activities:					9
<b>3.7. Total individual study hours</b>					<b>69</b>
<b>3.8. Total hours per semester</b>					<b>125</b>
<b>3.9. Number of ECTS credits</b>					<b>5</b>

**4. Prerequisites (if necessary)**

4.1. curriculum	
4.2. competencies	

**5. Conditions (if necessary)**

5.1. for the course	classroom with computer and projector;
5.2. for the seminar /lab activities	classroom with computer and projector;



### 6.1. Specific competencies acquired

Professional/essential competencies	<p>C1. Gathering, processing, and analysing data regarding the interaction between a company/ an organisation and the external environment.</p> <p>C1.4. Assessing critically and constructively the way of explaining and/or solving problems referring to the economic influence of the external environment on a company/an organization.</p> <p>C2. Providing assistance for running a company/ an organisation as a whole.</p> <p>C2.2. Explaining and interpreting the relationships among various entities in a company/ an organisation.</p>
Transversal competencies	<p>CT.1. Implementing ethical principles, norms, and values within one's own rigorous, efficient, and responsible strategy of work.</p>

### 6.2. Learning outcomes

Knowledge	<p>The student has knowledge of accounting, processing, and analysis of economic and financial information required for an effective organisation and management of businesses.</p> <ul style="list-style-type: none"><li>Knows methods of collecting data and making statistics for testing and evaluation to generate statements and pattern predictions, in order to discover useful information in the decision-making process.</li><li>Has knowledge of using software tools for creating and editing tabular data to perform mathematical calculations, organize data and information, create data-driven charts, and retrieve them.</li></ul>
Skills	<p>The student has the necessary skills to use methods and techniques specific to the financial and accounting management of an enterprise as a whole, specialised software included.</p> <ul style="list-style-type: none"><li>Use dedicated software for data analysis, including statistics, spreadsheets and databases, explore the possibilities to prepare reports to administrators, superiors or customers.</li></ul>
Responsibility and autonomy:	



## 7. Objectives of the discipline (outcome of the acquired competencies)

<b>7.1 General objective of the discipline</b>	<ul style="list-style-type: none"> <li>acquire knowledge and skills in several areas of mathematics, economics and business critical applications;</li> <li>learning the fundamentals of probability;</li> <li>communication skills in probability and statistical language</li> </ul>
<b>7.2 Specific objective of the discipline</b>	<ul style="list-style-type: none"> <li>Learning key concepts of probability theory;</li> <li>Understanding of some concepts like experiment, event, probability of an event;</li> <li>Understand random variable as numerical description of the outcome of an experiment;</li> <li>Understand the importance of studying the probability distributions;</li> <li>The ability to apply statistical techniques in marketing, finance, economics, etc.</li> <li>Learning different ways of organizing, analyzing, presenting and interpreting statistical data;</li> <li>Learning the main parameters characterizing a statistical series and understand their importance in the study series.</li> </ul>

## 8. Content

8.1 Course	Teaching methods	Remarks
Basic probability concept	interactive discussion	<ul style="list-style-type: none"> <li>Events. Combination of events. Event probability</li> <li>Conditional probability</li> <li>Independent events</li> </ul>
Classical probability scheme	interactive discussion	<ul style="list-style-type: none"> <li>Binomial scheme</li> <li>Polynomial scheme</li> <li>Hyper geometric scheme</li> <li>Poisson's scheme</li> <li>Pascal's scheme</li> </ul>
Discrete random variables	interactive discussion	<ul style="list-style-type: none"> <li>Distribution</li> <li>Cumulative probability function</li> <li>Expected value, variance, standard deviation</li> </ul>
Continuous random variables	interactive discussion	<ul style="list-style-type: none"> <li>Distribution</li> <li>Cumulative probability function</li> <li>Expected value, variance, standard deviation</li> </ul>
Discrete probability distributions	interactive discussion	<ul style="list-style-type: none"> <li>Binomial distribution</li> <li>Hyper geometric distribution</li> <li>Poisson distribution</li> </ul>
Continuous probability distribution	interactive discussion	<ul style="list-style-type: none"> <li>Uniform distribution</li> <li>Exponential distribution</li> <li>Gamma distribution</li> <li>Beta distribution</li> <li>Log-normal distribution</li> <li>Traingular distribution</li> <li>Normal distribution</li> <li>Gosset distribution</li> <li>Helmert-Pearson distribution</li> </ul>
Continuous probability distribution	interactive discussion	Normal distribution



Random variables sequences	interactive discussion	<ul style="list-style-type: none"> <li>• Convergence notions</li> <li>• Law of large numbers</li> <li>• Limit theorems</li> </ul>
Basic concept of descriptive statistics	interactive discussion	<ul style="list-style-type: none"> <li>• Data</li> <li>• Element</li> <li>• Population</li> <li>• Sample</li> <li>• Variable</li> </ul>
Organizing data. Frequencies. Tables.	interactive discussion	<ul style="list-style-type: none"> <li>• Tabulation</li> <li>• Crosstabulation</li> </ul>
Organizing data. Charts and Graphs	interactive discussion	<ul style="list-style-type: none"> <li>• Barchart</li> <li>• Piechart</li> <li>• Histogram</li> <li>• Frequency polygon</li> </ul>
Describing data. Central tendency. Location.	interactive discussion	<ul style="list-style-type: none"> <li>• Mean value</li> <li>• Median</li> <li>• Mode</li> <li>• Quartiles</li> </ul>
Describing data. Variability	interactive discussion	<ul style="list-style-type: none"> <li>• Variance</li> <li>• Standard deviation</li> <li>• Interquartile range</li> </ul>
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> , 11 <sup>th</sup> 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	Metode de predare	Observații
Basic probability concept	exercises, case study	<ul style="list-style-type: none"> <li>• Events. Combination of events. Event probability</li> <li>• Conditional probability</li> <li>• Independent events</li> </ul>
Classical probability scheme	exercises, case study	<ul style="list-style-type: none"> <li>• Binomial scheme</li> <li>• Polynomial scheme</li> <li>• Hyper geometric scheme</li> <li>• Poisson's scheme</li> <li>• Pascal's scheme</li> </ul>
Discrete random variables	exercises, case study	<ul style="list-style-type: none"> <li>• Distribution</li> <li>• Cumulative probability function</li> <li>• Expected value, variance, standard deviation</li> </ul>
Continuous random variables	exercises, case study	<ul style="list-style-type: none"> <li>• Distribution</li> <li>• Cumulative probability function</li> <li>• Expected value, variance, standard deviation</li> </ul>



Discrete probability distributions	exercises, case study	<ul style="list-style-type: none"> <li>• Binomial distribution</li> <li>• Hyper geometric distribution</li> <li>• Poisson distribution</li> </ul>
Continuous probability distribution	exercises, case study	<ul style="list-style-type: none"> <li>• Uniform distribution</li> <li>• Exponential distribution</li> <li>• Gamma distribution</li> <li>• Beta distribution</li> <li>• Log-normal distribution</li> <li>• Traingular distribution</li> <li>• Normal distribution</li> <li>• Gosset distribution</li> <li>• Helmert-Pearson distribution</li> </ul>
Continuous probability distribution	exercises, case study	Normal distribution
Random variables sequences	exercises, case study	<ul style="list-style-type: none"> <li>• Convergence notions</li> <li>• Law of large numbers</li> <li>• Limit theorems</li> </ul>
Basic concept of descriptive statistics	exercises, case study	<ul style="list-style-type: none"> <li>• Data</li> <li>• Element</li> <li>• Population</li> <li>• Sample</li> <li>• Variable</li> </ul>
Organizing data. Frequencies. Tables.	exercises, case study	<ul style="list-style-type: none"> <li>• Tabulation</li> <li>• Crosstabulation</li> </ul>
Organizing data. Charts and Graphs	exercises, case study	<ul style="list-style-type: none"> <li>• Barchart</li> <li>• Piechart</li> <li>• HistogramFrequency poligon</li> </ul>
Describing data. Central tendency. Location.	exercises, case study	<ul style="list-style-type: none"> <li>• Mean value</li> <li>• Median</li> <li>• Mode</li> <li>• Quartiles</li> </ul>
Describing data. Variability	exercises, case study	<ul style="list-style-type: none"> <li>• Variance</li> <li>• Standard deviation</li> <li>• Interquartile range</li> </ul>
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**9. Corroborating the content of the discipline with the expectations of the epistemic community, professional associations and representative employers within the field of the program**

The course content is correspondence with what is done in other universities in the country and abroad.  
To adapt to the market demands of the contents meetings were held with representatives of the business community



**10. 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).

Activity type	10.1 Evaluation criteria	10.2 Evaluation methods	10.3 Percentage of final grade
10.4 Course	<ul style="list-style-type: none"><li>• correct logical and coherent application of the concepts learned</li><li>• logical and accurate explanation and interpretation of the results;</li></ul>	final exam (in exams session)	50%
10.5 Seminar/laboratory	<ul style="list-style-type: none"><li>• apply concepts learned in practice</li><li>• correct logical and coherent application of the concepts learned</li><li>• economic explanation of the results;</li><li>• interest in the individual preparation throughout the whole semester</li></ul>	applicative activities (projects, essays, reports -during the semester)	10%
		control papers (during the semester)	30%
		the active participation in seminars	10%
10.6 Minimum standard of performance			
For the minimum grade (5), students must			
<ul style="list-style-type: none"><li>• Know the fundamental concepts and to be able to apply them.</li><li>• To give an interpretation of the results.</li></ul>			



### 11. Labels ODD (Sustainable Development Goals)<sup>1</sup>

**Date:**  
28.03.2025

**Signature of course coordinator**  
Assoc.prof Gabriela Petrușel, PhD

**Signature of seminar coordinator**  
Assoc.prof Gabriela Petrușel, PhD

**Date of approval:**  
10.04.2025

**Signature of the head of department**  
Ioan Cristian CHIFU, PhD

<sup>1</sup> Keep only the labels that, according to the [Procedure for applying ODD labels in the academic process](#), suit the discipline and delete the others, including the general one for *Sustainable Development* – if not applicable. If no label describes the discipline, delete them all and write „Not applicable.”.