SYLLABUS
Academic Year 2024-2025
Year of study I / Semester II

1. Information on academic program

1.1. University	**"1 Decembrie 1918" University of Alba Iulia**
1.2. Faculty	**Faculty of Economics**
1.3. Department	**Business Administration and Marketing**
1.4. Field of study	**Business Administration**
1.5. Study cycle	**Bachelor**
1.6. Study program/qualifications/ESCO code	**Business Administration 242102 Process Improvement Specialist, 242104 Process Manager, 242110 Specialist in Planning, Control, and Reporting of Economic Performance; ESCO Code: 2421 - Management and Organisation Analysts**

2. Information of Course Matter

2.1. Name of discipline	**Statistics**			2.2. Subject code	**BA122**		
2.3. Course titular	Prof. Nicoleta Breaz, Ph. D., Habil						
2.4. Seminar titular	Prof. Nicoleta Breaz, Ph. D., Habil.						
2.5. Academic Year	**I**	2.6. Semester	**II**	2.7. Type of Evaluation (E – final exam/ CE - colloquy examination / CA -continuous assessment)	**E**	2.8. Type of course (**C**– Compulsory, **Op** – optional, **F -** Facultative)	**C**

3. Course Structure

3.1. Number of hours per week	**3**	3.2. course	**2**	3.3. seminar, laboratory	**1**
3.4. Number of hours in education plan	**42**	3.5. course	**28**	3.6. seminar, laboratory	**14**
Time distribution					hours
a. Study time for textbook, course, bibliography, notes					**20**
b. Supplementary documentation in library, on specialty electronic platforms, and field work					**20**
c. Preparation for seminars/labs, homework, papers, portfolios, and essays					**40**
d. Tutorial activities					**1**
e. Examination					**1**
f. Other academic activities (study visits, projects, etc.)…….					**1**

3.7 Total number of hours for individual study (a+b+c)	80
3.8 Total number of hours for academic activities (d+e+f+3.4)	45
3.9 Total number of hours per semester (3.7+3.8)	125
3.10 Number of ECTS	5

4. Prerequisites (if such is the case)

4.1. about curriculum	*It is recommended to attend the following course from previous semester:* ***Mathematics Applied to Economics BA 112***
4.2. about competences	R5 Performs data analysis R11 Analyzes business plans R17 Manages corrective actions R22 Thinks analytically

5. Requisits (if needed)

5.1. for course development	*Lectures, argumentation, discussions, examples and other teaching methods, the use of edited courses for both the theory and practice, other bibliographic sources from the library (books in the field of statistics, statistical yearbooks, etc.)* *The materials for the course are also uploaded to Microsoft Teams.* ***Note: The students are strongly encouraged to attend the course, in order to gain knowledge for practical applications.***
5.2. for seminar/lab	*The seminars are developed according with the edited course from the library, both for theory and*

	practice and in accordance with other bibliographic sources available in the Library (exercise books in the field of statistics, statistical yearbooks, etc.). Students are encouraged to solve various problems specific to this course. The didactic strategies employed involve the students' active participation in the education process: case studies, discovery, theory motivation with examples, and other modern didactic strategies. ***Note: Students are advised to attend all the seminars, in order to understand every step of the statistical applications.***

6. Specific competences acquired

Competences/Study results	R2/C2 Manages project evaluation indicators R14/C14 Conducts quantitative research
Transversal competences	R22/CT2 Thinks analytically

7. Course objectives (arising from the acquired specific competencies)

7.1 General objectives of the course	The general aim of the discipline consists in forming data analysis skills in order to manage project evaluation indicators and conduct quantitative research, thinking analytically.
7.2 Specific objectives of the course	The following specific aims are considered: to understand the fundamental concepts in statistics (statistical population, sample, etc.); to collect and organize the statistics resulted from the observation of a sample or certain populations; to form skills for statistical data processing and analysis, to acquire the capacity to analyze and interpret statistical results; to extend the characteristics resulted at sample level for the statistical population; to use probabilistic calculation with the purpose of estimation, using statistical hypotheses testing. The course provides the skills for conducting quantitative research.

8. Content

8.1 Course	**Teaching methods**	**Remarks**
CHAPTER I. Main concepts in statistics (4 hours) 1. Statistical population, sample, statistical unit and volume 2. Statistical variable 3. Statistical observation 4. Statistical indicator 5. Statistical series	***Lecture, discussions, argumentations, examples***	N. Breaz, ***Statistics-Theory And Applications***, electronic version, 2024
CHAPTER II. Observation, systematization and graphical representation of the statistical data (4 hours) 1. Steps of statistical observation 2. Systematization of the observation's results 3. Graphical representation of statistical series	***Lecture, discussions, argumentations, examples***	N. Breaz, ***Statistics-Theory And Applications***, electronic version, 2024
CHAPTER III. Statistical parameters (10 hours) 1. Parameters of central tendency (main trend) 2. Parameters of structure 3. Parameters of variance	***Lecture, discussions, argumentations, examples and learning by discovery***	N. Breaz, ***Statistics-Theory And Applications***, electronic version, 2024
CHAPTER IV. Correlation and regression(6 hours) 1. Basics concepts 2. Statistical analysis of the existence of correlation 3. Statistical analysis of the intensity degree of correlation 4. Making an hypothesis about the mathematical form of the correlation 5. Calculus of regression parameters 6. Statistical analysis of representativity of the regression model	***Lecture, discussions, theory argumentations with examples and learning by discovery***	N. Breaz, ***Statistics-Theory And Applications***, electronic version, 2024
CHAPTER V. Introduction to inferential statistics (4 hours) 1. Basic concepts, probabilities and sampling 2. Estimation of unknown parameters based on confidence intervals 3. Hypothesis testing	***Lecture, discussions, argumentations, examples***	N. Breaz, ***Statistics-Theory And Applications***, electronic version, 2024
Bibliography 1. A. Agresti, C. Franklin, B. Klingenberg, Statistics, the art and science of learning from data, Pearson Education		

Limited, 2022
2. N. Breaz, ***Statistics- Theory And Applications***, electronic version, 2024
3. K. Carlson, J. Winquist, An introduction to statistics, An active learning approach, Sage Publications Inc., 2021
4. D. Freedman, R. Pisani, R. Purves, ***Statistics,*** New York; London:Norton&Company,1998
5. T. Haslwanter, An introduction to statistics with Python, Springer International Publishing AG, 2018
6. L.D., Hoffmann, ***Calculus For Business, Economics And The Social And Life Sciences***, McGraw-Hill Book Company,1986
7. R.I. Levin***, Statistics For Management,*** New Jersey:Prentice-Hall,1976
8. G. R. Loftus, E.F. Loftus***, Essence Of Statistics,*** New York: Alfred A. Knopf,1988
9. S. Nolan***, Introductory Statistics: Student Solutions Manual***, Prentice Hall, 2006.
10. A. Siegel, ***Practical Business Statistics***, 6th Edition, Elsevier, Academic Press, 2011
11. G. Smith, ***Essential Statistics, Regression, and Econometrics,*** 1st Edition, Elsevier, Academic Press, 2011
12. L. Swift, ***Mathematics And Statistics For Business, Management And Finance,*** Hampshire: MacMillan Publishers LTD,1997

8.2. Seminar		
S1. Examples for the main concepts in statistics (2 hours) - statistical universe, sample, statistical unit, volume - statistical variable, random variable - statistical observation - statistical indicator - statistical series	**Coordination and verification of seminar applications, examples, case studies**	N. Breaz, ***Statistics- Theory And Applications***, electronic version, 2024
S2. Applications for statistical observation, systematization and presentation of data (2 hours) 2.1. Application for the statistical observation 2.2. Application and examples about data systematization, elaboration of primary series, derived series and chronological series 2.3. Application for statistical series presentation and graphical representation	**Coordination and verification of seminar applications, examples, case studies**	N. Breaz, ***Statistics- Theory And Applications***, electronic version, 2024
S3. Parameters calculus (5 hours) 3.1. Calculation and interpretation of the parameters of the central tendency, mean value, median value, modal value 3.2. Calculation and interpretation of the parameters of structure 3.3. Calculation and interpretation of the parameters of variance	**Coordination and verification of seminar applications, examples, case studies**	N. Breaz, ***Statistics- Theory And Applications***, electronic version, 2024
S4. Applications and case studies for correlation and regression (3 hours) 4.1. Applications for statistical analysis of the existence of correlation 4.2. Applications for statistical analysis of the intensity degree of correlation 4.3. Case studies about the mathematical form of the correlation 4.4. Calculus techniques for the regression parameters 4.5. Applications for representativity of the regression model	**Coordination and verification of seminar applications, examples, case studies**	Breaz, ***Statistics- Theory And Applications***, electronic version, 2024
S.5. Applications to inferential statistics (2 hours) 5.1. Examples of sample, random variable, sampling vectors, estimators 5.2. Applications for estimation of unknown parameters based on confidence intervals- confidence interval for unknown mean 5.3. Applications for hypothesis testing-significance test for unknown mean Synthesis applications	**Coordination and verification of seminar applications, examples, case studies**	N. Breaz, ***Statistics- Theory And Applications***, electronic version, 2024

Bibliography

1. A. Agresti, C. Franklin, B. Klingenberg, Statistics, the art and science of learning from data, Pearson Education Limited, 2022
2. N. Breaz, ***Statistics- Theory And Applications***, electronic version, 2024
3. K. Carlson, J. Winquist, An introduction to statistics, An active learning approach, Sage Publications Inc., 2021
4. D. Freedman, R. Pisani, R. Purves, ***Statistics,*** New York; London:Norton&Company,1998

5. T. Haslwanter, An introduction to statistics with Python, Springer International Publishing AG, 2018
6. L.D., Hoffmann, ***Calculus For Business, Economics And The Social And Life Sciences***, McGraw-Hill Book Company,1986
7. R.I. Levin***, Statistics For Management,*** New Jersey:Prentice-Hall,1976
8. G. R. Loftus, E.F. Loftus***, Essence Of Statistics,*** New York: Alfred A. Knopf,1988
9. S. Nolan***, Introductory Statistics: Student Solutions Manual***, Prentice Hall, 2006.
10. A. Siegel, ***Practical Business Statistics***, 6th Edition, Elsevier, Academic Press, 2011
11. G. Smith, ***Essential Statistics, Regression, and Econometrics***, 1st Edition, Elsevier, Academic Press, 2011
12. L. Swift, ***Mathematics And Statistics For Business, Management And Finance,*** Hampshire: MacMillan Publishers LTD,1997

9. Corroboration of the course content with the expectations of the representatives of epistemic communities, professional associations and representative employees in the field of the programme

Since it provides the skills for statistical calculation and analysis, and the understanding of the phenomena from the economic field, mainly in the field of business administration, the course leads to a well trained economist, able to operate with indicators employed in phenomena specific to the field, to understand and control the respective phenomena through correlations and statistical analysis, i.e. the course helps the graduates to adapt themselves to various fields of activity on the labor market where specialists in business administration are needed.

10. Assessment

Type of activity	10.1 Assessment criteria	10.2 Assessment methods	10.3 Weight of the final grade
10.4 Course	*- to understand the fundamental concepts of statistics* *- to use the statistical methods and formula correctly* *- to interpret the obtained results correctly*	***Final assessment – written exam*** *Assessment of the statistical knowledge during the synthesis problem solving process*	70%
10.5 Seminar/lab	*- original examples and applications proposed in their own homework* *- to solve correctly the statistical problems during the seminars*	***Verification during the semester :*** *assessment of the practical skills in solving statistical problems, by assessing the individual portfolio with applicative works and also the student's activity and involvement during the classes.*	30%
10.6 Minimum performance standard: obtaining minimum grade 5			
For the minimum performance standard, the student should demonstrate competence in understanding and working with statistical concepts and in interpretation of the main statistical parameters (for credits, at least the average value and the dispersion of a variable must be calculated, for both tasks)**, in order to conduct quantitative research.** The minimum performance standard requested for the present course contributes to the accomplishment of the minimum performance standard for assessing the specific competences in the field, as **thinking analytically.** **Note: See also pct. 5 (conditions) about the attendance. At the same time, the student who is not present at the final exam will be mentioned as being absent, no matter the grade obtained at the examination during the semester.**			

Fill in date 12.09.2024	Course leader's signature, Prof. Nicoleta Breaz, Ph. D., Habil	Seminar tutor's signature, Prof. Nicoleta Breaz, Ph. D., Habil
Approval date in departament 16.09.2024		Department director's signature, PhD Assoc.Prof. Maican Silvia