



BACHELOR'S DEGREE IN BUSINESS ADMINISTRATION

Course	Business Statistics I	Code	802268
Module	Basic Education	Area	Statistics
Character	Basic		
Credits	6	Attendance	2,7
		Non attendance	3,3
Year	First	Semester	2

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SYNOPSIS

SHORT DESCRIPTOR
Descriptive Statistics: Methods for Describing One and Two-Variable Sets of Data. Probability Theory: Basic Probability Concepts. Discrete and Continuous Probability Distributions Models. Convergence of Random Variables.
PRE-REQUIREMENTS
The same for the degree. It is recommended to have taken and passed Maths in the university access examination (PAU).
OBJECTIVES
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To learn the necessary concepts and statistical methods to be able to study and interpret the statistical phenomena that appear in the economic and business environment.
COMPETENCES
General: CG1, CG2, CG3, CG4



Cross-sectional: CT1, CT2, CT3, CT4

Specific: CE3, CE4

LEARNING METHODOLOGY

A mixed methodology of teaching and learning will be used in all educational activities with the aim of encouraging students to develop a collaborative and cooperative attitude in the pursuit of knowledge.

TOPICS COVERED

(Syllabus)

Chapter 1. Statistical thinking

Part 1. Descriptive Statistics

Chapter 2. Data Collection and the Survey Method

- Data sources
- Types of variables
- Sampling

Chapter 3. Describing Data: Tables and Graphs

- Frequency tables.
- Graphical presentation of one variable data.
- Tables and graphs to describe relationships between variables
- Data presentation errors

Chapter 4. Using Numerical Measures to Describe Data

- Measures of central tendency.
- Measures of the relative standing. Quartiles. Percentiles. Z-score.
- Measures of variation.
- Measures of shape. Skewness and Kurtosis.

Chapter 5. Bivariate Data Analysis

- Bidimensional frequency tables. Joint and Marginal distributions.
- Statistical independence.
- Regression and correlation.

Part 2. Elements of Probability theory

Chapter 6. Probability

- Random experiment, outcomes, and events.
- Probability and its postulates.
- Conditional Probability.
- Law of Total Probability. Bayes' Theorem.

Chapter 7. Discrete Random Variables and Probability Distributions

- Random variables.
- Probability distributions for discrete random variables. Properties.



- Binomial probability distribution.
- Hypergeometric probability distribution.
- Negative binomial probability distribution.
- Poisson probability distribution.

Chapter 8. Continuous Random Variables and Probability Distributions

- Continuous random variables.
- Expectations for continuous random variables.
- The Uniform distribution.
- The Exponential distribution.
- The Normal distribution.

Chapter 9. Jointly Distributed Random Variables

- Bidimensional probability function. Joint and marginal distributions.
- Statistical independence.
- Regression and correlation.
- Central Limit Theorem

TEACHING ACTIVITIES	% OF TOTAL CREDITS	ATTENDANCE
Lectures	20%	100%
Classes	20%	75%
Tutorials	6%	100%
Assessment activities	4%	100%
Homeworks and class assignments	20%	0%
Time to study	30%	0%



EVALUATION		
Exams	% of the final mark	60%
Final Exam		
Other activities	% of the final mark	30%
Carrying out and presentation of individual or group projects Practical cases and exercises solution		
Other activity	% of the final mark	10%
Active participation in the classroom or in seminars		
<p>In the ordinary call the student must decide (in the first and a half month) whether to follow the continuous assessment or not. If the student decides not to follow the continuous assessment and does not sit for the final exam, the rating will be NP (not evaluated). If the student follows the continuous assessment, the final grade will be obtained applying the criteria set in the course tab, even if he/she does not sit for the final exam.</p> <p>In the extraordinary call, if the student does not sit for the exam, the rating will be NP (not evaluated), regardless of whether he/she followed the continuous assessment. In the case the student sits for the exam, the grade will be the result of applying the evaluation criteria set in the course tab.</p> <p>Continuous assessment in the extraordinary examination: in case one student has failed the ordinary examination, having attended the final exam and participated in the continuous assessment, the mark to be considered as continuous assessment for that extraordinary examination will be the final mark obtained in the ordinary examination.</p> <p>IMPORTANT NOTICE: Students are not allowed to use any programmable calculator in the final examination. Only non-programmable scientific calculators will be allowed. Similarly, no electronic translator is allowed in the final examination.</p>		



TENTATIVE SCHEDULE

Session	TOPIC	In the classroom	Outside the classroom
1	Introduction to course. Chapter 1: Statistical thinking: Decision making in an uncertain environment. Chapter 2: Data Collection and the Survey Method. Data sources. Types of variables. Sampling.	Exercises chapter 1 and 2.	Chapter 1 and 2 materials reading. Study chapter 1 and 2 and solve the corresponding exercises.
2	Chapter 3. Describing Data: Tables and Graphs. Frequency tables. Graphical presentation of one variable data. Tables and graphs to describe relationships between variables. Data presentation errors	Exercises chapter 3.	Study chapter 3 and solve the corresponding exercises. Chapter 3 materials reading.
3	Chapter 4. Using Numerical Measures to Describe Data. Measures of central tendency.	Exercises chapter 4.	Study chapter 4 and solve the corresponding exercises.
4	Chapter 4 (cont.) . Measures of the relative standing. Measures of variation. Measures of shape: Skewness and Kurtosis.	Exercises chapter 4.	Study chapter 4 and solve the corresponding exercises. Chapter 5 materials reading.
5	Seminar 1 for group 1. Univariate descriptive statistics.	MS Excel for data analysis	Practice with MS Excel
6	Seminar 1 for group 2. Univariate descriptive statistics.	MS Excel for data analysis	Practice with MS Excel
7	Chapter 5. Bivariate Data Analysis. Bidimensional frequency tables. Joint and Marginal distributions.	Exercises chapter 5.	Study chapter 5 and solve the corresponding exercises.
8	Chapter 5 (Cont.) . Statistical independence.	Exercises chapter 5.	Study chapter 5 and solve the corresponding exercises.
9	Chapter 5 (Cont.) . Regression and correlation.	Exercises chapter 5.	Study chapter 5 and solve the corresponding exercises.
10	Chapter 5 (Cont.) . Regression and correlation.	Exercises chapter 5.	Study chapter 5 and solve the corresponding exercises. Chapter 6 materials reading.
11	Seminar 2 for group 1. Bivariate descriptive statistics.	MS Excel for data analysis	Practice with MS Excel
12	Seminar 2 for group 2. Bivariate descriptive statistics.	MS Excel for data analysis	Practice with MS Excel
13	Chapter 6. Probability. Random Experiment, Outcomes, and Events.	Exercises chapter 6.	Study chapter 6 and solve the



	Probability and its Postulates. Conditional Probability.		corresponding exercises.
14	Chapter 6 (Cont.) . Full probability formula. Bayesian Theorem.	Exercises chapter 6.	Study chapter 6 and solve the corresponding exercises. Chapter 7 materials reading.
15	Chapter 7 . Discrete Random Variables. Properties.	Exercises chapter 7.	Study chapter 7 and solve the corresponding exercises.
16	Chapter 7 (Cont.) . Discrete Random Variables. Expected value and variance.	Exercises chapter 7.	Study chapter 7 and solve the corresponding exercises.
17	Seminar 3 for group 1 . Statistical report	MS Excel for data analysis	Practice with MS Excel
18	Seminar 3 for group 2 . Statistical report	MS Excel for data analysis	Practice with MS Excel
	Chapter 7 (Cont.) . Binomial Distribution. Hypergeometric Distribution. The Poisson Probability Distribution.	Exercises chapter 7.	Study chapter 7 and solve the corresponding exercises. Chapter 8 materials reading.
19	Chapter 8 . Continuous Random Variables. Properties.	Exercises chapter 8.	Study chapter 8 and solve the corresponding exercises.
20	Chapter 8 . Continuous Random Variables. Expected value and variance.	Exercises chapter 8.	Study chapter 8 and solve the corresponding exercises.
21	Chapter 8 (Cont.) . The Uniform Distribution. The Normal Distribution. The Exponential Distribution	Exercises chapter 8.	Study chapter 8 and solve the corresponding exercises. Chapter 9 materials reading.
22	Chapter 9 . Bivariate Random Variables. Joint and Marginal distributions.	Exercises chapter 9.	Study chapter 9 and solve the corresponding exercises.
23	Chapter 9 (cont.) . Bivariate Random Variables. Independence. Moments.	Exercises chapter 9.	Study chapter 9 and solve the corresponding exercises.
24	Chapter 9 (cont.) . Bivariate Random Variables. Regression and correlation.	Exercises chapter 9.	Study chapter 9 and solve the corresponding exercises.
25	Chapter 9 (cont.) . Bivariate Random Variables. Regression and correlation.	Exercises chapter 9.	Study chapter 9 and solve the corresponding exercises.
26	Chapter 9 (cont.) . Jointly Distributed Random Variables.	Exercises chapter 9.	Study chapter 9 and solve the corresponding exercises.



27	Chapter 9 (cont.). Central Limit Theorem.	Exercises chapter 9.	Study chapter 9 and solve the corresponding exercises.
28	Seminar 4 for group 1.	Review exercises	
29	Seminar 4 for group 2.	Review exercises	



RESOURCES

BASIC BIBLIOGRAPHY

Newbold, P., Carlson, W.L. and Thorne, B. (2009) "Statistics for Business and Economics", International Edition, 7/E, Pearson Higher Education.
Downing, D. And Clark, J (2010). "Business Statistics", Barron's, 5th edition.

FURTHER READING

Any Excel manual as well as any basic statistics textbook. Some examples may include:

- Mc Clave, J.T., Sincich, T. and Mendenhall, W. (2008) "Statistics". International Edition", 11/E, Pearson Higher Education.
- Mc Clave, J.T., Benson, P.G. and Sincich, T. (2008) "Statistics for Business & Economics". International Edition, 10/E, Addison-Wesley.
- Levine, D.M. "Statistics for Managers Using Excel" (2010), International Edition, 6/E, Pearson Higher Education.
- Walters, I. "Excel Manual", Addison-Wesley, any edition.

OTHER RESOURCES

- E-learning platform: Campus Virtual
- Software: Microsoft – Excel.