Statistics I

Course Outline
Academic Semester: 2025/26

1. General

School	**School of Finance and Statistics**		
Academic Unit	**Department of Banking and Financial Management**		
Level of Studies	**Undergraduate**		
Course Code	**ΧΡΣΤΑ 01**		
Semester	**1st**		
Course Title	**Statistics I**		
Idependent Teaching Activities		Weekly Teaching Hours	Credits
	Lectures	**4**	**7,5**
Course Type	**General background**		
Prerequite Courses			
Language of Instruction and Examinations	**Greek**		
Is the course offered to Erasmus Students?	**Yes**		
Url (Eclass)	**https://eclass.unipi.gr/courses/XTD290/**		

2. Learning Outcomes

Learning Outcomes

This course constitutes an introduction to Descriptive Statistics and Probability Theory. The course targets to present the fundamental tools of these two branches of Statistics, which are applicable to the construction of numerous scientific models. The knowledge of these Statistical Analysis techniques constitutes a fundamental skill that allows us to quantify real-life economic and financial problems, explore them by analyzing their available numerical data, and finally reach reasonable conclusions and future decisions.

Upon successful completion of the course the student will be able to:

1. Has an understanding of the basic concepts of Descriptive Statistics and Probability Theory.
2. Has knowledge of the basic tools and techniques of Descriptive Statistics and Probability Theory.
3. He is able to use Descriptive Statistics and Probability Theory methodologies in the Financial Science course.

General Competences

- Decision making
- Group work
- Promote free, creative and inductive thinking

3. Syllabus

The basic sections that will be presented are:

- Empirical Univariate Frequency Distributions: Discrete and Continuous Distributions of Frequencies and Cumulative Frequencies – Graphic Presentation Methods of Qualitative and Quantitative Statistical Data –

Frequencies and Cumulative Frequencies Histogram

- Univariate Populations Parameters: Central Tendency Parameters – Central Position Parameters – Dispersion Measures – Data Trasformation with Encoding – Skewness Parameters – Frequency Distribution Moments – Kurtosis Parameters
- Fundamental Notions of Events: Random Experiment – Sample Space – Events – Calculus with Events
- Combinatorics: Permutations of ν Objects – Arrangements With or Without Repetition of ν Objects Taken μ – Combinations With or Without Repetition of ν Objects Taken μ – Newton's Binomial
- The Notion of Probability: Classic, Statistical and Axiomatic Definition of Probability – Properties of Probabilities – Conditional Probability – Independent Events – Total Probability Theorem – Bayes' Rule
- Univariate Random Variables: Discrete and Continuous Random Variable – Probability Function and Density Function – Expectation – Cumulative Probability Distribution Function – Variance – Moments of Various Orders – Median and Quantiles – Skewness and Kurtosis – Moment Generator, Generator and Characteristic Function
- Theoretical Distributions: Bernoulli – Binomial – Geometric – Poisson – Uniform – Exponential – Normal – Lognormal

4. Teaching and Learning Methods - Evaluation

Delivery	**Face-to-face**	
Use of Information and Communications Technology		
Teaching Methods	**Activity**	**Semester Workload**
	Lectures	52
	Independent Study	100
	Practice Exercises that focus on the application of methodologies	35,5
	Course Total	**187,5**
Student Performance Evaluation	Written final exam (100%) that includes development topics.	

5. Attached Bibliography

Suggested Bibliography

- Πέτρος Α. Κιόχος και Απόστολος Π. Κιόχος, Στατιστική για τις επιχειρήσεις και την οικονομία, Εκδόσεις Ελένη Κιόχου, Αθήνα 2015.
- Τάκης Παπαϊωάννου, Εισαγωγή στις Πιθανότητες, Εκδόσεις Σταμούλη, 2000.

Related Academic Journals