Statistics II

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 02**		
Semester	**2nd**		
Course Title	**Statistics II**		
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?	**No**		
Url (Eclass)	**https://eclass.unipi.gr/courses/XTD264/**		

2. Learning Outcomes

Learning Outcomes

The course is a continuation of the course Statistics I. It is a more advanced course in Statistics that aims to introduce students to more advanced concepts of Statistics and connect them with applications from Financial science.

After the necessary introduction of concepts and definitions from Probability Theory, the course is extended to Stochastic Processes. Introductory evidence from Statistical Inference is then presented.

After the successful completion of the course the students

- they will have understood the basic and crucial concepts of Probability Theory, Stochastic Processes, Inferential Statistics
- they will have understood the importance of Statistics as a tool that can serve Financial science
- they will have acquired the necessary background to attend advanced Econometrics courses.

General Competences

The course aims to acquire, on behalf of the student, skills such as:

- Decision-making
- Working independently
- Team work
- Working in an interdisciplinary environment
- Search for, analysis and synthesis of data and information

3. Syllabus

- Probability Theory
  - Independence between two events
  - Conditional probability
  - Generating functions
  - Bivariate random variables
- Stochastic Processes
  - Homogeneity/ Stationarity
  - Dependence
  - Special stochastic processes
- Estimation
  - Basic principles of estimators
  - Maximum Likelihood estimation method
  - Moments estimation method
- Statistical Hypothesis Testing
  - Error of Type I
  - Error of Type II
  - Statistical significance
  - Hypothesis testing for mean and variance of a single population

4. Teaching and Learning Methods - Evaluation

Delivery	**Face-to-face**
Use of Information and Communications Technology	**Learning process support through the e-class platform, use of e- mail, presentation of slides during lectures.**
Teaching Methods	**Activity** / **Semester Workload** Lectures: 52 Independent Study: 135,5 **Course Total: 187,5**
Student Performance Evaluation	The evaluation of the performance of the students of the course is carried out exclusively with the final written final exam, which indicatively may include: • Multiple choice questions with required (short) justification of the answer • True/False questions with required (short) justification of the answer • Answer to full-text problems The evaluation of the performance of the students of the course is done in the Greek language. The evaluation method and criteria are accessible by students through the e-class platform.

5. Attached Bibliography

Suggested Bibliography

- Πιττής, Ν. (2019). *Ενοποιημένες Ποσοτικές Μέθοδοι στα Οικονομικά*, Εκδόσεις Διπλογραφία ΙΚΕ.

- Papoulis Athanasios,Pillai S. Unnikrishna, Παναγόπουλος Αθανάσιος (επιμέλεια) (2019). *Πιθανότητες, τυχαίες μεταβλητές και στοχαστικές διαδικασίες*, Εκδόσεις Α. Τζιόλα & Υιοί ΑΕ

Related Academic Journals

- Journal of Applied Statistics
- Annals of Statistics
- Annals of Probability
- Communication in Statistics
- Methodology and Computing in Applied Probability
- Journal of American Statistical Association