

Course unit title:	Statistics I		
Course unit code:	AMAT112		
Type of course unit:	Required		
Level of course unit:	Bachelor (1st Cycle)		
Year of study:	3		
Semester when the unit is delivered:	5 (Fall)		
Number of ECTS credits allocated :	6		
Name of lecturer(s):	Dr Petroula Mavrikiou, Dr. Elena Tsolaki		
Learning outcomes of the course unit:	<ol style="list-style-type: none"> 1) Recognise and identify the kinds of data (discrete and continuous, ordinal and nominal). Construct, present and interpret frequency tables, cumulative distributions and graphs (histograms, bar charts, pie charts). Understand and explain the shape of various distributions (skewed, and symmetric). 2) Summarizing, calculate and interpret the measures of location (mean, mode, and median) and measures of dispersion (variance, standard deviation, range). Identify extreme values and outliers and explain their significance in business applications. 3) Describe and explain the idea of probability, experiments, events, outcomes and sample space and construct the sample space given an experiment. 4) Calculate probabilities and basic relationships of probability (union of events, complement of event, intersection of events, conditional probability). 5) Distinct the difference between mutually exclusive, mutually exhaustive and independent events. Apply these in business problems. 6) Recognize and construct and explain probability distribution tables. 7) Recognize, use, apply and explain the theory and their applications in Business problems concerning the probability distributions (Binomial, Poisson, Normal distribution). Use the tables of the standard normal distribution for solving problems and interpret correctly the answers. 8) Recognize, use, apply and explain the Normal approximation to the Binomial distribution 9) Calculate basic descriptive statistics using the Statistical Package IBM SPSS. 		
Mode of delivery:	Face-to-face		
Prerequisites:	None	Co-requisites:	None
Recommended optional program components:	None		
Course contents:	<ul style="list-style-type: none"> ● Tabular and graphical methods Statistics in practice. Kinds of data (discrete and continuous, ordinal and nominal). Different kinds of variables. Frequency tables, cumulative distribution tables and graphs (histograms, bar charts, pie charts). Shape of various data distributions (skewed, and symmetric). ● Descriptive statistics: Numerical methods Summarizing quantitative data. Measures of location (mean, mode, and median) and measures of dispersion (variance, standard deviation, range) for group data and raw data. Difference between measures of location and measures of dispersion and their significance. Extreme values, outliers and their importance. ● Introduction to Probability The idea of probability. Experiments, events, outcomes and sample space. Relative frequencies. Calculation of probabilities and basic relationships of probability (union of events, complement of event, intersection of events). Mutually excusive, mutually exhaustive and independent events. Conditional probability and multiplication law. ● Discrete Probability Distributions 		

	<p>Probability distribution tables. Theory and their applications in Business problems concerning the discrete probability distributions: Binomial, Poisson. Expected values and variance.</p> <ul style="list-style-type: none"> • Continuous Probability Distributions Theory and their applications in Business problems concerning the continuous probability distributions: Normal distribution. Standard normal distribution and table of the standard normal distribution. Applications in Business problems. Discrete versus Continuous distributions. • Normal Approximation to the Binomial Distribution Theory and applications on how to use the Normal approximation to problems that can be formulated with the Binomial Distribution • Introduction to SPSS Students are introduced to SPSS and they learn how to run basic commands.
Recommended and/or required reading:	Mavrikiou P., Understanding Essential Probability and Statistics: Some theory and applications (Instructor's notes)
Textbooks:	Anderson D.R., Sweeny D.J., Williams T.A., (2011) Statistics for Business and Economics , South Western
References:	Black K., (2012) Applied Business Statistics Making Better Business Decisions , Wiley
Planned learning activities and teaching methods:	The course is delivered to the students by means of lectures, and tutorials. Lecture notes are available through the e-learning platform of the University, and the instructor's webpage. Students are encouraged for class work, problem solving and discussion.
Assessment methods and criteria:	<ul style="list-style-type: none"> • Test 1 20% • Test 2 20% • Final Exam 60%
Language of instruction:	English
Work placement(s):	No