

<b>Course unit title:</b>	Statistics I
<b>Course unit code:</b>	MAT115
<b>Type of course unit: (Compulsory/optional)</b>	Compulsory
<b>Level of course unit: (First, second or third cycle)</b>	Bachelor (1st cycle)
<b>Year of study:</b>	1
<b>Semester when the unit is delivered:</b>	1
<b>Number of ECTS credits allocated:</b>	5
<b>Name of lecturer(s):</b>	TBA
<b>Learning outcomes of the course unit:</b>	
<p>Upon successful completion of this course students should be able to:</p> <ul style="list-style-type: none"> <li>• Recognize different types of data and choose between tabular and graphical methods to present qualitative and quantitative data</li> <li>• Construct, interpret, and use numerical measures of location and variability for the sample and population</li> <li>• Apply basic probability concepts in decision-making</li> <li>• Describe the properties of the Binomial, Poisson and Normal distributions, and apply the concepts of expected value and variance of a distribution to a variety of business applications</li> <li>• Describe the concept of sampling distributions and of the role of the Central Limit Theorem in inferential statistics</li> <li>• Construct and interpret interval estimates for a population mean and a population proportion</li> </ul>	
<b>Mode of delivery:</b>	Face- to- face
<b>Prerequisites and co-requisites:</b>	None
<b>Recommended optional program components:</b>	None
<p><b>Course Contents:</b>  <b>Objective:</b>  The purpose of this course is to introduce students to the methods for collecting, summarizing, and learning from data. Students will be able:</p> <p>(i) To Appreciate the significance of applications in statistics.</p>	

(ii) To Present basic statistical concepts and their use in descriptive and inferential statistics.

Emphasis is placed on active learning, exploration of genuine data, and use of technological tools specifically developed for demonstrating and investigating statistical concepts.

**Description:**

**Introduction:**

Role of statistics in fields: science, social sciences, business studies. Possible sources of error in statistical surveys. Types of data.

**Tabulation of Data:**

Raw data and frequency distributions. Intervals, limits and boundaries. Relative frequency. Graphical presentation of frequency distributions: Bar chart, pie chart, histogram, frequency polygon and frequency curve. Cumulative frequency and graphical presentation.

Statistical Measures of Central Tendency, Mean, Median, Mode for a simple set and a frequency distribution.

**Statistical Measures of Dispersion:**

Range, Average Deviation and Standard Deviation from the Mean. Variance. Coefficient of variation. Coefficient of skewness. Kyrptosis.

**Probability and Probability Distributions:**

Experiments and Events. Elementary Probability. Addition Rule for Mutually Exclusive Events. Multiplication Rule for independent events and dependent events. Random variables and probability distributions. Expected Value. Special probability distributions: Binomial, Poisson and Normal.

**Random Samples and their Statistics:**

Introduction to sampling concepts and techniques. Advantages and accuracy of sampling. Sampling. Distribution of Means: Mean and Standard Deviation. Central Limit Theorem.

Estimating means and percentages. Interval estimates. Estimating the population mean. Determination of sample size.

Use of technology both as a tool for analyzing data and as a vehicle through which to explore statistical concepts.

Recent developments and contemporary issues pertaining to the subject-matter of the course.

<p><b>Recommended or required reading:</b></p>	<p>R. D. Mason, D. A. Lind, &amp; W. G. Marchall AND ECONOMICS, Irwin/McGraw-Hill</p> <p>Sanders, Eng, Murph, STATISTICS. A FRESH APPROACH, McGraw Hill</p> <p>Rossman, A. J., Chance, B. L. &amp; Lock, R., WORKSHOP STATISTICS: DISCOVERY WITH DATA AND FATHOM. Key College Publishing.</p> <p>Erickson, T., DATA IN DEPTH, EXPLORING MATHEMATICS WITH FATHOM, Key Curriculum Press.</p> <p>Francis, M., ADVANCED LEVEL STATISTICS Stanley Thornes Publishers</p> <p>Hamburg, M., BASIC STATISTICS, Harcourt Brace Jovanovick</p> <p>Iman, R. &amp; Conover, W., MODERN BUSINESS STATISTICS, Willey</p> <p>Naiman, A., Zierkel, G., Rosenfield, R., UNDERSTANDING STATISTICS, McGraw-Hill</p> <p>Johnson/Bhattacharya, STATISTICS, Wiley</p> <p>Strait, P., A FIRST COURSE IN PROBABILITY &amp; STATISTICS WITH APPLICATIONS Harcourt Brace Jovanovick</p>						
<p><b>Planned learning activities and teaching methods:</b></p>	<table border="1" style="width: 100%;"> <tr> <td style="width: 60%;">Class Instruction</td> <td style="width: 40%; text-align: center;">42 Hours</td> </tr> <tr> <td>Consultations</td> <td style="text-align: center;">15 Hours</td> </tr> </table>	Class Instruction	42 Hours	Consultations	15 Hours		
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<p><b>Assessment methods and criteria:</b></p>	<table border="1" style="width: 100%;"> <tr> <td style="width: 60%;">Examinations</td> <td style="width: 40%; text-align: center;">95%</td> </tr> <tr> <td>Class participation</td> <td style="text-align: center;">5%</td> </tr> <tr> <td></td> <td style="text-align: center;">100%</td> </tr> </table>	Examinations	95%	Class participation	5%		100%
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	100%						
<p><b>Language of instruction:</b></p>	<p>English</p>						
<p><b>Work Placement(s):</b></p>	<p>No</p>						

<b>Place of Teaching:</b>	Regular Classroom European University Cyprus, Nicosia
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