



Level 4 Cert in Statistics for Data Science (949) 156 Credits

Unit: Descriptive vs Inferential Statistics	Guided Learning Hours: 260
Exam Paper No.: 2	Number of Credits: 26
Prerequisites: Mathematical terms and Excel knowledge.	Corequisites: A pass or higher in Certificate in Excel or equivalence.
Aim: Descriptive statistics help summarise data whereas inferential statistics helps form judgements. Three main ways to summarise data are distribution, average of values and variability. Inferential statistics enable making conclusions and predictions; and include hypothesis testing, confidence intervals and comparisons tests. Learners have to understand descriptive statistics to organise, describe and summarise data then move on to inferential statistics, where they take sample data and use it to make inference (draw conclusion of the population). Probability can then be used to determine confidence interval that the conclusion made is correct. Learner will learn to identify if a given sample data falls on the realm of descriptive or inferential. Learners also cover different types of data, scales of data measurement (different ways in which a set of data can be measured) and different statistical terms Parameter vs Statistic and Population vs Sample.	
Required Materials: Recommended Learning Resources.	Supplementary Materials: Lecture notes and tutor extra reading recommendations.
Special Requirements: The unit requires a combination of lectures, demonstrations, discussions, and hands-on labs.	
Intended Learning Outcomes: 1. Understand the two main categories of statistics: descriptive and inferential; used in analysis, interpretation, and presentation of data. 2. Understand the differences between core data types: Quantitative vs Qualitative; how they differ in statistical analysis. 3. Understand the different statistical numbers ranging from Parameter vs Statistic and Population vs Sample; how they are applied and measured in statistics. 4. Understand the four categories: nominal, ordinal, interval, and ratio in determining mathematical operations and statistical analyses.	Assessment Criteria: 1.1 Define statistics. 1.2 Describe descriptive statistics. 1.3 Describe inferential statistics. 1.4 Be able to compare and contrast descriptive vs inferential. 1.5 Explain differences between mathematics and statistics. 2.1 Be able to identify different types of data. 2.2 Describe types of quantitative data. 2.3 Describe types of qualitative data. 2.4 Demonstrate methods used collecting quantitative and qualitative data. 2.5 Be able to process numerical (quantitative) and non-numerical (qualitative) data. 3.1 Be able to differentiate Parameter vs Statistic and Population vs Sample. 3.2 Describe Parameter. 3.3 Describe Sample. 3.4 Describe Population. 3.5 Describe Statistics. 4.1 Be able to describe different ways in which a set of data can be measured. 4.2 Describe characteristics of Nominal scale data. 4.3 Be able to demonstrate Ordinal scale data. 4.4 Describe characteristics of Interval scale data. 4.5 Define Ratio scale data.
Methods of Evaluation: A 2-hour written examination paper with Section A and Section B. Section A has 40 multiple choice questions. Section B has three essay questions, each carrying 20 marks. Candidates are required to answer all questions. Candidates also undertake project/coursework in Descriptive vs Inferential Statistics with a weighting of 100%.	

Recommended Learning Resources: Descriptive vs Inferential Statistics

Text Books	• Statistical Inference by George Casella & Roger Berger. ISBN-13 : 978-1032593036 • Descriptive and Inferential Statistics by Herman J. Loether. ISBN-13 : 978-0205140190 • Descriptive and Inferential Statistics by N.M. Downie & A.R. Starry. ISBN-10 : 0060417218
Study Manuals 	BCE produced study packs
CD ROM 	Power-point slides
Software 	Excel

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