COURSE INFORMATION SHEET

INTRODUCTORY COURSE ON STATISTICS: DATA VISUALIZATION AND ANALYSIS (USING R SOFTWARE)

MALTA UNIVERSITY CONSULTING

Days/Dates	November: 24th, 26th, 28th December 1st, 3rd, 5th, 10th
Time	17:30 – 20:00
Number of Hours	17.5 hours
On-site or Online	Online via Zoom
Fee	€228 / €218 UM students
Deadline	17th November 2025
Aims/ Objectives	The aim is to introduce statistical analysis to users with a non-mathematical background. The software that will be used in this course is R. R is a widely used software in the statistical community due to it being a very powerful tool, also available for free download. Apart from standard tasks, the open-source platform also allows one to freely download, install and use additional packages.
Who should attend	Individuals who are not familiar with basic statistical concepts or who have attended some basic course in Statistics but would like a refresher course to possibly learn more than was covered in previous training sessions.
Course content	**Session 1 - Dr Fiona Sammut** ✓ The Importance of Statistics and Data Analysis in Today's World. ✓ Getting Acquainted with R and the RStudio Interface. ✓ Importing, Creating and Sorting data in R. **Session 2 – Dr Fiona Sammut** ✓ An Introduction to Different Types of Variables. ✓ Descriptive Statistics - Mean, trimmed mean, median, standard deviation, variance, skewness and kurtosis. ✓ Data Exploration and Visualisation - looking at the most common statistical and visual techniques for preliminary data analysis. These include: Pie Charts, Bar Graphs, Histograms, Box-plots and Scatter plots. **Sessions 3-5 – Dr Monique Borg Inguanez / David Suda** **Basics of Sampling** ✓ Introducing notions such as population, sample, sample space and sample estimates ✓ Introducing important probability distributions ✓ Investigating the relationship between population and sample ✓ Calculating the margin of error ✓ Sample size calculation. **Tests for comparison of means:** ✓ one-sample, independent and paired samples t-test ✓ one-sample and paired Wilcoxon tests, Mann Whitney test ✓ ANOVA and repeated measures ANOVA ✓ Kruskal-Wallis and Friedman test ✓ Post-hoc tests.

For further information kindly contact Malta University Consulting Ltd, Campus Hub, Block 'O' Level 7, University of Malta, Msida.

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	Session 6 – Dr Monique Borg Inguanez ✓ Tests for comparison of proportions. ✓ Tests for the association: Chi-squared test. ✓ Tests for correlation: Pearson, Spearman and Kendall tests. ✓ Introduction to modelling. **Session 7 – Dr David Suda** ✓ Hands-on supervised experience with real data - visualisation and analysis.
Course Outcomes	By the end of this course, students will be more knowledgeable about: ✓ Different summary statistics and data visualization tools. ✓ Basics of statistics: such as random variables, sample space, sampling distributions and their importance. ✓ The different ways of conducting statistical inference: calculating point estimates, a margin of error and testing different hypotheses. ✓ The general idea behind statistical modelling techniques such as regression analysis. **Skills learnt:** ✓ Summarizing important properties and relationships in a data set. ✓ Identifying a proper sample size to use for a study and measuring the uncertainty within a sample. ✓ Using R software to conduct popular statistical tests such as t-tests, Chi-Squared tests of association between two categorical variables, correlation analysis, and their non-parametric equivalents.
Trainer/s Bio	**Dr Monique Borg Inguanez, Dr Fiona Sammut** and **Dr David Suda** are lecturers with the Department of Statistics & O.R. at the University of Malta, and have a long-standing experience, of more than 15 years, in teaching Statistics to students at different levels. Furthermore, they have also provided their statistical expertise to people in various sectors such as government authorities, medicine, market research, economics, and various scientific fields. Both lecturers obtained a BSc (Hons) in Maths & Statistics & O.R. from the University of Malta followed by an MSc in Statistics also from the University of Malta. Further studies were then pursued at renowned universities in the UK. Dr Monique Borg Inguanez obtained a PhD in Statistics from the University of Leeds, where she conducted research on partial least squares and related methods. Dr Fiona Sammut obtained a PhD in Statistics from the University of Warwick, where she conducted research on compositional data analysis. Dr David Suda obtained a PhD in Statistics from the University of Lancaster, where he conducted research on statistical inference of diffusion processes.
Certification	Upon successfully completing the course with 80% attendance, attendees will receive a Certificate of Attendance from Malta University Consulting Ltd.