H8BDANAL: Business Data Analysis

Module Code:	H8BDANAL
Long Title	Business Data Analysis APPROVED
Title	Business Data Analysis
Module Level:	LEVEL 8
EQF Level:	6
EHEA Level:	First Cycle
Credits:	10
Module Coordinator:	Simon Caton
Module Author:	EUGENE O'LOUGHLIN
Departments:	School of Computing
Specifications of the qualifications and experience required of staff	

Learning Outcomes	
On successful completion of this module the learner will be able to:	
#	**Learning Outcome Description**
LO1	Evaluate and choose between different options for inference statistics so that a motivated decision between two or more options can be made
LO2	Develop a strategy for a statistical analysis when presented with a real- world problem from business
LO3	Apply methodologies used in prediction (forecasting), and interpret the results
LO4	Use and compare software tools for business data analysis (e.g. SPSS, R, Excel, SAS)
LO5	Critically evaluate statistical applications in a particular discipline using advanced topics (Power analysis, sample size calculation, cluster and factor analysis)

Dependencies
Module Recommendations
No recommendations listed
Co-requisite Modules
No Co-requisite modules listed
Entry requirements

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Module Content & Assessment

Indicative Content

Descriptive Statistics/Data Presentation
Arrangement, pre-processing and representation of data Measures of central tendency (mode, median, mean) Normal distributions Measures of dispersion (range, variance, standard deviation) Scales of Variables Statistical graphics figures (e.g., box-plot, histograms)

Probability
Sample points, sample space, events Calculating probabilities Venn diagrams Combinatorial mathematics

Tests for Normality
Normal distributions Q-Q/P-P Plots Shapiro-Wilk Test Kolmogorov-Smirnov Test

Inferential Statistics Parametric Tests
Single sample z test Students t-Test (independent/dependent samples) One-way ANOVA Two-Way ANOVA Post-hoc Tests

Inferential Statistics Non-parametric Tests
Mann-Whitney Test Wilcoxon Sign-Rank Test Kruskal-Wallis Test Chi-Square Test

Reporting Results
Stating Hypotheses Making decisions p values Visuals (eg Boxplots)

Prediction Testing
Simple Linear Regression Multiple Linear Regression Correlation Smoothing and filtering of data

Time Series Analysis
Smoothing data Weighted averages Exponential smoothing ARIMA (Seasonal & Non-seasonal)

Meaningful data reports
Sample size Condence intervals Effect size Power Cohens d

Factor Analysis
Data reduction Cross correlation Principal Component Analysis Eigenvalues Clusters

Assessment Breakdown	%
Coursework	50.00%
End of Module Assessment	50.00%

Assessments

Full Time

Coursework

Assessment Type:	Continuous Assessment	% of total:	25
Assessment Date:	n/a	Outcome addressed:	1,2
Non-Marked:	No		

Assessment Description:
In this assignment learners will be required to analyse a data set of their own choosing (see sample assessment below).

Assessment Type:	Continuous Assessment	% of total:	25
Assessment Date:	n/a	Outcome addressed:	4
Non-Marked:	No		

Assessment Description:
In this assignment, leaners will be required to use non-parametric tests on data that are not normally distributed (eg census data). See sample assessment below.

End of Module Assessment

Assessment Type:	Terminal Exam	% of total:	50
Assessment Date:	End-of-Semester	Outcome addressed:	1,2
Non-Marked:	No		

Assessment Description:
The examination will be a minimum of two hours in duration and may in- clude a mix of: short answer questions, vignettes, essay based questions and case study based questions. Marks will be awarded based on clarity, appropriate structure, relevant examples, depth of topic knowledge, and evidence of outside core text reading.

No Workplace Assessment

Reassessment Requirement

Repeat examination
Reassessment of this module will consist of a repeat examination. It is possible that there will also be a requirement to be reassessed in a coursework element.

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Module Workload				
Module Target Workload Hours 0 Hours				
Workload: Part Time				
Workload Type	*Workload Description*	*Hours*	*Frequency*	*Average Weekly Learner Workload*
Lecture	No Description	24	Every Week	24.00
Tutorial	No Description	24	Every Week	24.00
Independent Learning	No Description	202	Every Week	202.00
			Total Weekly Contact Hours	48.00

Module Resources

Recommended Book Resources

Pallant, Julie.. (2016), SPSS Survival Manual., Open University Press, [ISBN: 033526154X.].

Salkind, Neil J. (2016), Statistics for People Who (Think They) Hate Statistics: Using Microsoft Excel 2016., SAGE Publications, Inc, [ISBN: 1483374084.].

Andy Field.. Discovering statistics using IBM SPSS statistics, Thousand Oaks; Sage Publications, [ISBN: 1446249182].

Supplementary Book Resources

McClave, Terry T. Sincich James T. (2013), Statistics., Pearson Education Limited, [ISBN: 1292022655].

Cortinhas, Carlos and Ken Black. (2012), Statistics for Business and Economics., John Wiley & Sons, [ISBN: 1119993660].

Wayne L. Winston Ph.D.. Microsoft Excel 2010, Microsoft Press, p.720, [ISBN: 0735643369].

Bill Jelen. PowerPivot for the Data Analyst: Microsoft Excel 2010, Que, p.576, [ISBN: 0789743159].

Timothy C. Urdan. Statistics in Plain English, Third Edition, Taylor and Francis, p.232, [ISBN: 041587291X.].

Peter Dalgaard. Introductory Statistics with R, Springer, p.364, [ISBN: 9780387790534].

Maindonald, J H. Using R for Data Analysis and Graphics Introduction, Code and Commentary.

This module does not have any article/paper resources

This module does not have any other resources

Discussion Note: