A8BDA: Business Data Analysis

Module Code:	A8BDA
Long Title	Business Data Analysis APPROVED
Title	Business Data Analysis
Module Level:	LEVEL 8
EQF Level:	6
EHEA Level:	First Cycle
Credits:	5
Module Coordinator:	EUGENE O'LOUGHLIN
Module Author:	Madita Feldberger
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	Describe and summarise quantitative data using a range of descriptive statistics and visuals
LO2	Demonstrate and apply the concepts of probability and hypothesis testing
LO3	Distinguish between and apply statistical methods for analysing financial data
LO4	Apply and interpret prediction and forecasting techniques to make current decisions for forecasting and planning
LO5	Develop analytical skills using software tools for business data analysis (e.g. SPSS, Excel, Tableau)

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	
Statistics and Data Thinking Types of data, Collecting data, Sampling	
Describing and Charting Data Sets Arrangement, pre-processing and representation of data, Measures of central tendency (mode, median, mean), Measures of dispersion (range, variance, standard deviation) Statistical graphics & visuals (e.g., box-plot, histograms)	
Introduction to Probability Sample points, sample space, events, Calculating probabilities, Venn diagrams, Combinatorial mathematics	
Hypothesis Testing Null/Alternative Hypothesis, Single sample z test, One-tail tests, Two-tail tests	
Independent (unpaired) Samples Test Test for Equality of Variance, Student's t-Test (independent samples)	
Dependent (paired) Samples Test Student's t-Test (dependent samples)	
One-Way Analysis of Variance (ANOVA) One-way ANOVA, Post Hoc tests	
Goodness of Fit Chi squared (χ^2) test for independence, Observed vs Expected values	
Time Series Analysis Simple Moving Average, Weighted Moving Average, Exponential Smoothing, Hot Winters Method	
Correlation Pearson's correlation coefficient, Scatter Diagrams	
Linear Regression Prediction, Simple Linear Regression, Multiple Linear Regression	
Principal Component Analysis Dimension reduction, Defining clusters, Multivariate analysis	

Assessment Breakdown	%
Coursework	100.00%

Assessments

Full Time

Coursework

Assessment Type:	Formative Assessment	**% of total:**	Non-Marked
Assessment Date:	n/a	**Outcome addressed:**	1,2,3,4,5
Non-Marked:	Yes		

Assessment Description:
Formative assessment will be included by the provision of exercises and short answer questions during weekly tutorials. Feedback will be provided individually or as a group in written and/or oral format, or on-line through Moodle. In addition, in class discussions will be undertaken as part of the practical approach to learning. Apprentices will be encouraged to share exercises for peer review – in particular for data visualizations.

Assessment Type:	CA 1 (0380)	**% of total:**	25
Assessment Date:	n/a	**Outcome addressed:**	1,2,5
Non-Marked:	No		

Assessment Description:
The first test will assess apprentices' knowledge and understanding of descriptive statistics and basic probability.

Assessment Type:	CA 2 (0390)	**% of total:**	25
Assessment Date:	n/a	**Outcome addressed:**	2,3,5
Non-Marked:	No		

Assessment Description:
The second test will assess apprentices' knowledge and understanding of setting null and alternative hypotheses for single sample and two sample statistical tests. Apprentices will also be required in the test to calculate test statistics (z and t), and to report on results

Assessment Type:	CA 3 (0420)	**% of total:**	25
Assessment Date:	n/a	**Outcome addressed:**	3,5
Non-Marked:	No		

Assessment Description:
The third test will assess apprentices' knowledge and understanding of three statistical tests (ANOVA, Chi-Square, and Time Series Analysis).

Assessment Type:	Continuous Assessment (0200)	**% of total:**	25
Assessment Date:	n/a	**Outcome addressed:**	4,5
Non-Marked:	No		

Assessment Description:
The final test will assess apprentices' knowledge and understanding of Linear Regression and Principal Component Analysis.

No End of Module Assessment

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

Module Resources

Recommended Book Resources

Neil J. Salkind. (2014), Statistics for People Who (Think They) Hate Statistics, 4th Edition. Sage Publications, Inc Thousand Oaks.

Cortinhas, C. and Black, K.. (2012), Statistics for Business and Economics, 1st European Edition. John Wiley & Sons.

McClave, James & Sincich, Terry. (2012), 12th edition, Pearson.

Supplementary Book Resources

Andy Field. (2013), Discovering Statistics Using IBM SPSS Statistics, 4th Edition. Sage Publications Inc London.

McClave, James T., Benson, George & Sincich, Terry. (2013), Statistics for Business and Economics, 12th Edition. Prentice Hall.

Frederick L. Coolidge,. (2012), Statistics, Sage Publications.

Wayne L. Winston. (2014), Microsoft Excel 2013, Microsoft Press.

Timothy C. Urdan. (2016), Statistics in Plain English, 4th Ed.

This module does not have any article/paper resources

Other Resources

**[Website], Bloomberg,
https://www.bloomberg.com/europe**

**[Website], Yahoo! Finance,
https://uk.finance.yahoo.com**

**[Website], Google Finance,
https://www.google.com/finance**

**[Website], Central Statistics Office,
http://www.cso.ie**

**[Website], Eurostat,
http://ec.europa.eu/eurostat**

**[Website], Data.gov,
https://www.data.gov**

**[Website], Amazon Web Services Public Datasets,
https://aws.amazon.com/datasets**

**[Website], DataMarket,
https://datamarket.com**

**[Website], The Pew Research Centre,
http://www.pewresearch.org/data**

**[Website], The Fama-French Data Library,
http://mba.tuck.dartmouth.edu/pages/facu lty/ken.french/data_library.html**

**[Website], Federal Reserve Economic Data,
https://fred.stlouisfed.org**

Discussion Note: